

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



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Emergency Disaster Relief Program.

R.18-03-011
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**AT&T'S OPENING COMMENTS ON THE
ASSIGNED COMMISSIONER'S RULING AND PROPOSAL**

[PUBLIC VERSION]

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AT&T¹ hereby provides its opening comments in response to the Assigned Commissioner's Ruling and Proposal regarding resiliency issued on March 6, 2020 in this proceeding (hereinafter, "Assigned Commissioner's Ruling" or "Ruling"). The Ruling requests comments on the Assigned Commissioner's Proposals regarding Communications Service Provider Resiliency and Disaster Response Requirements (hereinafter, "Resiliency Proposal").

I. INTRODUCTION

Resilient communications networks are vital to the public safety of Californians and to California's ability to respond to disasters. AT&T has long been a leader in providing resilient communications service, and continually improves its emergency response capabilities. We appreciate the opportunity to address this important issue, explain our latest emergency response initiatives, and respond to the Assigned Commissioner's Ruling and the Resiliency Proposal.

Over many decades, AT&T has demonstrated a commitment to network resiliency, disaster preparation, and recovery initiatives. As a few examples, AT&T has invested over \$600 million in specialized network recovery assets and 145,000 hours in training and exercises for its Network Disaster Recovery ("NDR") program, which began in 1991. AT&T was selected as the private partner working with the First Responder Network Authority ("FirstNet"), and regularly coordinates with, and prioritizes the needs of, public safety officials. And AT&T was the first communications provider to be certified under the Department of Homeland Security's Private Sector Preparedness ("PS-PrepTM") Program.

¹ Pacific Bell Telephone Company d/b/a AT&T California (U 1001 C) and its affiliates AT&T Corp. (U 5002 C); Teleport Communications America, LLC (U 5454 C); and AT&T Mobility LLC (New Cingular Wireless PCS, LLC (U 3060 C); AT&T Mobility Wireless Operations Holdings, Inc. (U 3021 C); and Santa Barbara Cellular Systems, Ltd. (U 3015 C)) are collectively referred to hereinafter as "AT&T."

Importantly, AT&T's commitment to emergency preparation and disaster response is ongoing. In response to the unprecedented October 2019 power shutoffs, AT&T has embarked on an extensive backup power enhancement plan, increasing its normal capital investment by over \$100 million.² This investment will substantially improve AT&T's network resiliency. Our wireless plan will,

- Cover approximately 97% of the California population with wireless service backed up by fixed generators in time for the peak of the 2020 fire season; and,
- Cover over 99% of the California population with service backed by fixed generators when complete.

In addition to this capital investment plan, AT&T's resiliency will be further improved by:

- Expanding public notification;
- Deepening First Responder relationships and coordination; and
- Building on industry collaboration.

Further, AT&T supports several of the additional improvements contained in the Resiliency Proposal advanced by President Batjer. As discussed in detail below:

- AT&T will submit its Business Continuity Preparedness Handbook, which covers incidents requiring backup power, to the Commission annually.³
- AT&T will share with the Commission and relevant emergency responders its Business Continuity and Emergency Management plan, which outlines the strategies and procedures utilized to respond to emergency and other events that adversely impact AT&T's network.⁴
- AT&T will provide critical facility location information to the Commission and (in aggregated form, when consolidated with all providers) to state and local emergency responders upon verification of procedural and substantive protections equivalent to federal confidentiality statutes and rules.⁵

² In addition, our plan involves \$200 million in investments in new macro cell sites that will have fixed generators.

³ See, Section III.E., below.

⁴ See, Section III.J., below.

⁵ See, Section III.H., below.

- AT&T is willing to report network impacts by geographic area down to the ZIP code with the Commission and Cal OES if allowed a reasonable implementation period.⁶
- AT&T will continue to share its emergency contact information and commit to update it annually on a form prescribed by the Communications Division Director.⁷
- AT&T will disseminate timely information to the public and to public safety officials in alignment with legislative and Cal OES mandates.⁸

AT&T will implement these actions proposed by President Batjer as early as possible before the 2020 peak wildfire season.

With these comments and the accompanying declarations, AT&T endeavors to provide the Commission with extensive information regarding AT&T's emergency response capabilities, and the challenges raised by aspects of the Resiliency Proposal. The Declaration of Jeff Luong provides details regarding AT&T's backup power capabilities and its plans moving forward. Daniel De Leo addresses clean energy options for backup power. Kristopher Kirkwood and Orlando Echeverria-Calvet discuss redundancy and hardening issues, for wireless and wireline networks, respectively. Christopher Salkeld, Brett Magura and Alice Perez each provide their perspectives on emergency preparedness and response as well as AT&T's work with emergency response professionals. Finally, Peter White explains the details of Wireless Emergency Alerts ("WEAs").

As Mr. Luong details, AT&T has extensive backup power capabilities throughout its networks, especially at its critical central offices and mobile switching centers. But increasing some backup power capabilities raises significant challenges. For example, AT&T's wireless network has over *****BEGIN CONFIDENTIAL** ██████████ **END CONFIDENTIAL***** macro cell

⁶ See, Section III.J., below.

⁷ See, Section III.J., below.

⁸ See, Section III.J., below.

sites, many of which face severe space, lease and legal restrictions. In its wireline network, AT&T has over *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL***** remote terminals and Video Ready Access Devices (“VRADs”), the vast majority of which are placed in public sidewalks that allow limited, or no, practical ability to expand existing facilities. In all, AT&T estimates that the cost of providing 72 hour on-site backup power⁹ throughout its networks—if it even could be accomplished, which for a variety of practical reasons, it cannot—would cost \$4.9 billion and take more than ten years. There are more cost-effective ways to achieve the maximum public safety benefit. These details are expanded upon below and in the attached declarations.

We urge the Commission to consider this data in the same spirit it is dedicating to climate change in the Climate Change Adaptation Proceeding.¹⁰ In that proceeding, the Commission is carefully considering an extensive record on climate change, adaptation and resiliency for electric and gas utilities.¹¹ There the Commission has conducted a rigorous analysis of risk and is considering whether certain adaptation strategies are justified by cost-benefit analysis.¹² The important issues raised in this proceeding merit the same level of rigor and analysis.

On the foundational issue of defining “resiliency,” AT&T urges that the Commission adopt an interim definition based on the work done in the Climate Change Adaptation Proceeding. Further consideration is merited as to whether that definition, which was adopted

⁹ AT&T interprets the requirement to provide 72 hours of on-site backup power to require that the backup power be operational for 72 consecutive hours without any intervention, such as re-fueling, battery replacement or portable deployment. If the Commission intended this standard to be interpreted differently, the challenges and costs would vary accordingly.

¹⁰ *OIR to Consider Strategies and Guidance for Climate Change Adaptation*, Rulemaking (R.) 18-04-019.

¹¹ The Commission will be turning to the communications industry and water utilities in the next phases of that proceeding.

¹² The Commission also stated that the measures utilities take for climate change adaptation should be “cost-effective to maintain affordability, and effective at preserving reliability, resilience and safety.” D.19-10-054 at 7.

with a focus on electric and gas utilities, should apply on a permanent basis to communications companies. Recognizing that the approaching 2020 peak fire season requires immediate action, AT&T recommends that the Commission adopt an interim definition in this proceeding based on the Climate Change Adaptation definition. Importantly, the October 2019 power shutoffs should not be relied upon too heavily as a benchmark for evaluating backup power performance. Those events were unprecedented outliers,¹³ and the electric companies have committed to reduce their duration and geographic reach.¹⁴

Resiliency is an important and complex issue, as these comments and the accompanying declarations explain. This complexity is compounded by the various concurrent efforts underway to address resiliency, both at the Legislature and other state agencies. AT&T would appreciate the opportunity to bring the professionals who design, build and maintain its networks to the table to meet with Commissioners and their Staff and discuss the most effective path forward in this evolving landscape. Formal or informal workshops could significantly advance that discussion within a reasonable timeframe. AT&T hopes this filing, and the filings of other providers, can provide a factual foundation for collaborative efforts to identify the most effective measures to improve communications resiliency.

¹³ See, generally, *Assigned Commissioner and Assigned Administrative Law Judge's Ruling Directing Pacific Gas and Electric Company to Show Cause Why It Should Not Be Sanctioned by the Commission for Violation of Public Utilities Code Sections 451 Commission Decision 19-05-042 and Resolution ESRB-8 (R.18-12-005)* (Nov. 12, 2019). Moreover, the electric companies are required by law to provide adequate and safe service to their customers. See Pub. Util. Code § 451. Electric customers should not be required to make massive investments to compensate for any failure by the electric companies to meet their legal obligations.

¹⁴ See Section III.D., below.

II. THRESHOLD LEGAL ISSUES

As a threshold matter, however, AT&T respectfully notes that the Ruling proposes a number of requirements that the Commission does not have the legal authority to impose.¹⁵ In particular, the proposal that “[a]ll Providers shall have on-site emergency backup power to support all essential communications equipment”¹⁶ is preempted by 47 U.S.C. § 332(c)(3)(A)’s express prohibition of state law regulating market entry of wireless carriers, to the extent the proposal concerns the operation of cellular towers and other infrastructure and conditions of service of wireless service providers and erects obstacles to the provision of wireless services.¹⁷ Section 332(c)(3)(A) would also preempt the imposition of redundancy requirements on wireless providers as contemplated by the Resiliency Proposal at 3.¹⁸ This proposed state requirement would also second-guess the FCC’s existing decisions concerning wireless carriers’ backup power obligation, and § 332(c)(3)(A) also forecloses such regulation.¹⁹ Imposition of a backup

¹⁵ Many are similar to the requirements proposed by PAO last year. In response, AT&T explained why PAO’s proposed requirements exceeded the Commission’s jurisdiction, and AT&T incorporates those objections by reference here. See, *AT&T’s Opposition to Motion by the Public Advocates Office for an Immediate Order* (“AT&T Opposition to PAO Motion”), filed June 19, 2019, Rulemaking (R.) 18-03-011, *mimeo*, at 42-62.

¹⁶ *Assigned Commissioner Proposals, Communications Service Provider Resiliency and Disaster Response Requirements* (“Resiliency Proposal”) at 3.

¹⁷ See, AT&T Opposition to PAO Motion at 52-57

¹⁸ Allowing the States to impose requirements concerning “the number, placement and operation of . . . cellular towers and other infrastructure” would force wireless carriers to do more than the FCC requires; § 332(c)(3)(A) “specifically insulates [such] FCC decisions from state court review.” *Bastien v. AT&T Wireless Servs., Inc.*, 205 F.3d 983, 989 (7th Cir. 2000). In addition, as the Ninth Circuit observed in *Telesaurus VPC, LLC v. Power*, 623 F.3d 998, 1008-1009 (9th Cir. 2010), state requirements that wireless carriers increase route diversity and/or plan for secondary routes would substitute the State’s judgment for the FCC’s. Section 332(c)(3)(A) does not permit such state action.

¹⁹ The FCC affirmatively has declined to adopt network backup power regulations for wireless carriers, instead deferring to a voluntary industry framework. See *CTIA-The Wireless Ass’n v. FCC*, 530 F.3d 984, 986-987 (D.C. Cir. 2008), and *Resiliency of Mobile Wireless Communications Networks*, 31 FCC Rcd 13745, ¶¶ 1-2 (2016). The FCC’s decision not to make effective contemplated backup power regulations and its determination that voluntary standards are preferable to federal regulation are an exercise of its judgment that has preemptive effect on state resiliency regulations that would purport to reexamine or overrule that determination. See *United States v. Locke*, 529 U.S. 89, 110 (2000) (the “relevant inquiry for

power requirement so that all customers may “access *web browsing* for emergency notices”²⁰ (emphasis added) via wireless broadband is also preempted by Section 332(c)(3)(A) which prohibits state regulation of the entry and rates of private mobile services such as wireless broadband.²¹ The proposed requirement vis-à-vis internet access is further preempted because it would unlawfully impose state regulation of broadband service, a well-established interstate information service.²² Finally, to the extent that the Ruling²³ proposes requirements on “providers of Voice Over Internet Protocol [VoIP],”²⁴ such regulation is preempted by the Communications Act, because it contravenes the longstanding federal policy of nonregulation for information services.²⁵ AT&T raises these issues for the purpose of providing clarity on the jurisdictional nature of different solutions but is committed to developing solutions to address

. . . pre-emption” is “whether the [agency] has promulgated its own requirement on the subject or has decided that no such requirement should be imposed at all”) ; *see also Telesaurus VPC, LLC v. Power*, 623 F.3d 998, 1008 (9th Cir. 2010).

²⁰ Resiliency Proposal at 3 (emphasis added).

²¹ *See*, Declaratory Ruling, Report and Order, and Order, *Restoring Internet Freedom*, 33 FCC Rcd 311, App’x B, ¶¶ 2, 423 (2018), *petitions for review denied in pertinent part, Mozilla Corp. v. FCC*, Nos. 18-1051 et al., 2019 WL 4777860, at *17 (D.C. Cir. Oct. 1, 2019) (per curiam) (upholding FCC’s classification of broadband as a “private mobile service”).

²² *See, U.S. Telecom Ass’n v. FCC*, 825 F.3d 674, 730-31 (D.C. Cir. 2016) (approving the FCC’s conclusion that “broadband service falls within its jurisdiction as an interstate service”); *MediaOne Grp., Inc. v. County of Henrico*, 257 F.3d 356, 365 (4th Cir. 2001) (the FCC “has jurisdiction over all interstate communications services, including high-speed broadband services”). *Nat’l Ass’n of Regulatory Util. Comm’rs v. FCC*, 746 F.2d 1492, 1498 (D.C. Cir. 1984) (citing 47 U.S.C. § 151). *See W. Union Tel. Co. v. Boegli*, 251 U.S. 315, 316 (1920) (holding that statutory provisions bringing telegraph companies under the Act to Regulate Commerce and placing them under the exclusive control of the Interstate Commerce Commission “so clearly establish the purpose of Congress to subject such companies to a uniform national rule as to cause it to be certain that there was no room thereafter for the exercise by the several states of power to regulate”). *See also* AT&T Opposition to PAO Motion at 57-60.

²³ Ruling at 4.

²⁴ Ruling at 4.

²⁵ *Charter Advance Servs. (MN), LLC v. Lange*, 903 F.3d 715, 719 (8th Cir. 2018). *Id.* at 720. The FCC has also expressly acknowledged its “active role in VoIP regulation” and its interest in “allow[ing] the FCC to offer a solution that would apply nationwide and avoid the risk that VoIP providers will be subject to a patchwork of different and potentially conflicting rules across more than 50 different state and local jurisdictions.” Br. of FCC as Amicus Curiae in Supp. Plaintiffs-Appellees at 20, 26, *Charter Advanced Servs.*, 903 F.3d 715 (No. 17-2290), 2017 WL 4876900. *See also VoIP Coalition Application for Rehearing of Decision 19-08-025, Decision Adopting an Emergency Disaster Relief Program for Communications Service Provider Customers*, filed September 23, 2019, Rulemaking 18-03-011.

emergency communications during these unprecedented times by working collaboratively with the Commission.

III. PROPOSED REQUIREMENTS

As instructed by the Ruling, AT&T submits its comments in the same order in which they were presented in the Ruling.

A. Resiliency Proposal Section 1: Applicability of Requirements

For ease of reference, Section 1 of the Resiliency Proposal is set forth below:

1. **Applicability of Requirements: The Proposal states that the requirements shall be applicable to all companies owning, operating, or otherwise responsible for infrastructure that provides or otherwise carries 9-1-1, voice, text messages, or data.**
 - (a) **Is this definition of applicability reasonably tailored to ensure regulatory compliance over all communications service providers? Why or why not?**
 - (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?**

The Resiliency Proposal contains conflicting statements regarding the intended applicability of its requirements. While the Proposal acknowledges 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,”²⁶ it also purports to apply the proposed requirements to “all companies owning, operating, or otherwise responsible for infrastructure that provide or otherwise carry 9-1-1, voice, text messages, or data.”²⁷ In effect, the Resiliency Proposal would do exactly what it indicates there is “not a need” for – as presented, it would impose its requirements on every piece of equipment in every communications provider’s network.

²⁶ Resiliency Proposal at 2.

²⁷ Resiliency Proposal at 2.

If a more limited application of a backup power standard is intended, collaborative workshops would be an efficient and effective way to determine what portions of the communications networks warrant additional backup power, under what circumstances and to provide what minimum level of services. Workshops often prove helpful in addressing highly technical matters and have been used successfully in many emergency response contexts, including development of the National Institute of Standards and Technology (“NIST”) security framework.

B. Resiliency Proposal Section 2: Alternative Applicability

Section 2 of the Resiliency Proposal sets forth an applicability alternative:

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

AT&T currently has no comment on this alternative.

C. Resiliency Proposal Section 3: Definition of Resiliency

In Section 3, the Resiliency Proposal asks for comment on defining “resiliency:”

- 3. Definition of Resiliency: The Proposal defines resiliency as the ability to recover from or adjust easily to adversity or change and is achieved by Providers through utilizing a variety of strategies. The proposal lists an array of strategies and provides definitions for each one.**
 - (a) Please provide comments on the definition of resiliency in the context of communications service resiliency strategies and their definitions.**
 - (b) Please comment on any recommendations or modifications that should be considered to the proposed resiliency definition and the resiliency strategies. Please provide a complete discussion for any proposed recommendations or modifications.**

AT&T Has Long Been Committed to Effective Resiliency

AT&T has long been committed to effective network resiliency, disaster preparation, and recovery initiatives to sustain and support communications during and after emergencies and disasters. From provisioning the first 911 call to deployment of FirstNet, AT&T has a storied history of mobilizing its considerable expertise and assets in support of public safety and First Responders. We do so, not only when disaster strikes, but on a daily basis.

As an example, AT&T has invested over \$600 million in specialized network recovery assets and 145,000 hours in training and exercises for its NDR program (which began in 1991) to ensure readiness and the ability to respond to the communications outages that typically accompany disasters.²⁸ As the private partner working with the First Responder Network Authority (“FirstNet”), AT&T regularly coordinates with public safety officials and makes their telecommunications needs our priority. And as the first telecommunications provider to be certified under the Department of Homeland Security’s Private Sector Preparedness (“PS-Prep™”) Program,²⁹ AT&T has repeatedly demonstrated its capabilities to plan for, respond to, and recover from disasters and other emergencies.

The Definition of Resiliency Must Recognize That, Because No Networks Are Failsafe, Recoverability Is the Most Important Feature of Resiliency.

It is not possible to build a communications network that is impervious to all disaster conditions. As a practical matter, maintaining continuous service under emergency circumstances often requires on-demand access to local facilities to repair/restore facilities,

²⁸ <https://www.corp.att.com/ndr/>

²⁹ Declaration of Chris Salkeld, para. 2

refuel generators, replenish other backup power sources, or place temporary facilities. If this access is impeded or prohibited for safety reasons, then the availability of services necessarily will be constrained until activities can occur. Afterwards, when it is safe for technicians to return to the location of network facilities, network repair/restoration efforts can begin. Expecting communications providers to meet a standard of resiliency that requires the ability to maintain service and withstand any and all disasters is an impossible standard, and one that would inevitably require communications providers to choose between risking the lives of AT&T technicians to perform restorative activities or noncompliance.

AT&T designs its network with various backup power solutions at multiple points throughout its networks, and we have a fleet of mobile generators with a dedicated team that deploys these as needed.³⁰ We have also committed to improve those capabilities.³¹ We have a response plan and protocols in place, and our goal is to maintain communications for our customers to the fullest extent possible when disaster events occur. We also employ a wide-array of cutting-edge technology to restore services as quickly as possible, including using drones, participating in Project Loon with Google to bring cellular service to the hardest hit parts of Puerto Rico following Hurricanes Irma and Maria, coordinating with local operator Vanu to bring cellular service to parts of Puerto Rico, and partnering with the U.S. Department of Energy's Argonne National Laboratory on a Climate Change Resiliency Project.³² These efforts build upon our long-standing efforts to better anticipate, prepare for, and adapt to emergencies,

³⁰ See Section III.D., below.

³¹ See Section III.D., below.

³² https://about.att.com/story/2019/climate_resiliency_project.html;
<file:///C:/Users/sb4714/AppData/Local/Temp/Final%20Public%20ATT%20Framework%20Response%20112618%20PS%20Docket%2011%2060.pdf> (at 2).

including those caused by climate change.³³

In times of crisis, AT&T's efforts go beyond its core communications responsibilities. For example, during recovery from Hurricane Maria, AT&T shared resources, such as bunk trailers and food supplies, with federal and local agencies in the field.³⁴ These experiences validated the wisdom of AT&T's approach: natural disasters and emergencies can impact networks and services in vastly different ways—adaptability is key. Affording providers flexibility to tailor their network resiliency and continuity of service plans to meet the unique needs of individual localities is thus critical to effective disaster response, and this is precisely what AT&T has done by investing in additional backup power capabilities to deal with the new reality of PSPS events.

AT&T Proposes that an Interim Definition of “Resiliency” be Adopted for Communications Providers at this Time.

The definition of “resiliency” and proposals for backup power, network diversity, and redundancy applicable to the communications industry are important issues that require careful and thorough consideration. The Resiliency Proposal's definition of “resiliency”—and its components of backup power, redundancy, hardening, temporary facilities, communications and coordination, and preparedness planning—seeks to establish an expectation that irrespective of the circumstances, communications network facilities will “withstand” disasters and “maintain service,” and will do so “easily.”³⁵ Aspects of this definition of “resiliency” are inconsistent with AT&T's experience and fail to reflect the nature and potential of what disasters can do to

³³ <https://www.bloomberg.com/news/articles/2019-03-27/at-t-beset-by-disaster-costs-turns-to-30-year-climate-modeling>

³⁴

<file:///C:/Users/sb4714/AppData/Local/Temp/Final%20Public%20ATT%20Framework%20Response%20112618%20PS%20Docket%2011%2060.pdf> (at 2).

³⁵ Resiliency Proposal at 3.

any network or infrastructure.

The process, schedule, and record established for this proceeding are insufficient to properly analyze and develop an appropriate definition of “resiliency.” However, there is a pressing need to address emergency preparedness in advance of the 2020 peak fire season. Balancing these factors, AT&T proposes that the Commission adopt an interim definition of “resiliency” in this proceeding that borrows from the extensive work done on the topic in the Climate Change Adaptation Proceeding, which established foundational definitions for energy utilities.

The Climate Change Adaptation Proceeding considered extensive work by the Commission staff and work groups, robust discussion among utilities and other stakeholders, and investigation of research by third parties on climate change adaptation. Decision 19-10-054 from that proceeding acknowledges the importance of “using strategic and data-driven consideration of actual or expected climatic impacts” to develop adjustments in utility systems.³⁶ Importantly, “strategic” solutions should necessarily consider “cost-benefit analysis.”³⁷ The Commission wisely recognizes that “[g]iven finite resources, utilities would be imprudent if they failed to consider costs in their construction and operations planning.”³⁸ The Commission defined “resilience” for energy utilities in this context as “the achieved outcome of an adaptation strategy”³⁹ and “resilient” as the ability “to withstand extreme and incremental events and the ability of utility systems to recover when a disruption occurs.”⁴⁰ The Commission’s purpose in crafting these key definitions is “to ensure that utilities plan for reliability and resilience based on

³⁶ D.19-10-054 at 21.

³⁷ *Id.* at 24.

³⁸ *Id.*

³⁹ *Id.*, Finding of Fact 17 at 54.

⁴⁰ *Id.*, Finding of Fact 18 at 54.

future climatic conditions,”⁴¹ and the definitions are to be used by energy utilities for internal decision making and by the Commission in future proceedings where appropriate.⁴²

Consistent with the Commission’s approach in Decision 19-10-054, AT&T suggests that the Commission adopt a definition of “resiliency” that focuses on recovery, not invulnerability.

On an interim basis, AT&T proposes that resiliency be defined as:

“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, interdependent infrastructures, and partners.”

Key elements for achieving “resiliency” include several of the components identified by the Commission, such as dependable and secure commercial electricity; 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; the ability of consumers to contact carrier and government agencies; and reasonable cooperation among carriers. However, the ultimate combination of resources that comprise a successful resiliency strategy for network operators should allow flexibility.

Before adopting a more permanent definition of “resiliency” for communications providers, the Commission should solicit greater input beyond opening and reply comments. AT&T suggests a series of informal or formal workshops that would bring together experts in the field of emergency response and preparedness as well as experts on communications networks. Such expert workshops are the most expeditious path forward to address issues as variable as emergency response, especially when combined with the complexity of communications

⁴¹ *Id.* at 21.

⁴² *Id.*

networks. The process leading up to the Resiliency Proposal, which was drafted with no input from communications providers, stands in stark contrast to the Climate Change Adaptation Proceeding, where there was extensive collaboration between Commission Staff, industry participants, and key stakeholders. Failure to solicit a similarly robust collaboration from communications providers before imposing resiliency standards likely will result in ill-conceived and ineffective regulatory mandates.

D. Resiliency Proposal Section 4: Backup Power Requirement

Section 4 of the Resiliency Proposal asks for comment on a backup power requirement and the definition of “outage:”

- 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.**
- (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.**

The rationale for the proposed backup power requirements for communications providers is based on a flawed premise. By proposing “resiliency rules...in advance of the upcoming wildfire season and any PSPS events”⁴³ and demanding that communications providers “address

⁴³ Resiliency Proposal at 1.

every facet of their responsibility...in future disasters and PSPS events,”⁴⁴ the Resiliency Proposal conflates natural disasters and PSPS events as if both were unavoidable and ignores that PSPS events are driven by the electric companies. By seeking to accommodate, if not facilitate, PSPS events, this presumption contradicts the commission’s policy that energy providers only use PSPS events as a “measure of last resort,”⁴⁵ and unfairly places most—if not all—of the responsibility for addressing the fallout of PSPS events on electric company customers, including communications providers.

Furthermore, it is unreasonable to require that communications providers make their networks “resilient” as judged against the October 2019 PSPS events. Those power outages were overbroad geographically, cutting off power to areas that were not in high fire threat zones, and overlong in duration.⁴⁶ Moreover, the electric companies have committed to investing in their infrastructure and changing their processes to reduce the duration and geographic breadth of PSPS events in the 2020 fire season and going forward. For example, PG&E has indicated that it plans to dramatically reduce both the duration and size of PSPS events in 2020.⁴⁷ Thus, under the Commission’s oversight of electric utilities, the events of October 2019 are less likely to recur, and billions of dollars of investment should not be driven by attempting to accommodate

⁴⁴ Resiliency Proposal at 2.

⁴⁵ D.19-05-042 at 68, 69, Appendix A at A1.

⁴⁶ *See, e.g.*, AT&T Comments on PG&E’s Amended Post-PSPS Report for October 9 to October 12, 2019 (R.18-12-005) (Jan. 7, 2020); AT&T Comments on PG&E’s Post-PSPS Event Report for June 7 to June 9, 2019 (R.18-12-005) (Jan. 7, 2020),

⁴⁷ *See* PG&E 2020 Wildfire Mitigation Plan Report (Updated), Executive Summary (R.18-10-007), p. 13 (Feb. 28, 2020) (“Based on what we learned from the 2019 PSPS events, PG&E is working to make any future PSPS events smaller in scope, shorter in duration and smarter in performance while working to keep customers and communities safe during times of severe weather and high wildfire risk. By taking the actions described below, PG&E aims to have any 2020 PSPS events affect approximately one-third fewer customers than a comparable event would have in 2019 (based on an analysis of the projected impacts of these new programs under conditions of the large October 2019 PSPS events.”).

them.⁴⁸

In determining that PSPSs are permissible under specified, limited circumstances, the Commission recognized that PSPSs impose “significant costs, burdens, and risks on the customers and communities where power is shut off”⁴⁹ and that without power, numerous unsafe conditions can occur, including “[t]raffic signals do not work, medical life support equipment does not work, water pumps do not work, and communication systems do not work.”⁵⁰ Because of these concerns, the Commission set forth several criteria the electric utilities must adhere to and established that PSPS events are “subject to after-the-fact review by the Commission” to determine if the utility exercised its discretion appropriately.⁵¹

Moreover, the costs of PSPS events should be borne by the electric companies, not their customers. To the extent the Commission imposes backup requirements on electric company customers to accommodate PSPS events, this improperly shifts the costs of PSPSs from the electric companies to their customers. This is particularly inappropriate because the need for PSPSs arguably is the result of a level of investment in electric infrastructure that is inadequate to deliver power safely.⁵² To the extent the backup power requirements are intended to address wildfire and other disasters, the need for additional backup power should be evaluated as part of a data-driven process that identifies the risks to be anticipated and the appropriate measures to address them, considering their costs and benefits—similar to the Commission’s approach to resiliency for electric and gas utilities in the Climate Change Adaptation Proceeding.

⁴⁸ Moreover, as discussed further below, requiring communications providers to compensate for PSPS events unfairly shifts the costs and liabilities of energy networks onto the customers of the electric companies, including communications providers, other utilities and public safety partners.

⁴⁹ D.12-04-024, Finding of Fact 3 at 35.

⁵⁰ D.12-04-024 at 29.

⁵¹ D.12-04-024 at 33.

⁵² As noted above, the electric companies have proposed several investments that would reduce the need for PSPSs.

AT&T's Current Backup Power Strategy Is Reasonable and Effective.

Although AT&T's wireless and wireline networks are designed and constructed to rely on commercial power for their operations, AT&T has already established a reasonable, robust backup power supply system to prevent interruption of service in the event of a commercial power outage. The requirements identified in the Ruling, therefore, are unnecessary and not cost-effective.

Current Backup Power in the Wireless Network

In AT&T's wireless network, backup power currently is provided at multiple points, primarily at AT&T's Mobile Telephone Switching Offices ("MTSOs") and some of its macro cell sites. AT&T's MTSOs are designed and constructed with generators providing 72 hours of backup power, and batteries providing four hours of backup power.⁵³ Generators may be refueled to provide additional hours or days of backup power.⁵⁴ AT&T's macro cell sites either have a fixed generator with batteries or batteries that can supply backup power for a minimum of four hours if the site has no fixed generator.⁵⁵ In addition, approximately *****BEGIN**
CONFIDENTIAL ██████████ **END CONFIDENTIAL***** of AT&T's existing macro cell sites have either a fixed generator or are engineered so a portable generator can be quickly connected to them.⁵⁶

When AT&T experiences loss of commercial power impacting its wireless facilities, AT&T has the ability to add additional backup power capacity.⁵⁷ In preparing for possible disasters (e.g., when substantial wind events or high fire-threat conditions are forecast), AT&T

⁵³ Declaration of Jeff Luong, para. 5.

⁵⁴ *Id.*

⁵⁵ *Id.*, para. 6.

⁵⁶ *Id.*, para. 7.

⁵⁷ *Id.*, para. 9.

pre-stages portable generators in safe locations for immediate deployment, as needed and prioritized.⁵⁸ This backup power strategy has performed well to keep our wireless customers – residential, business, and government – in service during the vast majority of power outages.

Current Backup Power in the Wireline Network

In its wireline network, AT&T California has established substantial backup power capabilities in all its central offices, including all switching centers.⁵⁹ All of AT&T's central offices in California are equipped with generators to supply backup power for at least 72 hours without refueling.⁶⁰ And these generators can be refueled to add additional hours or days of backup power. These locations also have battery backup providing up to four hours of secondary power backup capability.⁶¹ 911 selective routers are located in central offices and also are supported by the same generators and secondary battery backup.

Additionally, when AT&T experiences a loss of commercial power impacting critical wireline facilities, AT&T can add additional backup power capacity via the mobilization of portable generators,⁶² and we can increase the size of the deployment in response to the size of a disaster. Additionally, AT&T's Video Ready Access Devices, or VRADs, have battery backup power systems designed to last four hours, and remote terminals have battery backup power systems designed to last eight hours.⁶³

The Proposed 72 Hour On-Site Power Backup Requirement is Unnecessary and Infeasible.

Wireless Network

⁵⁸ *Id.*

⁵⁹ *Id.*, para. 4.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*, para. 4.

⁶³ *Id.*

AT&T's current wireless network provides 72 hours of backup power for 97% of the population in its service area.⁶⁴ To have 72 hours on-site backup for 100% of the population in its service area would require the extensive installation of new backup power equipment in AT&T's network. AT&T would need to install fixed generators with a 300 square foot footprint weighing 2.5 tons in addition to a 190-gallon fuel tank or 72-hours of 288 batteries in 12 cabinets (approximately the same footprint as a generator), weighing 25 tons.⁶⁵ This would require approvals from landlords, local jurisdictions and neighborhoods, which can be very difficult, if not impossible, and time-consuming to obtain.⁶⁶ AT&T also would have to install larger fuel tanks at many sites to increase on-site backup capacity to 72 hours.⁶⁷

Other factors also limit AT&T's ability to install a fixed generator at a macro cell site. For macro cell sites on rooftops or in urban settings, there are structural restrictions on putting generators on roofs because of weight, vibration, noise considerations, presence of diesel or propane fuel, and the need to have clear paths for exhaust.⁶⁸ Lease agreements with landowners and local zoning and permitting limitations (including those relating to air and noise pollution) can prevent or significantly limit AT&T's ability to place a fixed generator.⁶⁹ Municipal fire codes can limit the size of fuel tanks for generators because the fuel tanks themselves present a threat of fire.⁷⁰ Vastly expanding the use of fixed generators could produce an increase in greenhouse gases due to carbon emissions from the diesel generators.

Small cell sites are typically designed to provide additional capacity, not greater

⁶⁴ *Id.*, ¶ 7.

⁶⁵ *Id.*, para. 28.

⁶⁶ *Id.*, ¶ 32.

⁶⁷ *See* Declaration of Luong, para. 35.

⁶⁸ *Id.*, para. 29. *See also* Attachment A to Luong Declaration.

⁶⁹ *Id.*, para. 27.

⁷⁰ *Id.* para. 33.

coverage. Customers, therefore, should not lose coverage if a small cell site shuts down from a power outage. To achieve 72 hours of backup for every small cell site, AT&T would need to install a generator or extensive batteries at each site.⁷¹ There are substantial, and often insurmountable, obstacles to doing this. Small cells utilize alternating current (“AC”) radios but use of batteries to provide AC power would create a high-voltage environment that would prevent AT&T technicians from working on the site.⁷² Additionally, most small cell generator and battery options would be built in the public right of way (“ROW”).⁷³ The process for obtaining permits in California to place generators and batteries in the ROW can be very lengthy and expensive, and local governments can be slow to grant the permits because of issues related to public safety, noise, vibrations, fumes, size, and aesthetics.⁷⁴ Use of batteries for AT&T's Distributed Antenna System (“DAS”) nodes and small cell nodes are also impractical due to space considerations.

Even if 72-hour backup power throughout every piece of equipment in AT&T's wireless network were feasible (which it is not), it would not be prudent to pursue such a goal. The required network changes would be substantial but would provide 72-hour backup for only an additional 1% of the population in AT&T's area.⁷⁵ The costs to make those changes, however, would be enormous; AT&T estimates the cost would be almost \$5 billion, and the work to make those changes, if they were feasible, would take more than 10 years.⁷⁶

And there is no need to make that massive investment to achieve proper levels of backup

⁷¹ *Id.* para. 23.

⁷² *Id.* para. 31.

⁷³ *Id.* para. 30.

⁷⁴ *Id.* paras. 30, 33.

⁷⁵ Declaration of Jeff Luong, paras. 13, 24.

⁷⁶ *See* Declaration of Jeff Luong, para 34 and Attachment C.

power to ensure continued service. AT&T's current capabilities and additional preparation for this year's fire season are more than adequate to ensure AT&T's ability to continue providing service.⁷⁷ Fixed generators and batteries are not necessary to provide continued service. As noted above, when AT&T experiences loss of commercial power, AT&T will add additional backup power capacity using portable generators that were placed in safe locations for immediate deployment, as needed and prioritized.⁷⁸

Wireline Network

As explained above, AT&T already has 72 hours of on-site backup power in all of its central offices and switching centers in California. However, it would be infeasible to build 72 hours of redundant on-site power back up for all of AT&T's other wireline facilities, including controlled environment vaults ("CEVs"), microwaves, huts, field cabinets (VRADs and Remote Terminals), head ends, network nodes, and premises equipment.⁷⁹ Seventy-two hours of battery backup for Remote Terminals and VRADs generally would require 18 strings of batteries in six cabinets, or a fixed generator, which would require a footprint of from 70-300 square feet.⁸⁰ This likely would be infeasible in most areas because the available space in public ROW averages only five to eight feet wide.⁸¹ Below is a depiction of how much additional space batteries capable of powering a Remote Terminal for 72 hours would consume in the public ROW.⁸²

⁷⁷ *Id.* paras. 4-10.

⁷⁸ *Id.* paras. 4, 6, 9, 10.

⁷⁹ *Id.* para 30.

⁸⁰ *Id.* Para. 28.

⁸¹ *Id.*

⁸² Declaration of Jeff Luong, Att. B.

**Depiction of Remote Terminal with 72 Hours of Backup Battery Capacity
[batteries are shaded grey/blue]**



A permanent generator would require a 100-gallon propane tank on a 300 square foot footprint.⁸³ This option is also infeasible given the constraints of the average ROW.

⁸³ *Id.* para. 28.

Depiction of Remote Terminal with 72 Hours of Fixed Generator Capacity⁸⁴



Moreover, it is highly unlikely that any municipality would allow 100 gallons of propane fuel in tanks along the sidewalks, even if AT&T could find enough space. Many municipalities also have ordinances limiting the number and/or size of cabinets within the ROW, so that it would be physically impossible to place all the needed batteries or the fixed generator with its propane tank in the ROW.

AT&T also provides extensive equipment at the customer premises that requires commercial power. If the customer does not have backup power available, the customer will not have service. Property owners have control over the use of backup power at their premises. AT&T could try to lease additional space from the customer, which could include outdoor space for a generator and/or riser to get the power to our equipment somewhere in the building. However, most equipment on customer property is located in a “Minimum Point of Entry” room or “Telco Closet,” which can be small and already crowded with multiple utilities’ equipment. For example, in a project to provide an outside generator connection for VRADs on customer

⁸⁴ *Id.* Att. B.

premises, AT&T had an 80% denial or no response rate from the property owner.⁸⁵

Aside from these numerous and substantial impediments to feasibility, it would be imprudent to pursue a 72-hour backup power goal for all components of AT&T's wireline network. The opportunity to use 72 hours of backup power occurs extremely rarely. Yet, the cost to achieve ubiquitous 72-hour backup power, even if it were feasible, would be truly astronomical. AT&T estimates the cost would be around \$4.9 billion, and the project would take over 10 years to complete.⁸⁶

B. Definition of Outage.

Pursuant to statutory mandate, Cal OES has proposed definitions for “outage” for wireline, wireless and VoIP service providers.⁸⁷ AT&T recommends that the Commission adopt the same definitions of “outage” as is adopted by the Cal OES, to better assure consistency and reduce the cost and confusion of adhering to inconsistent regulatory mandates.

C. Other Backup Power Requirements or Components the Commission Should Consider.

AT&T does not have any other backup power requirements to propose for consideration.

E. Resiliency Proposal Section 5: Backup Power Plans

- 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**

⁸⁵ *Id.* para. 32.

⁸⁶ *See* Declaration of Jeff Luong, para. 34.

⁸⁷ Cal OES’ proposal is, for wireless, an “outage” is as an event that lasts at least 30 minutes and “affects at least 50 percent of a carrier’s coverage area in a single ZIP Code.” For wireline and VoIP, an “outage” is an event that lasts at least 30 minutes and “affects (A) at least 100 end users in a single ZIP Code, or (B) at least 50% of end users in a ZIP Code with fewer than 100 end users.” CalOES, Notice of Modifications to Text of Proposed Regulations (March 16, 2020).

of a commercial power outage. Please provide comments and analysis on this compliance requirement.

As noted above, AT&T has developed industry-leading disaster response capabilities through its work addressing natural disasters across the country and, more recently, the PSPS events in California. Through this experience, AT&T has learned that different natural disasters and emergencies can impact wireless and wireline networks and services in vastly different ways. Affording providers flexibility to tailor their response plans to meet the unique aspects of each individual disaster is critical to effective disaster response.

Consistent with this approach, AT&T has developed its Business Continuity Preparedness Handbook with the understanding that every natural disaster is different, and every response plan, in turn, must be flexible to meet the unique aspects of each disaster and for every local municipality.⁸⁸ AT&T's Business Continuity Preparedness Handbook takes a proactive and dynamic approach to business continuity planning to help minimize the impact of an event to customers, employees, and stakeholders. AT&T's approach takes into consideration the nature of the emergency event and its severity, customizing AT&T's response to the unique demands of the event, as demonstrated in the chart below, which summarizes how AT&T categorizes different emergencies and relevant internal stakeholders.

⁸⁸ And it is in part because of the way AT&T has dynamically approached and successfully responded to multiple disasters, that in 2015 AT&T became the first telecom service provider to be certified under the new international Business Continuity Management standard (ISO 22301:2012) for the Voluntary Private Sector Preparedness Program ("PS-Prep™").

	Level 4	Level 3	Level 2	Level 1
Description	Local service disruptions that can be restored by local teams. Teams follow normal, Business As Usual (“BAU”) procedures.	Outage exceeds the restoration capacity of local teams.	Regional incident requiring coordination of multiple disciplines/response organizations.	Major event requiring the coordination and deployment of extensive resources.
Examples	Cable cuts, power failures, localized hazardous conditions.	Minor or regional flooding, small tornadoes.	Earthquakes and widespread weather hazards (hurricanes, multiple tornadoes, major flooding).	Cybersecurity attacks, national security attacks, major health incident, severe earthquakes.
Technology Impact	Localized, single element failures.	Impacts more than one technical group or geographical area.	Multiple, large-scale incidents requiring dedicated teams for 3CP (Command, Control, and Communications)	Impact is so severe that enterprise management required.
Incident Command	Impacted Business Units, Local Response Center (LRC).	Event Management Technical Reliability Center (EMTRC) and LRCs.	Global Emergency Management Center, Emergency Operations Center (EOC), Global Technology Operations Center (GTOC).	Executive Command Council (ECC).

AT&T’s Business Continuity Preparedness Handbook already addresses backup power plans, including, in part, AT&T alignment with industry standards, AT&T business continuity management, AT&T network disaster recovery capabilities, and business continuity

preparedness—best practices, Planning, and Collaboration (unified communications and messaging). AT&T has no objection to submitting its Business Continuity Preparedness Handbook to the Commission.

Emergency response must be dynamic and flexible in order to calibrate the appropriate response to the particular event being faced by AT&T. Thus, the loss of commercial power is just one of many unforeseen events that AT&T’s emergency response plan is already designed to address. Moreover, some of the specific backup power plan requirements included in the Resiliency Proposal are not appropriate for a business continuity plan. The specific Backup Power Plan requirements included in the Resiliency Proposal are addressed below in turn.

Detailed PSPS and Grid Outage Response Plans.

As noted above, AT&T’s Business Continuity Preparedness Handbook (“Handbook”) is designed to address PSPSs and other AT&T network outages.⁸⁹ AT&T’s Handbook already addresses an effective and proactive plan of action to respond to PSPS events and/or electrical grid outages. On this point, AT&T’s Handbook addresses (a) AT&T’s NDR equipment, which includes a fleet of specially designed semi-tractor trailers that can be interconnected to recover the capabilities of a network office that has been heavily damaged or destroyed; (b) broadband and wireless voice and data connectivity from disaster sites using one or more Emergency Communications Vehicles (“ECV”); and, (c) AT&T’s use of COWs and COLTs, self-contained mobile cell sites, to provide extra cellular network capacity to restore communications after a disaster. The Handbook has the appropriate level of detail for business continuity purposes.

⁸⁹ It is unclear what the term “grid outage” is meant to reference. AT&T does not operate a “grid;” it operates several communications networks. The Resiliency Proposal’s use of the term “grid outage” suggests that the Commission incorrectly presumes that communications networks are engineered like the infrastructure of the electric providers.

Facilities with and without battery backup, fixed generation, and mobile generator hookups.

AT&T has no objection to providing the Communications Division Director a list of its wireless and wireline facilities that require backup power and an indication of whether those facilities have battery backup or a fixed generator. In fact, AT&T has already provided most of this information to the Commission's Public Advocates Office ("PAO"). However, for the reasons discussed above, this level of detail is not appropriately part of a business continuity plan.

AT&T continues to design, build, maintain, and rebuild its network to adapt to unpredictable conditions and natural disasters. These efforts include providing additional backup power at more and more AT&T facilities. As addressed in response to Question 5, above, backup power for AT&T's wireless network is currently provided at multiple points, primarily at AT&T's Mobile Telephone Switching Offices ("MTSOs") and its macro cell sites. And in its wireline network, AT&T California already has established substantial backup power capabilities in all of its central offices. AT&T has already provided this information (in some level of detail) to the Commission in previous filings and in response to data requests. To be required to provide more granular information that identifies the amount of backup power available at specific facilities, however, would pose a security risk and, depending on the information sought, may require site-by-site inspection. Additionally, if the Commission adopts Cal OES's proposed outage reporting threshold discussed previously, there would be no benefit to providing additional needlessly granular backup power information. The Resiliency Proposal's demand for information related to facilities with and without battery backup is unnecessary, impractical, would produce no public safety benefit, and would be overly burdensome, as there are simply too many assets in California to provide this information.

Additionally, it is unclear how this information would in any way be helpful to the Commission or what the Commission would do exactly with this information.

The number of mobile generators and refueling trucks and specify which are stationed in California.

Again, AT&T has no objection to providing to the Communications Division Director the number of mobile generators it has stationed in California, and this information has previously been provided. AT&T does not own refueling trucks, and instead uses contractors to refuel its fixed generator fuel tanks. But the level of detail proposed is not properly included in a business continuity or emergency response plan, as explained above. In California, AT&T has thousands of mobile generators and refueling trucks, as well as technology recovery trailers, satellite COLTs and ECVs, and additional NDR equipment. And as we continue to design, build, maintain, and rebuild our network to make it more resilient and to better adapt to climate change, the number of mobile generators and refueling trucks will continue to grow.

As one example, in response to PG&E's sweeping October 2019 PSPS events, AT&T has taken immediate action to increase backup power capabilities for critical assets within its wireless network at a substantial capital investment.⁹⁰ As mentioned earlier, AT&T would not object to annually reporting to the Commission the general status of backup power systems for assets within the wireless and wireline network provided the purposes of such reporting requirement is not focused on having a third party micromanaging the backup power systems of communications network but rather to provide information for public policy on clean energy and coordination among interdependent infrastructure service providers and public safety partners.

⁹⁰ The details of this backup power enhancement effort are detailed in the Declaration of Jeff Luong and Section III.K., below.

Identify the ability to replace damaged facilities, including logical and physical network route diversity and temporary facilities (e.g., mobile cell sites and temporary microwave backhaul).

The ability to restore a damaged facility depends on a slew of variables including the nature of the damaged facility, the extent of the damage, its location, the availability of resources needed to mitigate the particular damage at the time of damage, the number of other facilities that have been damaged, and relative proximity to the location of the facility. Network elements can be virtual and contain software driven components in part or whole, can be entirely hardware, or both. Damage or failure in any segment of the network could self-heal (where there are embedded self-healing capabilities typically in software-driven segments of the network) or the system may identify the failure (damage location) point in the network hardware and a replacement of the damaged parts can be manually implemented. AT&T has extensive network management experience and capabilities that span over 100 years.

This proposed requirement seeks information on AT&T's capabilities in network diversity and use of microwave as a temporary transport option, both of which are addressed in the Declarations of Kristopher Kirkwood and Orlando Echeverria-Calvet. AT&T maintains an appropriate amount of route diversity within its network at all times. In addition, it also maintains COWs and COLTs to provide temporary service when facilities are damaged or as other appropriate circumstances dictate. AT&T has provided, and will provide, details regarding these capabilities to the Commission. But again, this level of detail is not properly part of a business continuity or emergency response plan.

Identify employees dedicated to refueling and vendors including company and contract agreement.

As noted above, AT&T uses vendors for refueling generators. It is unclear how these contracts will be of benefit to the Commission, and this level of detail is not properly part of an emergency response plan.

Identify to [sic] the ability to support near real time reporting on system outages as required by CPUC rules, Cal OES regulations and California Government Code.

The Cal OES rules that are intended to be effective on July 1, 2020 would require outage information reporting within 60 minutes of discovery of an outage, with a requirement of outage updates every six hours.⁹¹ These proposed rules would appear to satisfy the proposed “near real time” reporting requirement. And while the Proposal’s suggested outage reporting requirement and Senate Bill 1069 both contemplate real-time reporting, there is currently no requirement under California law for real-time reporting. The Proposal's “near real time” reporting requirement is vague. If “near real time” is interpreted to have virtually the same meaning as “real time,” it is practically impossible to meet such a requirement because it takes a certain amount of time for the outage to be captured in the system and properly identified and vetted for accuracy before it is reported even internally for network management purposes. AT&T is capable of providing outage reports under current CPUC rules and may also be subject to Cal OES’s proposed 60-minute timeline, but not near real time. AT&T strongly urges the Commission to align its proposal with existing requirements in order to avoid confusion and duplicative or unnecessary work, especially because time is of the essence during an emergency.

Provide copies of refueling schedules.

Based on the magnitude of the PSPS event and/or the nature and breadth of the disaster, there are simply too many variables that influence when and where generators need to be

⁹¹ Cal OES, Notice of Modifications to Text of Proposed Regulations (March 16, 2020).

refueled. Therefore, this information could not be provided in advance.⁹² More importantly, however, it is unclear how this information would in any way be helpful to the Commission or what the Commission would exactly do with this information. The production of this information is unnecessary, impractical, would produce no public safety benefit, and would be overly burdensome.

Provide copies of roaming agreements.

Roaming under disaster requests are covered under the Wireless Resiliency Voluntary Cooperative Framework⁹³ These differ from the general roaming agreements between the national carriers. There are no formal signed agreements in place that are specific and limited to roaming under disaster situations.⁹⁴ Existing roaming agreements that may be in place prior to any significant event continue to be honored (via contract) and are not modified as the result of any subsequent event.⁹⁵ Additionally, a request for roaming in a disaster is handled via an informal process that allows requests to be submitted to AT&T via email or phone to start the evaluation process.⁹⁶ This allows requests to be addressed in a very rapid process.⁹⁷ Although AT&T can certainly inform the Commission which providers with whom it has roaming agreements, the production of any roaming agreements that may be entered into during a disaster or PSPS is simply unnecessary, impractical, would produce no public safety benefit, and would be overly burdensome, particularly in the midst of a disaster.

⁹² Declaration of Brett Magura, para. 6.

⁹³ <https://www.fcc.gov/wireless-resiliency-cooperative-framework>

⁹⁴ *Letter from Joseph P. Marx, Assistant Vice President, Federal Regulatory, AT&T Services, Inc. to Lisa M. Fowlkes, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission* (Nov. 26, 2018) (Re: PS Docket No. 11-60), Appendix: 2017/2018 Event Summary (ESF-2/DIRS Events), *mimeo*, at 1. (Redacted - For Public Inspection).

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ *Id.*

Provide copies of cooperative agreements to pool resources with other providers.

By way of background, cooperative agreements are often established immediately prior to or after a disaster (as the need arises) and are entered into via an informal process that takes place at the local level as people on the ground are working to address critical issues to restore service or to help individuals during an emergency event. Most importantly, cooperative agreements are generally implemented on a case-by-case basis through informal discussions (via email or phone) between providers' personnel who are on site at the disaster scene, rather than through formal written agreements. As discussed above, this process allows requests to be handled in rapid fashion. Thus, in most instances, there would be no formal cooperative agreements to produce. During a disaster, the primary focus of the providers' personnel is to restore service, which includes working cooperatively (and informally) with other providers to accomplish this goal. To divert attention away from this goal by having the personnel in the field document/record and keep track of every informal agreement would not only hinder the primary goal of restoring service as quickly as possible, but would produce no public safety benefit. AT&T is not aware of any instances during the 2019 wildfires in which either it or another carrier declined a request for mutual aid. The production of any cooperative agreements that may be entered into during a disaster or PSPS is unnecessary, impractical, would produce no public safety benefit, and would be overly burdensome.

We also note that along with Sprint, T-Mobile, US Cellular and Verizon, AT&T participates in the 2016 CTIA Wireless Resiliency Cooperative Framework, a voluntary initiative that enhances coordination and communication to facilitate wireless service continuity, greater

network resiliency, faster restoration of service, and increased information sharing during and after emergencies and disasters.⁹⁸

F. Resiliency Proposal Section 5(a): Clean Energy Generation

Section 5(a) of the Resiliency Proposal seeks comment on clean energy:

5(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:

- (a) How should “clean energy backup” be defined?**
- (b) Provide specific information on barriers to procuring specific types of clean energy backup power (e.g., cost, permitting, etc.).**

Definition of “Clean Energy Backup”

Clean energy is generally defined as energy derived from renewable, zero-emissions sources, or “renewables.” Examples of clean or renewable energy sources include hydrogen fuel cells, clean energy microgrids, solar power, wind power, hydropower (the conversion of energy from flowing water into electricity), and geothermal power (where a geothermal power plant taps into steam or hot water reservoirs underground to convert to electricity).⁹⁹ AT&T would, in turn, define “clean energy backup” as the utilization of one or more renewable energy sources when practicable and feasible to address energy demands.

AT&T’s Current Investment in “Clean” Energy

AT&T invests in renewable, or “clean,” energy because it is good for our planet and our

⁹⁸ *Letter From AT&T, Sprint, T-Mobile, US Cellular, and Verizon, Together with CTIA to Marlene H. Dortch, Secretary, Federal Communications Commission* (April 27, 2016) (Re: Ex Parte Presentation, Improving Resiliency, Reliability and Continuity of Mobile Wireless Communications Networks, PS Docket Nos. 13-239 and 11-60), *mimeo*, available at <https://ecfsapi.fcc.gov/file/60001707365.pdf> (last visited April 3, 2020).

⁹⁹ *See, generally*, Declaration of Daniel De Leo.

business.¹⁰⁰ In September 2019, AT&T announced that, with the addition of new Virtual Power Purchase Agreements with Invenergy and Duke Energy Renewables, its renewable energy purchases will surpass 1.5 gigawatts of clean energy capacity.¹⁰¹ Our renewable energy purchases to date are expected to reduce greenhouse gas emissions by an amount equivalent to providing electricity for more than 560,000 homes or taking 690,000 cars off the road for one year.¹⁰² AT&T also continues to reduce its greenhouse gas emissions through extensive energy efficiency efforts in our buildings and network, optimization of our vehicle fleet, and through our large-scale renewable energy purchases.¹⁰³

AT&T is also working with the U.S. Department of Energy's Argonne National Laboratory in an effort to achieve greater climate resiliency and further develop AT&T's Climate Change Analysis Tool.¹⁰⁴ Using data analysis, predictive modeling, and visualization, this tool enables AT&T to react to climate changes by making the adaptations necessary to help increase safety, service, and connectivity for its employees, customers, and communities.¹⁰⁵ And to make usable climate change data more accessible, AT&T and Argonne will make publicly available the climate data that powers the tool.¹⁰⁶ This will enable others – such as municipalities, utilities, and universities – to become more climate resilient.¹⁰⁷ AT&T is one of the largest corporate purchasers of renewable energy in the United States,¹⁰⁸ demonstrating our commitment to addressing climate change. AT&T's clean energy investments help create jobs

¹⁰⁰ *Id.*, para. 3.

¹⁰¹ *Id.*, para. 5.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*, para. 6.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*, para. 7.

and enable a clean energy future.¹⁰⁹

Using Clean Energy Backup Power to Meet the Proposed 72-Hour Backup Power Requirement Would Be Unreliable, Impractical, Infeasible, and Cost Prohibitive

While AT&T already employs a variety of clean or renewable energy sources, the mandated and exclusive use of clean energy backup power sources before using diesel generators to meet the Resiliency Proposal's 72-hour backup power requirement would, in large part, be unreliable, impractical, infeasible, and cost prohibitive.

As described in detail in the attached Declaration of Daniel De Leo, AT&T has embraced the use of hydrogen fuel cells for certain buildings and site types in conjunction with other energy sources as a source of backup power.¹¹⁰ In fact, approximately *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL***** of AT&T's existing macro cell sites in California have either a fixed generator or hydrogen fuel cell backup power as the primary source of backup power or are engineered so a generator can be quickly connected to them;¹¹¹ cell sites with fixed generators or hydrogen fuel cells have 72-120 hours of backup power.¹¹²

However, there are also a number of disadvantages to using hydrogen fuel cells as a backup power source which makes their use an impractical, infeasible, and cost-prohibitive solution in many instances: (1) hydrogen fuel cells don't generate sufficient power for the energy needs/requirements of all macro cell sites;¹¹³ (2) hydrogen is difficult to store;¹¹⁴ (3) hydrogen is difficult to source during large outages;¹¹⁵ (4) three or more hydrogen fuel cabinets (which

¹⁰⁹ *Id.*

¹¹⁰ *Id.*, para. 11.

¹¹¹ Declaration of Jeff Luong, para. 7.

¹¹² Declaration of Daniel De Leo, para. 12.

¹¹³ *Id.*, para. 15.

¹¹⁴ *Id.*, para. 14.

¹¹⁵ *Id.*

would measure 6' x 6') would be required for run times of 72 hours or longer of backup power;¹¹⁶ (5) hydrogen has a lower ignition point than other fuel types;¹¹⁷ (6) because hydrogen is a compressed gas, there are setback and buffer requirements per the National Fire Protection Association;¹¹⁸ and (7) hydrogen fuel cells are very expensive per kW output relative to other conventional solutions.¹¹⁹

Additionally, solar is not a viable power solution for AT&T macro cell sites for a variety of reasons: (1) solar energy produces inconsistent levels of power;¹²⁰ (2) solar panels require at least 1,500 square feet per each location, which would raise a number of permitting and zoning issues;¹²¹ (3) solar panels would not be feasible for urban and wooded areas;¹²² and (4) solar panels would be prohibitively expensive, often exceeding \$1.5 million per macro site.¹²³ Also, any solar power solution would need to be engineered into a hybrid system of energy storage and alternative generation.¹²⁴

Wind energy also has a number of disadvantages that would not make it a feasible option as a clean energy backup power source. For example, wind energy would not generate enough backup power to operate a macro cell site.¹²⁵ Additionally, hydropower and geothermal energy are not feasible options as clean energy backup power sources for communications equipment.¹²⁶ More details are provided in the accompanying Declaration of Daniel De Leo.

¹¹⁶ *Id.*, para. 16.

¹¹⁷ *Id.*, para. 17.

¹¹⁸ *Id.*, para. 18.

¹¹⁹ *Id.*, para. 19.

¹²⁰ *Id.*, para. 21.

¹²¹ *Id.*, para. 22.

¹²² *Id.*, para. 24.

¹²³ *Id.*, para. 26.

¹²⁴ *Id.*, para. 25.

¹²⁵ *Id.*, paras. 28-32.

¹²⁶ *Id.*, paras. 33-34.

G. Resiliency Proposal Section 5(b): Waivers

Waivers are the topic of Section 5(b) of the Resiliency Proposal:

5(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.

Given the tens of thousands of facilities affected by the proposed backup power requirements for AT&T alone, AT&T does not believe that waivers are a viable means of tailoring applicability of the Resiliency Proposal.

H. Resiliency Proposal Section 5(c): Critical Facility Location Information Sharing

Comment on critical facility location information sharing is sought in Section 5(c) of the Resiliency Proposal:

5(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.

AT&T does not object to the concept of providing critical facility location information to the Commission. AT&T further does not object to the provision of such information (in aggregated form, when consolidated from all providers) to state and local emergency responders upon verification of procedural and substantive protections equivalent to federal confidentiality statutes and rules, as described in the Resiliency Proposal. In point of fact, AT&T has provided network status and specific network impacts (during disasters and PSPS events) to Cal OES, and will continue to do so.

The Resiliency Proposal (at 6) presumes that emergency responders must know the location of cell sites and whether those sites are operational in order “to effectively target the distribution of emergency alerts.” This is not true for Wireless Emergency Alerts (“WEAs”)

distributed through the Federal Emergency Management Agency’s (“FEMA’s”) Integrated Public Alert & Warning System (“IPAWS”), as explained in the attached Declaration of Peter White.

Here is how WEAs work: WEAs are geographically targeted, so that alerts are sent to mobile phones or devices that are physically present in an approximation of the warning area which is defined by the alert-issuing agency (*e.g.*, a county, city, or other local office of emergency services). WEA alerts are not targeted to specific phone numbers.¹²⁷ Using the appropriate software, the alert-issuing agency essentially specifies the geocode or draws a geographic polygon within which it requests that alerts be delivered.¹²⁸ Thus, agencies do not “target” WEAs based on—and therefore have no need to know—the locations or status of macro cell sites. Rather, once an agency indicates in the IPAWS system the geographic polygon where the WEA should be delivered, the system sends to all wireless carriers that participate in the WEA system the geographic polygon and the substance of the alert message. The carriers then deliver the WEA. In the event that the polygon cannot be reached by a carrier (*e.g.* due to a cell site being down), so long as there is wireless coverage in the polygon, WEA messages will be transmitted to all WEA-capable devices in the polygon, regardless of wireless provider.¹²⁹

For a comprehensive description and background on the of the WEA system AT&T directs the Commission to the accompanying Declaration of Peter White.

¹²⁷ Declaration of Peter White, para. 9.

¹²⁸ *Id.*, para. 10.

¹²⁹ *Id.*, para. 13.

I. **Resiliency Proposal Section 5(d): Critical Infrastructure Resiliency, Hardening and Location Information Sharing**

The sharing of critical infrastructure resiliency, hardening and location information is the subject of Section 5(d) of the Resiliency Proposal:

5(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 Resiliency Proposal asserts (at 5) the “record in this proceeding shows that communications networks are subject to massive outages as a result of a lack of network redundancy and hardening.” This assertion references no facts in the record and is, in fact, dispelled by the real facts in the record. The 2018 Camp Fire provides a clear example of the fallacy inherent in the assertion that redundant or hardened transport to cell sites will materially enhance network reliability when disasters strike.

As described in the attached Declaration of Kristopher Kirkwood, during the Camp Fire, several of AT&T’s cell sites went out of service due to destruction of transport to those sites.¹³⁰ However, all of those affected cell sites were surrounded on all sides by areas within the fire perimeter. Accordingly, even if AT&T had multiple diverse transport routes to these cell sites, those routes, too, almost certainly would have burned.¹³¹ And, more generally, as diverse transport gets closer to an aggregation point, it will parallel existing transport, which defeats the benefit of a diverse route.¹³² And, of course, diverse routes would have been irrelevant for the

¹³⁰ Declaration of Kristopher Kirkwood, paras. 9, 10.

¹³¹ *Id.*, paras. 10-11.]

¹³² *Id.*, para. 5.

cell sites that themselves were destroyed by the Camp Fire. Moreover, AT&T could not have predicted where the Camp Fire—or any fire—would start or spread, and thus it is impossible to engineer the location of multiple paths to a cell site to protect it from catastrophic wildfire with an *assurance* that the site will not burn.¹³³ Because fire perimeters never can be known in advance, the purported benefit of diverse transport during a disaster is illusory.

As for service to AT&T's wireline customers, the Camp Fire also demonstrates that the Resiliency Proposal's unsupported assertion is contrary to the facts. In the Camp Fire, the "Paradise central office had diverse interoffice fibers, including diverse routes that were destroyed by the wildfire."¹³⁴ AT&T's network from the central office out to customers was destroyed along with customers' homes and business, and no amount of redundancy or hardening would have allowed service to continue.¹³⁵

The Resiliency Proposal (at 6) provides that the "Communications Division shall ...identify locations in the state where actions must be taken to harden communications infrastructure from risk, including areas and communities where fiber backhaul routes do not have adequate hardening or physical redundancy...." AT&T's network experts explain that to evaluate and design a network, "Specialized expertise is required in areas such as costs and feasibility of aerial, buried, and conduit placement, right of way acquisition costs and feasibility, and capabilities of various technologies that may be used."¹³⁶ Not only does the Communications Division lack this necessary expertise, judging where and how providers must build or modify their networks is not a ministerial task. While ministerial tasks may be

¹³³ *Id.*, paras. 9-10.

¹³⁴ Declaration of Orlando Echeverria-Calvet, para. 26.

¹³⁵ *Id.*

¹³⁶ Declaration of Kristopher Kirkword, para. 15. *See also* Declaration of Orlando Echeverria-Calvet, para. 23.

delegated, “powers conferred upon public agencies and officers which involve the exercise of judgment or discretion are in the nature of public trust and cannot be surrendered or delegated to subordinates in the absence of statutory authorization.”¹³⁷ “The PUC is acutely aware of the difference between delegable program administration and nondelegable policy and oversight duty.”¹³⁸ The proposal that the Communications Division gather information and make a judgment of when and how providers must modify their networks is quintessential discretionary decision-making, not ministerial, and thus cannot be delegated to the Communications Division. In addition, this proposal raises fundamental due process issues, since it established no guidelines that the Communications Division is to follow in making determinations and it gives the providers no notice, opportunity to provide input or path to challenge or reject decisions of the Communications Division.¹³⁹

AT&T currently has more than 6,000 cell sites in California.¹⁴⁰ AT&T already attempts to limit “the number of cell sites served on a single route.”¹⁴¹

As described in detail in the Kirkwood Declaration, engineering diverse routes to cell sites presents a host of physical and logistical challenges, particularly in rural areas that are prone to fires. For example, because roads in rural areas are much sparser than roads in urban areas, routing additional fibers is difficult.¹⁴² Rural sites also typically have a longer distance between the serving wire center and the cell site compared to urban areas, making trenching and placing

¹³⁷ *California School Employees Association v. Personnel Commission*, (1970) 3 Cal.3d 139, 143-144.

¹³⁸ *Southern California Edison Company v. Public Utilities Commission*, (2014) 227 Cal. App. 4th 172, 176.

¹³⁹ This presumes the Commission has jurisdiction, which is addressed in Section II., above.

¹⁴⁰ Declaration of Kristopher Kirkwood, para. 4. AT&T expects this figure to grow significantly with 5G deployment and densification. *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*, para. 5.

conduit underground costly.¹⁴³ And in some circumstances, local terrain like mountains, rivers, and canyons can make it nearly impossible to place fiber facilities in rural areas.¹⁴⁴ In addition, if cell sites are on private property, wireless carriers need permission and permits not only for the cell site, but also for transport to the cell site.¹⁴⁵ Because property owners are not obligated to respond to permit requests, “[i]t is very possible to wait indefinitely to obtain the necessary permissions in some rural areas in California,”¹⁴⁶ and thus designing diverse routes over private property oftentimes is infeasible. Moreover, a redundant route network between a cell site and a central office also could reduce the potential locations available to place new cell sites and affect the wireless provider’s ability to augment existing site locations, which would hamper the carrier’s ability to expand the existing wireless network and meet growing demand for bandwidth and its 5G deployment.¹⁴⁷ Hampering wireless deployment would diminish the public safety benefits delivered by the wireless network.

Decisions about AT&T’s wireless network, including the transport to cell sites are “data-driven and must be done by industry experts that look at the current network demands and anticipated future network demands.”¹⁴⁸ The “design and determination of feasibility of any proposed transport serving cell sites is also done by industry experts with extensive knowledge of outside plant design.”¹⁴⁹

Similarly, AT&T’s wireline network already has redundancy built into it as well as plans to improve redundancy. 98.5% of AT&T California’s wireline customers are served from

¹⁴³ *Id.*, para. 7.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*, para. 5.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*, para. 6.

¹⁴⁸ Declaration of Kristopher Kirkwood, para 15.

¹⁴⁹ *Id.*

central offices that have diverse routes for interoffice facilities.¹⁵⁰ These diverse routes provide greater connectivity when a single fiber cable is damaged, usually as a result of a localized event, like damage by a third party.¹⁵¹ This is part of AT&T's goal to achieve 100% interoffice fiber diversity between our central offices.¹⁵² From 2014 to 2020, AT&T California added interoffice diversity to 38 central offices serving approximately 83,000 access lines and currently has plans to add diversity to 8 more central offices serving more than 17,000 access lines in areas including rural and tribal customers in 17 different counties.¹⁵³

Mandating redundancy for AT&T California's wireline network poses even greater challenges as compared to AT&T's wireless network. First, and most importantly, most voice and data services cannot be made diverse and redundant from the central office to the customer locations. This is particularly true of basic telephone service. Redundancy would require additional equipment placed at either end of the local service loop. This type of equipment does not exist for many types of services.¹⁵⁴ AT&T has over 450 million feet of feeder facilities and more than one billion feet of distribution facilities.¹⁵⁵ Placing redundant wireline facilities throughout rural California with its varied terrain—mountains, canyons, state parks, wildlife sanctuaries—is especially challenging as rural sites also typically have greater distances between the serving wire center, the facilities, and the customer locations as compared to urban areas.¹⁵⁶ The proposed plan for redundancy will also mean more poles in the roadway, the most efficient

¹⁵⁰ Declaration of Orlando Echeverria-Calvet, para. 7.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*, para. 22.

¹⁵⁴ *Id.*, paras. 12, 13.

¹⁵⁵ *Id.*, paras. 15, 18.

¹⁵⁶ *Id.*, para. 21.

way to deploy new networks.¹⁵⁷ And in addition to the cost of redundant facilities themselves, there would be additional routing and costs for ROW access, approvals and permitting from local jurisdictions, and permission from landowners for trenching or placing poles.¹⁵⁸ Creating diverse routes for just 5% of AT&T's feeder facilities would cost from approximately \$3.3 billion to \$4.6 billion.¹⁵⁹ Creating diverse routes for just 5% of AT&T's distribution network would cost from approximately \$3.3 billion to \$4.7 billion.¹⁶⁰ Neither cost estimate includes the costs of easements, permits, or changes to equipment.¹⁶¹

Critically, diversity of routes “will not improve the reliability of service or ensure the operability of customers’ service if a wildfire event or other unknown disaster occurs in the area.”¹⁶² As Mr. Echeverria-Calvet explains, in the 2018 Camp Fire, not only did the diverse interoffice routes to the Paradise central office burn, but “the feeder and distribution facilities were destroyed along with the homes and businesses that had previously relied on AT&T facilities”—diverse routes of feeder and distribution would obviously have been destroyed when those areas were destroyed.¹⁶³

Placing current aerial facilities buried in the ground or in conduit does not increase network reliability: “During the 2017 firestorm, over eight miles of underground cables in both conduit and directly buried were destroyed just at Coffey Park in Santa Rose, CA.”¹⁶⁴

“Additionally, underground cables are subject to earthquakes, landslides, and damage related to

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*, para. 16.

¹⁶⁰ *Id.*, para. 19.

¹⁶¹ *Id.*

¹⁶² *Id.*, para. 25.

¹⁶³ *Id.*

¹⁶⁴ *Id.*, para. 29.

flooding,” and restoration of such cables “takes more time than repairing the same damaged cables attached to poles.”¹⁶⁵ Consequently, as with the belief that redundant routes will ensure reliability, the belief that a certain type of construction, or “hardening,” of outside plant can ensure reliability is demonstrably false.

J. Resiliency Proposal Section 6: Emergency Operations Plans

The Resiliency Proposal asks for comment about emergency operations plans in

Section 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.**

AT&T’s Business Continuity and Emergency Management (“BC&EM”) plan outlines the strategies and procedures utilized to respond to emergency and other events that adversely impact AT&T’s network.¹⁶⁶ All AT&T organizations are required to follow the framework of the BC&EM plan in their response to planned and unplanned network impairing events. This creates a coordinated and efficient effort by all teams supporting AT&T’s network restoration.¹⁶⁷

¹⁶⁵ *Id.*, para. 30.

¹⁶⁶ Declaration of Christopher Salkeld, para. 3. After acknowledging that “there may not be a ‘one size fits all’ approach to ensuring resiliency,” the Resiliency Proposal (at 2) would require emergency response plans with “uniform requirements across all Providers....” (Proposal at 6.) To reconcile these seemingly contradictory statements, would have to assume that the plans must all address certain areas, but not have uniform contents.

¹⁶⁷ Declaration of Christopher Salkeld, para. 3.

AT&T's emergency response personnel are trained on the proper procedures for responding to emergency events as outlined in the BC&EM plan via online training as well as ongoing reviews of the plan by the network emergency management staff.¹⁶⁸ The BC&EM plan is shared with relevant governmental agencies, such as the FCC, and can also be shared with relevant emergency responders, as well as the Commission.¹⁶⁹

In 2015, AT&T became the first telecommunications service provider to be certified under the new international Business Continuity Management standard (ISO 22301:2012) for the Department of Homeland Security Voluntary Private Sector Preparedness Program ("PS-Prep™").¹⁷⁰ The PS-Prep™ certification demonstrates AT&T's continued commitment to be able to resume business operations and product/service delivery to our customers in the vital hours and days after a disaster strikes. In the event of a disaster or emergency, AT&T is prepared to quickly resume network traffic and field customer calls in the communities that it serves.¹⁷¹

The BC&EM plan addresses AT&T's unique requirements during all types of emergency events, and thus is described in the industry as an "all hazards" plan.¹⁷² As such, it cannot be prescriptive to any particular type of event, as the Proposal suggests for wildfires and PSPS events. AT&T has discussed the possibility of a uniform industry emergency plan with other industry members, who generally agree that emergency plans should be customized to the needs of the specific carrier and that a completely uniform plan for the whole industry, which include national, state and regional entities, would not be appropriate.¹⁷³ Each carrier has unique

¹⁶⁸ *Id.*, para. 4.

¹⁶⁹ *Id.*, para. 6.

¹⁷⁰ *Id.*, para. 2.

¹⁷¹ *Id.*

¹⁷² *Id.*, para. 3.

¹⁷³ *Id.*, para. 5.

requirements, protocol, and resources available for response and recovery of emergency events.

Emergency Contact Information

AT&T supports the concept of providing emergency contact information to the Commission, as contemplated by the Resiliency Proposal, which should include AT&T personnel who serve at the State Operations Center (“SOC”).

For years, in cooperation with Cal OES and in response to its requests, AT&T has regularly provided qualified and knowledgeable personnel to the Utility Operations Center (“UOC”) of the SOC, and AT&T will continue to make such personnel available, at all times.¹⁷⁴ These personnel are trained in accordance with the Standardized Emergency Management System (“SEMS”) and have deep knowledge of AT&T’s network and related business processes.¹⁷⁵ Their duties at the SOC require them to have direct connections to network personnel, who in turn monitor emergency and disaster impacts on the network, including PSPS events.¹⁷⁶

AT&T is also a member of California Utilities Emergency Association (“CUEA”), and AT&T has served at the SOC both at the direct request of Cal OES and at the request of CUEA. The CUEA Executive Director typically coordinates Utility participation during emergency activations and works with Cal OES to determine necessary staffing. These processes are memorialized in a 2010 Memorandum of Understanding between CUEA and Cal OES.¹⁷⁷

AT&T understands the importance of clear, fast and responsive communication between the communications industry and Cal OES. AT&T has demonstrated this understanding through

¹⁷⁴ Declaration of Alice Perez, paras. 1, 3.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*, paras. 1, 2.

its direct and close involvement in the SOC over the years. However, the Resiliency Proposal (at 6) is ambiguous to the extent it requires AT&T's representative at the SOC to be "enabled and empowered to resolve issues as they arise." AT&T's decision-making during emergencies is centralized and resides in its senior network leadership in California.¹⁷⁸ That must remain so. Leadership receives and processes information from multiple sources, and makes critical decisions, including decisions that affect the performance, integrity, and security of the network.¹⁷⁹ Such authority should not be splintered, as the Resiliency Proposal seems to require.

Emergency Preparedness Exercises

All AT&T emergency response personnel participate in annual emergency preparedness exercises designed to test AT&T's emergency procedures. These exercises are conducted by the leadership of AT&T's local response centers with oversight from AT&T's National Security Emergency Preparedness staff.¹⁸⁰ Following these exercises, Key Learning Reports are compiled and reviewed to assess the exercise and identify modifications, if any, needed to AT&T's emergency plan.¹⁸¹

Public Communications Plans/Communications with State and Local Emergency Responders

AT&T fully supports providing meaningful information to the public and to emergency responders during emergencies, including PSPS events. However, AT&T is wary of multiple and potentially conflicting mandates, addressed to overlapping audiences.

Public Utilities Code Section 776.5 (added last year as SB 560) mandates that upon receipt of a PSPS notification from an electric utility, mobile telephony service providers must provide "relevant situational information relative to communications capabilities during the

¹⁷⁸ *Id.*, para. 4.

¹⁷⁹ *Id.*

¹⁸⁰ Declaration of Chris Salkeld, para. 7.

¹⁸¹ *Id.*, para. 8.

projected outage” to “appropriate public safety stakeholders, including, but not limited to, public safety offices and emergency response offices.”

Government Code Section 53122 (added last year as SB 670) mandates reporting network outages to Cal OES for wireline, wireless, and VoIP services. Outages must be reported within 60 minutes of discovery, and Cal OES is responsible for notifying county emergency officials and Public Safety Answering Points (“PSAPs”). Cal OES has recently proposed regulations that would require the carriers to provide the location of the outage by zip code and by city/county/community impacted, regular updates, and a final notification when services are restored. Notices from carriers must also provide a point of contact to respond to inquiries about the outage at all times until service restoral.

Currently, SB 1069¹⁸² (Jackson), if passed, would require telecommunications service providers to (1) notify local emergency management officials about the location and status of the provider's critical communications infrastructure, (2) provide to the local incident command upon the declaration of an emergency or natural disaster the name and contact information for, and make available upon request, an official representative of the provider able to assist local emergency operations, (3) report to local emergency management authorities and the commission the transmission status of emergency alerts, notifications, and messages, (4) notify local and state emergency management officials in real time of impacted critical communications infrastructure within their jurisdictions that has been damaged or otherwise rendered inoperable, and, (5) upon the conclusion of an emergency or natural disaster, timely report to the commission on the impacts to the provider's network during the emergency or natural disaster, as specified.

¹⁸² Available at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200SB1069 (last visited April 3, 2020).

The Resiliency Proposal overlaps with *each* of these mandates, although it also requires public notification. Specifically, the Resiliency Proposal (at 7) seeks an outage map, a description of anticipated outage impacts, the expected restoration time, all to impacted customers, the public, local media, and local and state officials. To state and local emergency responders, the Resiliency Proposal (at 7) also requires notification by ZIP code of facilities that are damaged or destroyed, status of facilities on backup battery or generator power, the estimated time of service restoral, the reason for the service impact, and the corrective measures taken.

Some of these proposed requirements present substantial difficulties. Reporting “anticipated outage impacts” is extremely difficult given the fluidity of emergency and PSPS events. PSPS footprints change frequently leading up to a power shutdown.¹⁸³ When those changes occur, AT&T must completely reassess the deployment of its assets (*e.g.*, personnel and generators that have been pre-staged and that are planned for deployment).¹⁸⁴ This reassessment impacts refueling schedules, deployment times based on current traffic conditions, battery discharge rates based on real time power consumption, etc. There are simply too many variables, most of which are based largely on real time environmental factors, to provide anticipated outage impacts with any sufficient level of confidence.¹⁸⁵ Further, the lack of certainty in those reports raises questions about the value they would have to the recipient agencies. These issues are not unique to PSPS events and are also factors during disasters. In fact, an additional difficulty in requiring reporting during disasters is that providers frequently will not know *when* commercial power will go out, due to damage from the disaster.¹⁸⁶

In addition, AT&T’s network in California includes tens of thousands of network

¹⁸³ Declaration of Brett Magura, para. 3.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

elements that might be affected by a PSPS event or another man made or natural disaster. While AT&T can and does provide a status of its network throughout the duration of an emergency event, the sum of the requirements included in the Staff proposal, including those that require near real time reporting of the status of individual network elements and when and how network outages will be restored, are burdensome, not particularly useful, and may actually impede activities to support or restore service.¹⁸⁷

The Resiliency Proposal requires near real time reporting on facilities damaged or destroyed, the status of facilities on backup power, and facilities offline. AT&T can identify facilities damaged or destroyed but generally only after a field assessment is completed, which takes time and resources, so near real time reporting is not reasonable. This information can be reported as soon as it is available.¹⁸⁸

Even more challenging is assessing the status of the backup power supporting individual network elements. Depending the extent of an emergency event, especially a PSPS event, AT&T may have hundreds if not thousands of network elements that will be on backup power due to a loss of commercial power. Trying to specifically identify the status and type of backup power at each element would be extremely difficult and not particularly informative. When an emergency event occurs that involves a loss of commercial power, AT&T will deploy temporary generators and establish refueling schedules to sustain service at as many network elements as reasonably possible throughout the emergency event, even if it is a multi-day event. Thus, the status of backup power on individual network elements is not an indication of whether the network element will remain in service throughout the emergency event.¹⁸⁹

¹⁸⁷ *Id.*, para. 4.

¹⁸⁸ *Id.*, para. 5.

¹⁸⁹ *Id.*, para. 6.

Similarly, providing specific information about network elements which are offline is not particularly helpful to anyone outside of AT&T, particularly since AT&T may be supporting wireless service to the area with temporary facilities or overlapping service. For wireline service, a wireline element may support various kinds of service in the surrounding population. Therefore, showing that a single element is out of service is not indicative of the surrounding service impact or the magnitude of the impact (*i.e.*, number of customers out of service).¹⁹⁰

More reasonable and informative would be to report network impacts by geographic area. Currently, AT&T provides network status information by county, but could provide it by the smaller geographic area of a ZIP code, although doing so would take some reprogramming of AT&T's systems that provide this information and would take a period of time to implement.¹⁹¹

The Resiliency Proposal requires that AT&T predict when service restoral will occur for equipment out of service during an emergency event. This is possible only some of the time, for some events. Often AT&T is not in control of when service restoral will occur. Depending on the event, AT&T's access to its equipment may be restricted by first responders because of safety issues (such as the proximity of a wild fire); by the a lack of access due to the event itself (for example, in the case of a severe earthquake or flood); or if the equipment damage is so extensive that an assessment of the restoral time requires complex analysis and/or vendor support. In the case of a PSPS event, if restoral of commercial power may be required, and the local utility controls the timeline for power restoral, AT&T has no control over that. AT&T could attempt to provide an estimate of service restoral during an emergency event, but the above factors may limit how specific—or useful—the estimation would be.¹⁹²

¹⁹⁰ *Id.*, para. 7.

¹⁹¹ *Id.*, para. 8.

¹⁹² *Id.*, para. 9.

The Resiliency Proposal also requires that AT&T provide the reason for the service impact and what corrective measures were taken to restore service. If the reason for the outage is not obvious, such as damage caused by the emergency event itself, or a loss of commercial power due to a PSPS event, it may take some time to determine the underlying cause of the outage condition. This information could be made available in a post event report, but it often will not be available until after the emergency event has been resolved. And even if this information was available during the event, it would be of questionable value to anyone outside of AT&T, at least while the emergency event was ongoing. It is not clear what action an agency or organization outside of AT&T could take even if they knew this information. Moreover, the personnel who could perform this analysis and report on it, will be (and should be) focused on service restoral during the event and should not be diverted from that task to prepare potentially multiple reports a day.¹⁹³

The same is true for the corrective actions taken to restore service. Again, this information would be of little value to anyone outside of AT&T during the event and is more appropriately provided as part of a post event report. It is a much more productive strategy to allow the personnel who restore service to spend their time doing so during emergency events than spending their time reporting on their activities several times a day.¹⁹⁴

AT&T urges the Commission to not impose requirements in addition to those that already exist. To the extent the Commission seeks to add a requirement for public dissemination of information, and in particular the publication of an outage map, AT&T further urges the Commission to utilize the thresholds and metrics which are already part of existing mandates, such as Cal OES's zip code-based reporting thresholds. This ensures consistency in reporting,

¹⁹³ *Id.*, para. 10.

¹⁹⁴ *Id.*, para. 11.

efficiencies in the delivery of information, and uses the standard set forth by Cal OES.

K. Resiliency Proposal Section 7: Current Mitigation Efforts

In Section 7, the Resiliency Proposal requests information on providers' current mitigation efforts:

- 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:**
 - (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.**

To the extent practicable, communication service providers are directed to submit as much of this information as possible without assertion of confidentiality.

AT&T is committed to ensuring continuity of service in preparation for and in advance of the upcoming 2020 wildfire and electric grid outage season and agrees that it is essential to improve collaboration and cooperation among state agencies, state and local elected officials, industry partners, and our customers. Towards this goal, AT&T will continue to invest aggressively in California to advance and upgrade its network to adapt to our new reality – a seemingly unending fire season and power shutoff events. As part of our efforts to ensure continuity of service, AT&T is committed to a broad, multi-pronged approach designed to

continually improve the reliability of the services we provide to the public and public safety agencies. As detailed in the Declaration of Jeff Luong, AT&T's current mitigation efforts related to continuity of service are broad in scope, and include: (1) a capital investment plan; (2) expanded public notification; (3) expanded first responder coordination; and (4) expanded industry collaboration.

Capital Investment Plan

AT&T has begun implementing a multi-year capital investment plan ("Plan") in California of more than \$100 million to improve network resiliency and expand backup power for our wireless network¹⁹⁵ and another \$200 million investment in new macro cell sites with fixed generators.¹⁹⁶ And by using a combination of fixed and mobile generators, AT&T will be prepared for the 2020 fire season to withstand (with minimal impacts) power shutoffs of similar size to the October 2019 PSPS.¹⁹⁷ AT&T's Plan will (1) achieve approximately 97% population coverage of our California customers with backup power at our macro cell sites by the 2020 fire season,¹⁹⁸ and (2) cover over 99% of the population with fixed generators when completed.¹⁹⁹

At a more granular level, AT&T's Plan provides for the following investments:

- 1000 fixed generators at new and existing sites from 2019 to 2024²⁰⁰
- 500 mobile generators pre-staged in California, including *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL***** new mobile generators,²⁰¹ with hundreds more out-of-state generators ready for deployment within 72 hours²⁰²

¹⁹⁵ Declaration of Jeff Luong, para. 11.

¹⁹⁶ *Id.*, para. 2, n.2.

¹⁹⁷ *Id.*, para. 12.

¹⁹⁸ *Id.*, para. 13.

¹⁹⁹ *Id.*

²⁰⁰ Declaration of Jeff Luong, para. 11.

²⁰¹ *Id.*, para. 16.

²⁰² *Id.*, para. 15.

Expanded Public Notification

AT&T is expanding public notification, increasing information distributed at retail locations and online, and making a specific effort to expand outreach to disadvantaged, disabled, elderly, and immigrant consumers.²⁰³ We will also disclose outage information during PSPS events, as well as expand reporting protocols in accordance with SB 560.²⁰⁴ AT&T will also be notifying designated local public safety officials within 60 minutes of discovering a community isolation outage.²⁰⁵

Expanded First Responder Coordination

AT&T will embed personnel at the Cal OES State Operations Center and will continue to work with our public safety partners on engagement during disasters.²⁰⁶ This includes ongoing discussions with elected officials, state, county, tribal, and emergency response personnel, and working with the CUEA on communication, data-sharing and providing situational awareness to first responders.²⁰⁷ AT&T is also consulting with the power companies to ensure timely, accurate, critical information is received to improve our response going forward.²⁰⁸ AT&T is prepared to participate in a collaborative effort working with industry and the public sector to improve network resiliency and information sharing.

Expanded Industry Collaboration

AT&T is also expanding industry collaboration to develop real-time outage reporting and service availability.²⁰⁹

²⁰³ *Id.*, para. 17.

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ *Id.*, para. 18.

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.*, para. 19.

L. Resiliency Proposal Section 8: Other Topics for Commission Consideration

Finally, in Section 8, the Commission asks whether any other topics should be considered by the Commission.

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

AT&T has not identified any other topics for Commission consideration at this time.

IV. CONCLUSION

AT&T is proud of its commitment to resiliency and emergency response, and we continually strive to deepen that commitment. In response to the unprecedented power losses of 2019, AT&T has put together a comprehensive plan to fortify its capabilities and work more closely with first responders. And in this filing, AT&T has laid out the details of its capabilities and its plan to move forward, as well as the challenges raised by some of the proposed resiliency measures. We look forward to working collaboratively with the Commission and others to improve the resiliency of communications for Californians.

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/s/

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