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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Emergency Disaster Relief Program.	Rulemaking 18-03-011 (Filed March 22, 2018)

REPLY COMMENTS OF THE UTILITY REFORM NETWORK, ACCESS HUMBOLDT, CENTER FOR ACCESSIBLE TECHNOLOGY, NATIONAL CONSUMER LAW CENTER, AND COMMUNICATIONS WORKERS OF AMERICA, DISTRICT 9 ON THE ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING COMMENTS ON WIRELINE PROVIDER RESILIENCY STRATEGIES

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I. INTRODUCTION

Pursuant to the July 22nd Assigned Commissioner and Administrative Law Judge's Ruling and the August 7th Administrative Law Judge's e-mail Ruling, ("Ruling" or "ACR"), The Utility Reform Network (TURN), Access Humboldt, the Center for Accessible Technology (CforAT), the National Consumer Law Center (NCLC), and Communications Workers of America, District 9 (CWA) (hereafter the Joint Consumer Advocates and CWA) hereby submit these Reply Comments on the July 22 Ruling Requesting Comments on Wireline Provider Resiliency Strategies. These Reply Comments respond to opening comments regarding the Commission's authority to address wireline network resiliency, including requirements to bolster wireline backup power for critical areas and types of facilities, including remote terminals, and require production of wireline provider resiliency and operations plans. Our reply comments are supported by the attached Declaration of XXXXXXXX on behalf of CWA District 9, addressing the need to improve battery back-up for remote terminals. Other substantive issues raised by parties are addressed in the attached Reply Declaration of Andrew Afflerbach, P.E., Ph.D. on Wireline Network Resiliency.

II. DISCUSSION

A. The Commission has the Authority to Require Wireline Carriers to Improve Network Reliability.

As they have done in every stage of this proceeding, the carriers argue that the Commission lacks the authority to adopt various requirements, including those that apply to

Voice over Internet Protocol ("VoIP") providers,[1] or require backup power so that customers may access web browsing.[2] Once again, these arguments should be rejected.

The Commission has repeatedly found that issues addressed in the Assigned Commissioner's Proposal ("Proposal"), D. 20-07-011,[3] and this Ruling, including backup power, network resiliency, and critical facility location information, along with related issues of service quality and emergency communications, constitute the framework for the exercise of its duty to ensure consumers have access to safe and reliable telecommunications service.[4] The Commission has repeatedly rejected the carriers' arguments, including in this very docket, and should continue to do so here.[5]

Specifically, in the Phase 1 decision adopted in this docket, addressing the carriers' obligations to provide customer protections when there is a declared emergency, the Commission found that it has "an ongoing responsibility to ensure the reasonableness and sufficiency of utility facilities" and that it must ensure that public utilities maintain equipment and facilities as

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[1] AT&T at 3-4; Comcast at 16-18.
[2] Cox at 10-11.
[3] D. 20-07-011 at pp.
[4] See, e.g., R. 11-12-001 ("Service Quality*"), Order Instituting Rulemaking to Evaluate Telecommunications Corporations Service Quality Performance and Consider Modification to Service Quality Rules*, D. 15-08-041, August 27, 2015, at 1-2; R.11-03-013 ("LifeLine"), *Order Instituting Rulemaking Regarding Revisions to the California Universal Telephone Service Lifeline Program*, D. 14-01-036, January 16, 2014, at. 1-4; I.14-05-012 ("Rural Call Completion"), *Order Instituting Investigation to Address Intrastate Rural Call Completion Issues*, D. 16-12-066, December 15, 2016; R.18-03-011, D.19-08-025 2-15; See, generally, Public Utilities Code Sections 451 requiring every public utility "to furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public;" and , 709, stating that the policy of the State of California is "[to] continue our universal service commitment by assuring the continued affordability and widespread availability of high-quality telecommunications services to all Californians."
[5] D.19-08-025 at 9-15. As of January 1, 2020, Public Utilities Code Section 710 has sunset and the Commission is no longer prohibited from regulating additional aspects of VoIP service beyond those addressed in D.19-08-025. See also D.20-07-011 (strong statement of jurisdiction over wireless carriers and the importance of strong Commission action that equally applies to the issues pending here.)

are "necessary to promote the safety, health, comfort and convenience of its patrons, employees, and the public.[6] Now, in this Phase of the proceeding, the requirements in the proposed rules do not require carriers to serve where they otherwise would not, nor do they dictate specific network configurations, service level and speed offerings, rates or charges. Instead, they implement a generally applicable, nondiscriminatory requirement that customers must receive reliable service to protect public safety during periods of critical need.

Carrier claims that the Commission is preempted from imposing network reliability rules on VoIP services must fail. In light of recent developments, it is an overstatement to suggest that either federal or state law definitively preempts the Commission from imposing network reliability regulations on VoIP and IP enabled networks. Carriers cite to *Charter v. Lange* to support their argument that as an "information service," the Commission is preempted from imposing regulations on VoIP services.[7] Their arguments rely on taking the *Charter* case out of context and ignore fundamental facts.

First, the *Charter* case must be put into perspective. As a decision in a three judge panel in a separate federal court Circuit, the holding in *Charter* is nonbinding for this Commission. Moreover, even as the *Charter* Court held that VoIP services were properly classified as an information service and that a set of state regulations were preempted, it acknowledged that it was making this determination with no direct guidance from the FCC who, up to that point, had refrained from imposing a regulatory classification on the service.[8]

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[6] D.19-08-025 at p. 10, citing Public Utilities Code §451, 761 (Finding broad authority over public utilities and finding that the means by which a telephone corporation provides service does not affect whether the provider is considered a public utility.)
[7] AT&T Wireline Opening at p. 4. *Charter Advanced Servs (MN)*, LLC v. Lange, 903 F.3d 715 (8th Cir 2018), *cert denied*, *Lipschultz v. Charter* 140 S. Ct. 6 (2019).
[8] *Id.* at 719.

Further, even if this Commission looked to apply the Court analysis in *Charter*, more analysis is needed. The FCC has historically allowed states to impose "non-economic" regulation on VoIP and other information services in order to protect public safety, accessibility, and network management and it has agreed that such regulations can coexist with federal policy; for example the FCC has accepted state authority to collect universal service surcharges and to implement emergency calling protocols.[9]

Finally, and most recently, the D.C. Circuit Court of Appeals has held that states have authority to impose tailored regulations on information services, including those designed to protect the public safety and welfare pursuant to the Congressional "vision of dual federal-state authority and cooperation in this area specifically."[10] With this clarification of state authority over information services, coupled with the California Legislature's statement of intent for its California Internet Consumer Protection and Net Neutrality Act of 2018, the Commission should find clear authority for the provisions in the Staff Proposal, including the requirement that customers have access to web browsing for emergency services for at least 72 hours.[11]

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[9] *Vonage Preemption Order* 19 FCC Rcd 22417; *In the Matter of Universal Service Contribution Methodology*, WC Docket 06-122, Declaratory Ruling, FCC 10-185 (Rel. November 5, 2010), *Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems,* PS Docket No. 17-239, Report and Order, FCC 19-76 (Rel. August 2, 2019) (refusing to preempt state law regarding direct dialing requirements for VoIP and IP based MLT systems)

[10] *Mozilla Corp. v. Federal Communications Commission et al. 940 F.3d 1, 81 (2019)*; See also, §253(b) (preserving state authority under the federal Telecommunications Act to uphold public safety and welfare and ensure the continued quality of telecommunications services.)

[11] SB 822 (Wiener) Chapter 976, September 30, 2018, Section 1(a), "This act is adopted pursuant to the police powers inherent in the State of California to protect the safety, life, public health, public convenience, general prosperity and well-being of society and the welfare of the state's population and economy, that are increasingly dependent on an open and neutral internet."

The state's intent to authorize such activity is bolstered by the critical fact that the California Legislature failed to renew the preemptory effects of Section 710.[12] This allows the state to take all action under the authority it has been provided within the parameters of federal law. Section 710 previously established as state policy a standard of declining to regulate VoIP services in most circumstances. By allowing Section 710 to sunset, the Legislature sent a clear message to the Commission that the growing number of consumers who rely on VoIP and other IP Enabled communications for their residential and small business communications services, must benefit from the same consumer protections and assurances of reliable communications services as the rest of California consumers. Moreover, the Commission's regulations must reflect the fact that the network can only serve its critical public safety role if everyone is reliably connected during a natural disaster or widespread electricity outage event. The Commission's duty to uphold policies of safety and reliability must be nondiscriminatory.

B. Back-up Power to Critical Wireline Network Facilities

Carriers argue that the Commission should not adopt a 72 hour backup power requirement for nearly any piece of network equipment, with the exception of telephone company central offices, and cable head ends and nodes serving a limited number of critical locations.[13] Based on our analysis of opening comments, research conducted by our engineering expert and the in-depth knowledge of telephone company technicians who are responsible for maintaining and repairing wireline telephone networks, Joint Advocates and CWA believe that it is feasible to deploy much more robust backup power at critical network locations than proposed

[12] Public Utilities Code §710(h) "This Section shall remain in place until January 1, 2020 and as of that date is repealed…… ; AB1366 (2019, Daly and Obernolte) on Committee Hold pursuant to Section 29.10, subsequently amended April 6, 2020.
[13] See, e.g., AT&T Wireline at 2-3, Comcast Wireline at 29-30.

in the industry plan. For remote terminals, cable head ends and cable hub buildings, it is feasible to place generators capable of supplying more than 72 hours of backup power at most or all of these facilities, provided that there are not adverse environmental impacts, a carrier can obtain permits and has sufficient space is available.[14] In situations where it is not feasible to place a generator, current backup power can be substantially increased using batteries coupled with solar or other portable generators, even if the back-up power supports less than 72 hours of service. In the near term, as quickly as possible following the issuance of this decision, for remote terminals, the Commission should require AT&T and Frontier to replace old batteries with new ones and install extra cabinets in critical locations to house additional batteries.

The carriers argue that only a small fraction of California households (3.3%) are without wireless service, so they do not rely primarily on wireline service during a power outage. Dr. Afflerbach demonstrates that this number is vastly understated and, based on same CDC data source, it is more accurate to assume that at least 8.6% of households more accurately reflects the number of people who must rely on wireline service during emergencies.[15] 3.3% of households equates to over 428,000 households with 1.26 million people. Using the more realistic figure of 8.6% of households, over 1.1 million households including 3.3 million Californians, rely on wireline service for emergency calls. And if 80% of 9-1-1 calls originate from wireless phones,[16] 20% are made from landlines, reflecting a significant reliance on wireline service. [17]

[14] Reply Declaration of Andrew Afflerbach Ph.D., PE on Wireline Network Resiliency Reply Comments at 4-6.
[15] Afflerbach Wireline Reply Declaration, at 1-3.
[16] Declaration of Jeff Luong on behalf of AT&T, at para. 7
[17] Afflerbach Wireline Reply Declaration at 3.

1. Back-up Power Support for Remote terminals

AT&T makes a limited recommendation to bolster back-up power for remote terminals. AT&T proposes to prioritize communities in Tier 2 and 3 high fire threat areas, who do not have wireless coverage, for the deployment of portable generators.[18] AT&T suggests that the electric investor-owned utilities work with tribal and local governments to identify "communities that likely will be subject to shutoffs that may not have adequate wireless coverage."[19] AT&T then states that "if a community without coverage is verified by wireless providers and the electric company notifies AT&T of a potential PSPS event in a verified community, "at least 30 days before any power shutoff in the area," AT&T will prioritize portable deployment for any RTs and VRADs supporting AT&T's wireline network in the verified community."[20] Joint Advocates and CWA agree with AT&T that improved wireline network backup power for remote terminals should, for now, be targeted to Tier 2 and Tier 3 areas that do not have wireless coverage. But AT&T's proposal, including an unreasonable demand for notice long before a prediction of high fire risk is possible, and its reliance solely on portable generators, is not sufficient.

AT&T's proposal can be substantially improved. Joint Advocates and CWA believe that there are technical options available for providing robust generator backup for at least some remote terminals in Tier 2 and 3 fire threat areas who have either no, or very poor, wireless service. As stated in the attached declaration of Robert Longer on behalf of CWA District 9, Frontier has installed propane generators in Eureka capable of providing power for five days at

[18] AT&T Wireline at 2.
[19] *Id.*, at 31
[20] *Id.* at 31-32.

certain remote terminals.[21] Frontier's use of generators at remote terminals was referenced in Dr. Afflerbach's Opening Wireline Declarations.[22] The Commission should inspect one or two of these facilities, verify their deployment and obtain information from Frontier about their cost, obstacles encountered in deployment, and the practices Frontier uses to maintain, refuel and secure the equipment. Additionally, Dr. Afflerbach has researched back-up power options that would be suitable for both remote terminals and cable network equipment and which demonstrate that such generators could be deployed to remote terminals and cable network equipment for a capital cost of only $60 per customer.

California is already engulfed in major wildfires and the peak period of fire risk is not yet upon us. Moreover, power outages that cripple essential communications services can occur at any time, regardless of whether they are part of planned power shutoffs. Placing generators takes time. Joint Consumers and CWA strongly recommend that the Commission should require 72 hour backup for key network facilities in all Tier 2 and Tier 3 High Fire Threat areas, with priority to those with no reliable wireless service. But we also suggest a speedier way to improve backup power in remote terminals, to act quickly to mitigate the kind of outages experienced in Southern Humboldt County[23] and elsewhere last year. The Commission could quickly require landline telephone companies to provide improved battery backup power in remote terminals by replacing poorly maintained, obsolete equipment with state of the art batteries. These carriers

[21] Declaration of Robert Longer on Behalf of The Communications Workers of America, District 9, AFL-CIO ("CWA") regarding the battery back-up at Remote Terminals (RT's) for AT&T in CPUC Docket No. R. 18-03-011, Attachment B, at 3.

[22] Opening Comments of TURN, Access Humboldt, CforAT and NCLC on Wireline Resiliency, Attachment A, Public Declaration of Andrew Afflerbach, Ph.D., P.E., on Wireline Network Resiliency, at 5. More specific information is included in the confidential version of Dr. Afflerbach's declaration.

[23] See, Joint Advocates and CWA Opening Comments, Attachment B.

are required by both statute and CPUC rules to maintain their networks, and enforcing the requirement to provide reliable service by maintaining and improving existing equipment should not be viewed as imposing an onerous requirement, particularly when it improves public safety.

Based on the first hand knowledge of the AT&T personnel who repair and maintain outside plant, including remote terminals, it is clear that AT&T has failed to maintain the batteries in its remote terminals.[24] Many are over ten years old, and hold a fraction of the charge that a new, state of the art battery would hold. The result is that these batteries expire much more quickly than they should, leaving customers without service, access to 9-1-1, and the ability to receive emergency alerts. During the power shutoffs in October, 2019, AT&T field technicians with generators in their trucks worked around the clock driving from site-to-site recharging the batteries on remote terminals. [25] This task was much more difficult and inefficient than it would have been if the batteries in the remote terminals were not in such poor condition.

The same concerns apply to the batteries in the remote terminals in Frontier's network. In previous comments in this docket, TURN, CforAT and NCLC have cited information about inadequate battery maintenance for Verizon (now Frontier) including discussions of the poor maintenance of remote terminals provided at public participation hearings in A. 15-03-005, and information provided to TURN by a Verizon technician and included in our comments in R.11-12-001.[26] There is no indication that maintenance efforts have improved, and the Joint Consumer Advocates and CWA note the letter from the Humboldt South Fire Safe Council

[24] Declaration of Robert Longer, on behalf of CWA District 9, at 1-2.
[25] Id.
[26] Reply Comments of The Utility Reform Network, Center for Accessible Technology and National Consumer Law Center on the Hardening ACR, September 13, 2019 at 13-15.

included as Attachment B to our opening comments on wireline resiliency, which again provides demonstrable proof that existing efforts to provide backup power for some of Frontier's remote terminals in high fire threat areas is not adequate and needs to be improved to address dire public safety needs.

As Carriers of Last Resort ("COLRS") AT&T and Frontier are obligated to maintain their wireline network, including remote terminals, to provide safe, adequate service and they have not done so. The Commission should require AT&T and Frontier to promptly install new, state of the art batteries in their remote terminals. Since the current batteries are virtually obsolete, newer and better batteries will greatly enhance backup power supporting the equipment. Additionally, it would be possible to enhance back-up power to these remote terminals even more by simply installing one additional cabinet for an additional set of batteries. One additional cabinet will likely not pose permitting or space impediments. At a minimum, adding an additional cabinet with newer and better batteries would more than double the back-up power supporting service to these lines. Since cabinets housing remote terminals contain both the remote terminal and the batteries, the second cabinet would have room for more batteries than the cabinet housing the remote itself.

Further to AT&T's proposal, the Commission should not depend on a time consuming community "verification" process to identify areas that should have priority for deployment of portable generators, and the deployment of portable generators should not be subject to a thirty day notice. That is a completely unrealistic time frame to accurately predict a de-energization event and it is indicative of AT&T's failure to adequately staff its maintenance and repair ranks. AT&T and Frontier are well aware of which remote terminals are located in high fire threat

areas.[27] To get the ball rolling, as demonstrated by the Public Advocates Office,[28] the location of Tier 2 and Tier 3 fire threat areas can be cross referenced with the Commission's CALSPEED maps, and other data sources, to perform and initial analysis of which Tier 2 and 3 areas lack wireless service.[29] That data can be analyzed in conjunction with the data AT&T and Frontier have provided concerning the location of remote terminal and VRAD equipment to more quickly identify priority areas. The list of priority areas can be expanded or reduced as other communities are identified or wireless service improves. The Commission, rather than the carriers, should be decide the communities that qualify for priority treatment.

Finally, and fundamentally, in response to AT&T's proposal, the Commission should adopt formal requirements for immediate battery replacement and, in its network resiliency plan requirements should include documentation the battery replacement, including a description of the types of batteries and expected backup time, plus ongoing plans install permanent generators at sites or to deploy portable generators, showing how the deployment is to be accomplished.

C. Back-up Power Support for Critical Locations

AT&T argues that it is not reasonable to impose a 72-hour backup power requirement on all wireline services.[30] Cable providers make similar arguments.[31] As discussed above in Section II. B. based on our expert's research we have shown that it is possible to deploy

[27] See Declaration of Jeff Luong in Support of AT&T's Comments on the Assigned Commissioner and Administrative Law Judge's Ruling on Wireline Provider Resiliency Strategies, at 6. Compare with the confidential data provided by AT&T in response to Public Advocates Data Request XXXXX.
[28] California Public Advocates Office Wireline, at 29-30.
[29] Afflerbach Wireline Reply Declaration, at 3-4. Conclusions about whether an area has service should not be drawn from notoriously inaccurate wireless carrier coverage maps.
[30] AT&T Wireline, at 5.
[31] See, e.g., Comcast at 19.

generators capable of providing 72 hours of back-up power in critical locations at a reasonable cost per household. In our Opening Comments, and Dr. Afflerbach's supporting declaration, Joint Advocates and CWA recommended a requirement of 72-hour backup in all telecommunications central offices, cable headends and cable hub buildings statewide. Additionally, Dr. Afflerbach stated that the 72-hour backup requirement should apply to remote terminals, DSLAMs and cable network power supplies in "Critical Areas." Our opening comments and declaration defined "Critical Areas" to be an area where there is significantly limited or no wireless service OR the device feeds a critical location in a high fire threat area such as a fire station, a policy station, hospital, emergency command and dispatch center, emergency shelter facility or a wireless facilities site." For wireline services, we propose that this back up requirement apply in areas in Tier Two and Tier Three High Fire Threat Districts where people cannot rely on wireless service, including areas where people cannot rely on wireless service at their home or businesses. And, as discussed above and in Dr. Afflerbach's Reply Declaration,[32] the Commission should identify these areas based on an assessment performed by the Commission utilizing the data currently available to it or by other credible tests performed independently of the wireless industry, and that the test methodology adopted by the Commission seek a signal level that is sufficient for indoor coverage and therefore build in sufficient margin for building penetration.

[32] Afflerbach Wireline Reply Declaration at 4.

D. Wireline Communication Resiliency Plans

1. Tier 2 Advice Letters are Appropriate for Wireline Communications Resiliency Plans

The Carriers argue that the wireline provider network resiliency plans should be submitted to the Commission as information-only filings instead of in Tier 2 Advice Letters.[33] Charter argues that the Tier 2 process is burdensome and would delay efforts to improve resiliency.[34] AT&T argues that that the Commission's requirement in D.20-07-011 was adopted "without explanation or justification" and that Tier 2 treatment is intended for matters requiring staff review and approval, which it claims are not relevant here..[35] Cox argues that Tier 2 advice letters are an inappropriate vehicle for these plans, stating that advice letters are properly "vehicles for determining as a technical matter whether the proposed action is within the scope of what has already been authorized by statutes or Commission orders," whereas the stated purpose of the plans is to "increase collaboration between the Commission and the service provider filers. Cox suggests, instead, that the Commission establish a process whereby providers filed their plans in six months (annually thereafter), and staff can provide feedback.[36]

Far from being unnecessary or bothersome, the transparency and review processes of a Tier 2 Advice Letter are critical to ensure that the carriers are in compliance with the informational requirements in the Resiliency Plan and have demonstrated their ability to meet any adopted minimum service and back-up power requirements.[37] The Tier 2 review process allows the Commission to provide carriers with substantial flexibility and discretion to meet the

[33] Cox Wireline at 12, AT&T Wireline at 20-21, Charter Wireline at 17.
[34] Charter Wireline at 17-18.
[35] AT&T Wireline at 20.
[36] Cox Wireline at 13.
[37] *See* Proposed Decision at p. 90, OP 1-2 (requiring that each carrier's Advice Letter, "describes how the wireless provider shall maintain a minimum level of service and coverage … in the event of a power outage.")

requirements without prescriptive rules.[38] While the adopted rules may provide discretion to the carriers, the Commission staff still must review the Plan, plus the exemption process that will also likely be part of the Resiliency Plan.[39] Indeed, the Joint Consumers and CWA also urge the Commission to require quarterly updates or confirmation of "no updates" to the Commission and an annual re-filing of the Resiliency Plan, also by Advice Letter. Therefore, it is not appropriate to categorize these submissions as Information-Only.[40]

2. Modifications to Wireline Communications Resiliency Plans

In the Ruling, the Commission asked for comment about whether the requirements for wireless communication resiliency plans should be modified for wireline carriers. After considering AT&T's proposal to provide additional power to remote terminals with portable generators, we conclude that the telephone company resiliency plans should include documentation of plans to deploy portable generators and descriptions of how the deployment is to be accomplished. The plans should also include information on remote terminal battery maintenance, the vintage of remote terminal batteries, the staff available in a given region to maintain the batteries and planned battery replacement.

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[38] Tier 2 Advice Letter requirements serve similar purposes in the LifeLine program by allowing the Commission Staff to review the carriers' LifeLine offerings and ensure they meet the minimum service standards to qualify for subsidy (D.14-01-038, OP 24). Tier 2 ALs are also required for the carriers' emergency relief plans in response to the recent pandemic emergency(M-4842, OP 2). In each case, the providers must submit their advice letter to demonstrate how they have met, or exceeded, a certain set of minimum requirements within the flexibility and discretion given to the providers by the Commission.

[39] D.20-07-011 at 92, 94-98 (noting that the submissions are intended to "guide a data-driven conversation between the State, the wireless providers, and local governments").

[40] The Joint Consumers and CWA also urge the Commission to revise the Proposed Decision to require quarterly updates and an annual re-filing of the Resiliency Plan, also by Advice Letter.

E. Network Operations Plans

Carriers oppose the proposed requirement that they provide outage maps that are frequently updated. For example, AT&T does not believe a map should be mandated for wireline outages because a map based on its wireline nodes would result in a map of densely packed indicators. AT&T suggests providing the information in other ways, such as a color-coded table of municipalities.[41] Comcast claims that maps are not necessary because they provide detailed outage information to their customers, descriptions of impacts and restoration time frequently depends on factors outside of Comcast's control, and customers should turn to electric utilities as the best source of information on restoring service. Comcast "continues to doubt that such 'near real-time' outage information is useful to non-customers or to customers outside Comcast's service area."[42]

We appreciate AT&T's suggestion that there are alternative ways to present detailed information, such as a color coded table. However, we believe that it is possible to provide a map depicting service problems in a general area without including a visual data point for every node. for people who are evacuating in a disaster, it is important to quickly get as much information as possible before heading to a location. If service isn't working in one location it might be feasible to try another. The maps that AT&T produces may not be minutely precise, but they would be sufficient to show that service in the area may be impaired. In non-emergency situations, AT&T and other carriers will continue to notify customers of outages using their traditional means.

[41] AT&T Wireline at 23.
[42] Comcast Wireline at 28.

With respect to Comcast's argument that outages are due to circumstances beyond their control, and the public should ask the electric company for information about restoration time, electric power often goes out due to circumstances beyond an investor owned utility's control (falling trees, automobile accidents), yet they can provide maps. Further, when wireless reliability improves due to carriers implementing the Commission's requirements, people in areas with cell service would be able to access Comcast's maps and obtain information. Contrary to Comcast's assumption, for people who are evacuating in a disaster, it is important to quickly get as much information as possible before heading to a location. If service isn't working in one location it might be feasible to try another. In an emergency, it is very important to know if relatives and friends in an affected area are experiencing communications outages. Finally, the access to maps would be very useful for local and state emergency officials to get a quick snapshot of areas that might be experiencing communications problems. The fact that the maps are an approximation can be easily dealt with in a short disclaimer included on the web site or in a text message.

III. CONCLUSION

For the foregoing reasons, the Joint Consumer Parties and CWA urge the Commission to adopt Wireline Provider Resiliency Strategies consistent with those adopted in D. 20-07011, with the modifications recommended in Comments and Reply Comments.

Respectfully submitted,

/s/ Regina Costa
Regina Costa
Telecommunications Policy Director

August 21, 2020

Attachment A

Reply Declaration of
Andrew Afflerbach, Ph.D., PE

Reply Declaration of Andrew Afflerbach, Ph.D., P.E., on Wireline Network Resiliency Reply Comments

Prepared on behalf of The Utility Reform Network

CPUC Docket R. 18-03-011

August 21, 2020

Number of Californians Not Served by Wireless

AT&T claims that the "vast majority" of Californians "would not rely primarily on wireline telephone service during a power outage."[1] To support this contention they cite a statistic indicating that only 3.3% of Californians in 2018 had wireline but no wireless service.[2] As discussed below, I strongly disagree that the 3.3% of Californians claimed by AT&T is a valid representation of the number of Californians with only landline service and who cannot rely on wireless service at their home or businesses. The 3.3% number is based on the "landline only" field of the CDC National Center for Health Statistics document. For the reasons below, I believe that the number of people who cannot rely on wireless service to communicate during an emergency is substantially higher. Making sure Californians are able to make calls to 2-1-1 and

[1] Declaration of Jeff Luong in Support of AT&T's Comments on the Assigned Commissioner and Administrative Law Judge's Ruling on Wireline Provider Resiliency Strategies, August 12, 2020, at p. 2.

[2] Id.

9-1-1 and receive emergency alerts in the event of failure of wireline communications is a critical issue and likely a much larger one than indicated by AT&T. And, while CCTA is correct that one solution is for wireless providers to improve and expand service,[3] the challenges of providing wireless service in the most rugged and remote areas will require a combination of improved wireline resilience and expanded wireless service to address the problem. Reasonable improvements to backup power and network resiliency for wireline providers is a critical element of this effort.

The CDC statistics used by AT&T describe "landline only" as "households with a landline telephone in which no residents have a working cell phone."[4] This metric undercounts the households that cannot rely on wireless service in their homes and businesses, because it leaves out individuals in many other categories who cannot rely on wireless service even though they have a working cell phone---such as individuals who have cell phones for use when they travel outside their area but have no signal in or around their homes, or businesses and individuals who have cell phones that work outdoors near their homes and businesses but do not work reliably indoors.

Therefore, to understand the full scope of the concern regarding landline customers with no reliable cell phone service, the Commission should also include individuals in CDC's "landline mostly" category as well, which would increase the number from 3.3% to 8.6% (from summing the two categories). One of the main reasons that an individual with a wireless phone would still

[3] CCTA comment, p. 7.

[4] Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January-June 2019, https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202005-508.pdf, P.5, footnote 1

"mostly" use a landline phone is because it is likely that there is some problem with the reliability of the wireless phone.

It may be more telling that only 80% of 9-1-1 calls are from a wireless phone.[5] If 20% of 9-1-1 calls are from landline phones, it must be because, in 20% of instances, when the call most matters, callers need to use a landline phone—because the wireless phone is not the best choice.

The US Census Bureau reports that for the period 2014-2018, there were an average of 12,965,435 households in California, with an average of 2.96 persons per household.[6] Therefore, even if AT&T's assumption that only 3% of households have no reliable cell service were correct, that would still mean nearly 428,000 households (specifically 427,859) or 1.26 million people would have no communications capabilities if their wireline service was not working. Naturally, the more reasonable estimate of at least 8.6% of households equates to an even more compelling number of impacted households, over 1.1 million households, with 3.3 million people.

Therefore, despite the carriers' attempt to deprioritize this issue, when setting back up power requirements for landline phones, the Commission must include the many areas where wireless is not an option or is not reliable. This criteria should include areas where the carriers' coverage maps may show that service is available, but that "on the ground" experience and testing proves that coverage is weak or spotty and that, in defined geographic areas beyond the individual household level (e.g. neighborhoods, zip codes, dense urban areas), tests show that indoor coverage quality is uniformly poor.

[5] AT&T statement by Jeff Luong, p. 3.
[6] https://www.census.gov/quickfacts/fact/table/CA/HSD310218

To identify the areas of insufficient wireless service, I recommend the Commission update its CalSPEED mobile broadband assessment (most recently conducted in 2017) or have credible tests performed by contractors independent of the wireless industry, such as Ookla or RootMetrics, to identify these gap areas. The assessment should also continue to gather crowdsourced information from the public about areas without coverage and verify those in its tests. It is important that any test methodology adopted by the Commission seek a signal level that is sufficient for indoor coverage and therefore build in sufficient margin for building penetration.

Cost and Physical Footprint of 72 Hour Generator and Fuel for Remote Terminal or DSLAM

AT&T and other carriers argue that the Commission has not sufficiently considered the cost of robust back up power requirements. In my experience, the cost of a generator, fuel tank and other equipment needed to support remote terminal equipment with 72 hours of backup power in a rural area is approximately $30,000 as described below. It would have the approximate footprint shown in AT&T's comments,[7] although a proper installation at an actual site would have restored the surrounding environment, and the tank would have been approximately half the size. In my experience, the configuration of equipment presented in the picture in Attachment B is not unusual for rural areas, but would not be a common configuration in all areas.

To provide further detail, an individual generator connected to a remote terminal serving hundreds of telephone lines over a wide area, would require a power load of approximately 0.5 to 1 W per line to power the lines for voice service, therefore requiring 500 W of generation for a 500-line terminal. There would also need to be power for a fan or heat exchanger, likely

[7] AT&T comments, Attachment B, lower photo. Generator in leftmost cabinet.

another 200 W. The 700 W of power needed for this generator could be managed by a 3.6 kW propane generator. With the generator operating at half-load, the fuel consumption would be approximately 0.7 gallons per hour, requiring approximately 50 gallons for 72 hours.[8] I would estimate conservatively an approximate average cost of $30,000 per generator installation.[9]

Considering the typical density of rural wireline plant, deploying an additional 1,000 generators at remote terminals cost approximately $30 million, but create more resilient landline service for hundreds of thousands of Californians. Put another way, and more clearly demonstrating the cost/benefit for individual households at risk of losing communication service at a critical point, a $30,000 generator installation that provides 72 hours of backup power for 500 homes over the course of several years would only have an approximate capital cost of $60 per home.

I recommend that the Commission require wireline carriers to deploy these generators to serve remote terminals and that they prioritize deployment of the generators using a metric based on the criticality of the remote terminal. The "criticality" would be determined by

[8] AlphaGen Telecom Generator, 3.5 kW generator, https://www.alpha.com/download/critical_facilities_power/alphagen_generators/alphagen_telecom/alphagen_telecom_datasheet_a4.pdf , accessed August 20, 2020. Half load fuel consumption is 86% of full based on typical performance of liquid propane generator https://www.ctcnet.us/publications/mobile-broadband-service-is-not-an-adequate-substitute-for-wireline/ accessed August 21, 2020.

[9] Based on estimate for larger-scale generator at rural cellular site, $11,425 for 20 kW diesel generator with 200 amp transfer switch, $325 for electrical wires $ 1750 for 1000 gallon fuel tank and 40% installation fee, for a total of $18,900. A BROADBAND NETWORK COST MODEL: A BASIS FOR PUBLIC FUNDING ESSENTIAL TO BRINGING NATIONWIDE INTEROPERABLE COMMUNICATIONS TO AMERICA'S FIRST RESPONDERS; OBI TECHNICAL PAPER NO. 2, Federal Communications Commission, May 2010, https://www.fcc.gov/document/broadband-network-cost-model-basis-public-funding-essential, accessed August 20, 2020. Adding additional 50% for cost escalation, permitting and contingencies, for a worst-case estimate of $30,000.

considering the number of households and business passed that do not have wireless service (as discussed above), focusing primarily on Fire Threat Tier 2 and Tier 3 areas.

As noted by AT&T and others, it may not be possible to place generators in certain areas for environmental or other reasons. In which case, I agree that other options may be considered, such as upgrades from copper lines to fiber, enhancement of existing battery backup coupled with recharging from solar or mobile generators, or collaboration with the local community on local generation. The solution, however, cannot be to allow this critical equipment to go without the necessary back up to ensure customers stay connected during commercial power outages caused by PSPS or by natural disasters.

Finally, the above analysis should also apply to power supplies for cable broadband systems. However, there will be significantly fewer cable power supplies requiring extended backup power, considering that there is significantly less overlap of cable service with areas without wireless service.

Clarification of Critical Areas Requiring 72-Hour Backup and Full Proposal

AT&T comments that it is not reasonable to impose a 72-hour backup power requirement on all wireline services.[10] Nothing I reviewed in these opening comments leads me to change my recommendations from my opening declaration. In my opening declaration, I recommend there be 72-hour backup in all telecommunications central offices, cable headends and cable hub buildings statewide. Additionally, I state that the 72-hour backup requirement should apply to remote terminals, DSLAMs and cable network power supplies serving "Critical Areas" in high fire

[10] AT&T Comments, p. 5.

threat areas. In my opening declaration, I define "Critical Areas" to be an area where there is significantly limited or no wireless service OR the device feeds a critical location such as a fire station, a policy station, hospital, emergency command and dispatch center, emergency shelter facility or a wireless facilities site."[11] In this declaration, more specifically regarding wireless services, I propose that this back up requirement apply in areas in Tier Two and Tier Three High Fire Threat Districts where people cannot rely on wireless service, including areas where people cannot rely on wireless service at their home or businesses. And, as discussed above, I recommend the Commission identify these areas based on an assessment performed by the Commission or by other credible tests performed independently of the wireless industry, and that the test methodology adopted by the Commission seek a signal level that is sufficient for indoor coverage and therefore build in sufficient margin for building penetration.

[11] TURN Opening Comments, April 13, 2020, Attachment A (Afflerbach Declaration) at p. 3.

Andrew Afflerbach, Ph.D., P.E. | CEO and Chief Technology Officer

Andrew Afflerbach specializes in the planning, designing, and implementation oversight of broadband communications networks, smart cities strategies, and public safety networks. His expertise includes state-of-the-art fiber and wireless technologies, the unique requirements of public safety networks, and the ways in which communications infrastructure enables smart and connected applications and programs for cities, states, and regions.

Andrew has planned and designed robust and resilient network strategies for dozens of clients, including state and local governments and public safety users. He has delivered strategic technical guidance on wired and wireless communications issues to cities, states, and national governments over more than 20 years. He has advised numerous cities and states, including New York City, San Francisco, Seattle, Atlanta, Washington, D.C., and Boston, and served as a senior adviser to Crown Fibre Holdings, the public entity directing New Zealand's national fiber-to-the-home project.

In addition to designing networks, Andrew testifies as an expert witness on broadband communications issues. And he is frequently consulted on critical communications policy issues through technical analyses submitted to the Federal Communications Commission (FCC) and policymakers. He has prepared white papers on:

- Streamlining deployment of small cell infrastructure by improving wireless facilities siting policies
- Limiting interference from LTE-U networks in unlicensed spectrum
- Developing technical frameworks for wireless network neutrality
- Estimating the cost to expand fiber to underserved schools and libraries nationwide
- Conducting due diligence for the IP transition of the country's telecommunications infrastructure

As CTC's Chief Technology Officer, Andrew oversees all technical analysis and engineering work performed by the firm. He has a Ph.D. and is a licensed Professional Engineer.

Wireless Network Planning and Engineering

Applying the current state of the art—and considering the attributes of anticipated future technological advancements such as "5G"—Andrew has developed candidate wireless network designs to meet the requirements of clients including the cities of Atlanta, San Francisco, and Seattle. In a major American city, Andrew led the team that evaluated wireless broadband solutions, including a wireless spectrum roadmap, to complement potential wired solutions.

In rural, mountainous Garrett County, Maryland, Andrew designed and oversaw the deployment of an innovative wireless broadband network that used TV white space spectrum to reach previously unserved residents. To enhance public internet connectivity, Andrew provides technical oversight on CTC's Wi-Fi-related projects, including the design and deployment of Wi-Fi networks in several parks in Montgomery County, Maryland.

Andrew also advises local and state government agencies on issues related to wireless attachments in the

public rights-of-way; he leads the CTC team that supports the Texas Department of Transportation (TxDOT) and many large counties on wireless attachment policies and procedures.

Public Safety Networking

Andrew leads the CTC team providing strategic and tactical guidance on FirstNet (including agency adoption and other critical decision-making) for the State of Delaware and Onondaga County, New York. In the District of Columbia, he and his team evaluated the financial, technical, and operational impact of building the District's own public safety broadband network, including the design of an LTE system that provided public-safety-level coverage and capacity citywide. This due diligence allowed the District to make an informed decision regarding opting in or out of the National Public Safety Broadband Network.

Andrew currently is working with the State of Delaware to evaluate LTE coverage gaps throughout the state to assist agencies in their choice of public safety broadband networks. On the state's behalf, he and his team are also conducting outreach to AT&T and other carriers to evaluate their public safety offerings. He is performing similar work as part of CTC's engagement with El Paso County, Colorado.

Earlier, Andrew led the CTC team that identified communications gaps and evaluated potential technical solutions for the Baltimore Urban Area Security Initiative (UASI), a regional emergency preparedness planning effort funded by the U.S. Department of Homeland Security (DHS).

He previously served as lead engineer and technical architect for planning and development of NCRnet, a regional fiber optic and microwave network that links public safety and emergency support users throughout the 19 jurisdictions of the National Capital Region (Washington, D.C. and surrounding jurisdictions), under a DHS grant. He wrote the initial feasibility studies that led to this project for regional network interconnection.

Fiber Network Planning and Engineering

Andrew has architected and designed middle- and last-mile fiber broadband networks for the District of Columbia (Washington, D.C.); the city of San Francisco; the Delaware Department of Transportation; the Maryland Transportation Authority; and many large counties.

He oversaw the development of system-level broadband designs and construction cost estimates for the cities of Atlanta, Boston, Boulder, Palo Alto, Madison, and Seattle; the states of Connecticut and Kentucky; and many municipal electric providers and rural communities. He is overseeing the detailed design of the city-built fiber-to-the-premises (FTTP) networks in Westminster, Maryland; Alford, Massachusetts; and Holly Springs and Wake Forest, North Carolina.

In Boston, Andrew led the CTC team that developed a detailed RFP, evaluated responses, and participated in negotiations to acquire an Indefeasible Right of Use (IRU) agreement with a fiber vendor to connect schools, libraries, public housing, and public safety throughout the City. This approach was designed to allow the City to oversee and control access and content among these facilities.

Smart Grid

Andrew and the CTC team provided expert testimony and advisory services to the Public Service Commission of Maryland regarding Advanced Metering Infrastructure (AMI). CTC provided objective guidance to the staff as it evaluated AMI applications submitted by three of the state's investor-owned utilities (IOUs). This contract represented the first time the PSC staff had asked a consultant to advise them on technology—a reflection of the lack of standards in the Smart Grid arena.

Broadband Communications Policy Advisory Services

Andrew advises public sector clients and a range of policy think tanks, U.S. federal agencies, and non-profits regarding the engineering issues underlying key communications issues. For example, he:

- Provided expert testimony to the FCC in the matter of the preparation of the **national broadband plan** as a representative of the National Association of Counties (NACo) and the National Association of Telecommunications Officers & Advisors (NATOA).
- Served as expert advisor regarding broadband deployment to the U.S. Conference of Mayors, NACo, National League of Cities, Public Knowledge, New America Foundation Open Technology Institute, and NATOA in those organizations' filings before the FCC in the matter of determination of the deployment of a **national, interoperable wireless network in the 700 MHz spectrum**.
- In connection with the FCC's ongoing **Open Internet proceeding**, advised the New America Foundation regarding the technical pathways by which "any device" and "any application" regimes could be achieved in the wireless broadband arena as they have been in the wireline area.
- Provided expert technical advice on the **700 MHz broadband and AWS-3 proceedings** at the FCC for the Public Interest Spectrum Coalition (including Free Press, the New America Foundation, Consumers Union, and the Media Access Project).
- Served as technical advisor to the **U.S. Naval Exchange** in its evaluation of vendors' broadband communications services on U.S. Navy bases worldwide.
- Advised the **U.S. Internal Revenue Service** regarding the history of broadband and cable deployment and related technical issues in that agency's evaluation of appropriate regulations for those industries.
- Advised the Stanford Law School Center for Internet and Society on the technical issues for their briefs in the ***Brand X*** **Supreme Court appeal** regarding cable broadband.

Broadband Communications Instruction

Andrew has served as an instructor for the U.S. Federal Highway Association/National Highway Institute, the George Washington University Continuing Education Program, the University of Maryland Instructional TV Program, ITS America, Law Seminars International, and the COMNET Exposition. He developed curricula for the United States Department of Transportation.

He taught and helped develop an online graduate-level course for the University of Maryland. He developed and taught communications courses and curricula for ITS America, COMNET, and the University of Maryland. His analysis of cable open access is used in the curriculum of the International Training Program on Utility Regulation and Strategy at the University of Florida.

Andrew has also prepared client tutorials and presented papers on emerging telecommunications technologies to the National Fire Protection Association (NFPA), NATOA, the National League of Cities (NLC), the International City/County Management Association (ICMA), and the American Association of Community Colleges (AACC). He taught college-level astrophysics at the University of Wisconsin.

EMPLOYMENT HISTORY

1995–Present	CEO/Chief Technology Officer, CTC
	Previous positions: Director of Engineering, Principal Engineer, Senior Scientist
1990–1996	Astronomer/Instructor/Researcher
	University of Wisconsin–Madison, NASA, and Swarthmore College

EDUCATION

Ph.D., Astronomy, University of Wisconsin–Madison, 1996

- NASA Graduate Fellow, 1993–1996. Research fellowship in astrophysics
- Elected Member, Sigma Xi Scientific Research Honor Society

Master of Science, Astronomy, University of Wisconsin–Madison, 1993

Bachelor of Arts, Physics, Swarthmore College, 1991

- Eugene M. Lang Scholar, 1987–1991

PROFESSIONAL CERTIFICATIONS/LICENSES

Professional Engineer, states of California, Delaware, Georgia, Illinois, Maryland, and Virginia

HONORS/ORGANIZATIONS

- Disaster Response and Recovery Working Group, FCC's Broadband Deployment Advisory Committee (BDAC)
- Association of Public-Safety Communications Officials (APCO)
- Board of Visitors, University of Wisconsin Department of Astronomy
- National Association of Telecommunications Officers and Advisors (NATOA) Technology and Public Safety Committees
- Armed Forces Communications and Electronics Association (AFCEA)
- Society of Cable and Telecommunications Engineers (SCTE)
- Institute of Electrical and Electronic Engineers (IEEE)
- Charleston Defense Contractors Association (CDCA)

SELECTED PUBLICATIONS, PRESENTATIONS, and COURSES

- "Small Cell Standards and Processes: Protecting Community Assets, Interests, and Public Safety," prepared for NATOA, Feb. 2019
- "SB 937: Wireless Facilities – Installation and Regulation," Testimony before the State of Maryland Senate, Feb. 2019
- "HB 654: Wireless Facilities – Installation and Regulation," Testimony before the State of Maryland General Assembly, Feb. 2019
- "The Three "Ps" of Managing Small Cell Applications: Process, Process, Process," Dec. 2018
- Declaration in Response to FCC's Order, "Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment," prepared for the Smart Communities and Special Districts Coalition, filed with the FCC, Sept. 2018
- Declaration in Response to the Proposed T-Mobile/Sprint Merger, prepared for the Communications Workers of America, filed with the FCC, Aug. 2018
- "A Model for Understanding the Cost to Connect Anchor Institutions with Fiber Optics" (co-author), prepared for the Schools, Health & Libraries Broadband Coalition, Feb. 2018
- "How Localities Can Prepare for—and Capitalize on—the Coming Wave of Public Safety Network Construction," Feb. 2018
- "Network Resiliency and Security Playbook" (co-author), prepared for the National Institute of Hometown Security, Nov. 2017
- "Mobile Broadband Service Is Not an Adequate Substitute for Wirelines" (co-author; addressing the limitations of 5G), prepared for the Communications Workers of America, Oct. 2017
- "Technical Guide to Dig Once Policies," April 2017

- "Streamlining Deployment of Small Cell Infrastructure by Improving Wireless Facilities Siting Policies," prepared for the Smart Communities Siting Coalition, filed with the FCC, March 2017
- "How Localities Can Improve Wireless Service for the Public While Addressing Citizen Concerns," Nov. 2016
- "LTE-U Interference in Unlicensed Spectrum: The Impact on Local Communities and Recommended Solutions," prepared for WifiForward, Feb. 2016
- "Mobile Broadband Networks Can Manage Congestion While Abiding by Open Internet Principles," prepared for the New America Foundation's Open Technology Institute – Wireless Future Project, filed with the FCC, Nov. 2014
- "The State of the Art and Evolution of Cable Television and Broadband Technology," prepared for Public Knowledge, filed with the FCC, Nov. 2014
- "A Model for Understanding the Cost to Connect Schools and Libraries with Fiber Optics," prepared for the Schools, Health & Libraries Broadband Coalition, filed with the FCC, Oct. 2014
- "The Art of the Possible: An Overview of Public Broadband Options," prepared jointly with the New America Foundation's Open Technology Institute, May 2014
- "Understanding Broadband Performance Factors," with Tom Asp, *Broadband Communities* magazine, March/April 2014
- "Engineering Analysis of Technical Issues Raised in the FCC's Proceeding on Wireless Facilities Siting," filed with the FCC (http://apps.fcc.gov/ecfs/document/view?id=7521070994), Feb. 2014
- "A Brief Assessment of Engineering Issues Related to Trial Testing for IP Transition," prepared for Public Knowledge and sent to the FCC as part of its proceedings on Advancing Technology Transitions While Protecting Network Values, Jan. 2014
- "Gigabit Communities: Technical Strategies for Facilitating Public or Private Broadband Construction in Your Community," prepared as a guide for local government leaders and planners (sponsored by Google), Jan. 2014
- "Critical Partners in Data Driven Science: Homeland Security and Public Safety," submitted to the *Workshop on Advanced Regional & State Networks (ARNs): Envisioning the Future as Critical Partners in Data-Driven Science*, Internet2 workshop chaired by Mark Johnson, CTO of MCNC, Washington, D.C., April 2013
- "Connected Communities: How a City Can Plan and Implement Public Safety & Public Wireless," submitted to the International Wireless Communications Exposition, Las Vegas, March 2013
- "Cost Estimate for Building Fiber Optics to Key Anchor Institutions," prepared for submittal to the FCC by NATOA and SHLB, Sept. 2009
- "Efficiencies Available Through Simultaneous Construction and Co-location of Communications Conduit and Fiber," prepared for submittal to the FCC by the National Association of Telecommunications Officers and Advisors and the City and County of San Francisco, 2009, referenced in the National Broadband Plan
- "How the National Capital Region Built a 21st Century Regional Communications Network" and "Why City and County Communications are at Risk," invited presentation at the FCC's National Broadband Plan workshop, Aug. 25, 2009

Attachment B

Declaration of Robert Longer on behalf of Communications Workers of America, District 9

Declaration of Robert Longer on Behalf of The Communications Workers of America, District 9, AFL-CIO ("CWA") regarding the battery back-up at Remote Terminals (RT's) for AT&T in CPUC Docket No. R. 18-03-011.

August 21, 2020

CWA is a labor organization and the exclusive bargaining representative, as those terms are understood by the National Labor Relations Act, for most employees of AT&T in California.

Currently there are multiple large, fast-moving and extremely dangerous wildfires raging throughout Northern California. CWA members serving as AT&T filed technicians are in the midst of these natural disasters, and play a critical role in ensuring the public maintains continued access to landline, cellular and internet service. In rural communities, in particular, it is even more important to maintain these critical services; many customers have little to no other options for service, with some areas having zero cell service coverage.

As part of its ongoing obligation to its members, CWA conducted an investigation of the conditions of AT&T's RT battery back-up in Northern California, which included interviewing several members who work as field technicians for AT&T. CWA's investigation has found numerous instances of the poor state of AT&T's battery back-up at RT's in Northern California, which jeopardizes service and poses additional safety hazards to utility employees and the public.

CWA's investigation has revealed the following regarding back-up batteries at RT's throughout Northern California:

1. AT&T has failed to properly maintain batteries.
2. Batteries are, on average, 9-10 years old.
3. Most batteries provide only up to eight (8) hours of service before exhausting; very few may last up to twenty four (24) hours, but those are exceptions.
4. There is no option to repair old or malfunctioning batteries; the only way to fix them is to replace them with a new battery.

As a result of the limited back-up battery capacity (8-24 hours or less), RT's must be supplemented by external power sources once batteries are exhausted. Consequently, during any Public Safety Power Shutoff (PSPS), wildfire, or other natural disaster or service-affecting event, AT&T field technicians must physically drive to each RT and hook up a diesel fuel generator in order to provide power for the RT to maintain service. This is particularly problematic for several reasons: 1) All generators for Northern California are physically located in only one (1) location—an AT&T facility in Dublin, CA; 2) AT&T field technicians must drive to Dublin to acquire and then haul generators throughout Northern California, which takes a minimum of (1) day, but can take several days; 3) AT&T field technicians must drive extensively to remote areas, in order reach each RT with failed batteries, then hook up a generator to restore service; 4) AT&T does not maintain adequate levels of staff, and, as such, field

technicians are limited in coverage, incur large amounts of overtime, and cannot physically access RT's with failed batteries in a timely manner.

Due to the observed condition of back-up batteries at AT&T's RT's throughout Northern California, CWA recommends the following:

1. AT&T must install new, state of the art batteries at all RTs, but especially those serving High Fire Threat Areas.
2. If space and permitting at RT's are issues, put a second cabinet next to or on top of the first one. This would—at a minimum—double the battery capacity.
3. Add battery maintenance information to network resiliency plans.
4. AT&T and all utility providers must maintain adequate and realistic staffing levels.
5. Contracting out must be minimized.

It also should be noted that, aside from batteries or diesel fuel generators, there are other options for providing power at RT's. CWA has found that Frontier utilizes propane to provide up to five (5) days of power at RT's in Eureka, CA. The option of propane (where physically, environmentally and legally feasible) should be explored as a viable replacement for or supplement to back-up batteries at RT's.

CWA believes the above recommendations will help AT&T better serve the public interest in Northern California. We urge adoption of the outlined proposed solutions—especially given

the increased fire season and larger and more deadly wildfires that have inflicted so much damage in recent years—and appreciate due consideration on this matter.

I declare the following to be true and correct to the best of my knowledge.

Staff Representative
Communications Workers of America
District 9 (California, Nevada, Hawaii,
Guam, Japan, China, & the Pacific Rim