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Executive Summary

The California Public Utilities Commission (Commission) is responsible for ensuring that essential communications services, including wireless voice communications service,¹ are safe and reliable for all Californians, particularly regarding access to 911 and communications during emergencies or disasters. Wireless service has become the primary means for Californians to contact 911, receive emergency alerts, and maintain connectivity during emergencies.² However, information gathered from Rulemaking (R.) 26-02-017 highlight that numerous communities throughout California continue to experience chronic outages, insufficient coverage, and unreliable service, particularly in rural, tribal, and underserved areas.

As detailed later in this proposal, community leaders, tribal representatives, consumer advocates and the public have raised concerns that current wireless coverage maps frequently misrepresent actual service availability. Reports³ indicate that outages regularly occur in specific locations, including communities that rely on a single wireless carrier. This dependence on a single wireless carrier puts these communities in a vulnerable situation, as the failure of service can lead to the loss of access to 911 services.

Furthermore, wireless carriers state that they already track detailed internal performance metrics for their own business operations and competitive analysis. The record demonstrates that communications service gaps impact public safety, and that it is necessary to achieve better service quality obligations. Consistent with the Commission's responsibilities to ensure safe and reliable communications services, the key recommendations in this staff proposal are as follows:

Mandated restoration of community isolation outages

Require wireless carriers to restore service outages within a 24-hour timeframe, with escalating penalties⁴ for prolonged outages longer than that timeframe.

Establishment of the network availability standard

¹ Throughout this document, wireless voice communications service may also be referred to as wireless service, mobile service, or cellular service.

² In 2021, over 87% of 9-1-1 calls in California were made with wireless devices. See 2021 National 911 Annual Report: https://www.911.gov/assets/2021-911-Profile-Database-Report_FINAL.pdf

³ See the California Governor's Office of Emergency Services Community Isolation Outages section for more details.

⁴ These penalties are in the form of a fine payable to the State of California's General Fund.

Establish a minimum network availability standard of 99%, measured by Public Use Microdata Area (PUMA),⁵ to ensure persistent service gaps in specific communities are identified and addressed, with escalating penalties⁶ based on the severity of violation against the standard.

Multifaceted customer service protections

Implement a multifaceted customer service standard, including timely access to live agents and improved callback practices, to ensure wireless customers can receive assistance during service disruptions particularly in 911 events and disasters.

The recommendations in this staff proposal aim to provide Californians with transparent information regarding wireless performance, to hold carriers accountable, and to ensure that communities can consistently access essential wireless service when needed. Moreover, these recommendations offer a transparent framework for oversight and accountability as wireless networks increasingly replace traditional landline infrastructure.

Introduction

Wireless voice communications service is an essential service that enables health, safety, and full participation in society.⁷ Moreover, wireless services have become many Californians' primary communications method during emergencies. *"Disasters are no longer the occasional incident, they are the norm... we have to be prepared for [those situations] at all times."*⁸ The ability to contact family and first responders in case of emergencies is what defines an essential service.⁹ *"Quite simply put it, [wireless technologies] is a lifeline for us... We know that well over 80% of the 911 calls are made on a wireless device... We also know that nearly 80% of the homes don't even have a wired phone anymore."*¹⁰

⁵ In *Decision Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Service* (D. 20-07-032), the Commission adopted the Affordability Ratio metric, which calculates coefficients at the PUMA level the measure the relative affordability of essential services, Pages 53-56, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K049/344049206.PDF>.

⁶ These penalties are in the form of general fund fine payable to the state of California.

⁷ *Decision Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Service* (D. 20-07-032), Pages 12-13, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M344/K049/344049206.PDF>.

⁸ Rhonda Duggan, Mono County Supervisor, June 25, 2026 Remote Workshop for Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers (R.26-02-017), Recording at 03:42:02.

⁹ Affordability Metrics Framework Staff Proposal, R18-07-006, January 24, 2020, Page 22 <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M325/K620/325620620.PDF>

¹⁰ Ken Kehnma, Western Fire Chiefs Association, Workshop, Recording at 03:58:11

The California Governor's Office of Emergency Services (Cal OES) collects outage notifications for wireless outages that last at least 30 minutes and affects at least 25 percent of a carrier's coverage areas in a single zip code.¹¹ According to Cal OES outage data, these community isolation outages are widespread across the entire state.¹² Some zip codes even experienced repeated outages as high as 267 outage occurrences across a three-year span.¹³

The Commission has a statutory obligation to ensure California customers receive adequate service quality for communications service.¹⁴ Moreover, the California Legislature has declared a commitment in ensuring a widespread availability of high-quality telecommunications services to all Californians.¹⁵ California consumers pay for wireless service and expect to receive quality service that is reliable, available at all times, and transparent.¹⁶ The Center for Accessible Technology accurately sums up consumer sentiment: "[O]n a customer perspective... we want to make sure that people have access to good service, they have access to customer service, and they can have expectations on the kind of service that they are going to receive."¹⁷

The Commission's Communications Division (CD) has carried out a comprehensive analysis of wireless service quality in California. This CD staff proposal aims to address wireless service quality issues and provides enforceable, reasonable service quality standards at the local level for the state of California.

Proceeding Background

In February 2026, the Commission issued Order Instituting Rulemaking (R.) 26-02-017¹⁸ to consider updates to the service quality rules for wireless carriers. The proceeding was opened to determine whether voice service quality metrics for wireline providers should be extended to wireless services. The proceeding is considering whether the Commission should modify existing voice metrics and standards or develop new voice service quality

¹¹ Cal OES community isolation outage reporting requirements <https://www.caloes.ca.gov/office-of-the-director/operations/public-safety-communications/ca-9-1-1-emergency-communications-branch/community-isolation-reporting/>

¹² See the California Governor's Office of Emergency Services Community Isolation Outages section for more details.

¹³ Ibid.

¹⁴ Public Utilities Code §2896 (c)

¹⁵ Public Utilities Code §709 (a)

¹⁶ Public Utilities Code §709 (h)

¹⁷ Paul Goodman, Center for Accessible Technology, Workshop, Recording at 00:21:06.

¹⁸ Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers (R.26-02-017), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M601/K572/601572628.PDF>.

standards specifically for wireless carriers.¹⁹ AT&T Mobility,²⁰ T-Mobile, and Verizon were named as respondents.²¹ Parties submitted opening and reply comments on the rulemaking on March 26 and April 1, 2026.

On June 25, 2026, the Commission held a workshop²² on voice service quality rules for wireless carriers. The workshop was structured into three sessions: customer service metrics, community isolation outage metrics, and industry key performance indicators. Industry representatives from AT&T, T-Mobile, and Verizon, along with representatives from consumer advocacy organizations, rural counties, tribal communities, and first responders were among the panelists on hand to share their perspectives and experiences on wireless service quality issues.

Throughout the workshop, wireless industry representatives generally stated that existing wireless service quality is strong and new regulatory requirements are not necessary.^{23, 24} They indicated that internal wireless carrier performance data and competitive market pressure already provide enough incentives to expand and modernize their network infrastructure.^{25, 26, 27}

Community representatives, in contrast, described ongoing wireless communications outages and service coverage problems, particularly in rural, tribal, and underserved communities.^{28, 29, 30, 31, 32} They asserted that current reporting standards fail to capture the frequency and the real impact of wireless communications service disruptions. Although both industry and community representatives agreed that wireless service is critical, as

¹⁹ *Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers* (R.26-02-017), Page 11, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M601/K572/601572628.PDF>.

²⁰ Throughout this document, AT&T Mobility may also be referred to as AT&T.

²¹ *Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers* (R.26-02-017) requires these three nationwide facilities-based wireless carriers, AT&T, T-Mobile, and Verizon, to file and serve specific information regarding wireless outages, Page 4, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M601/K572/601572628.PDF>.

²² Throughout this document, workshop refers to the June 25, 2026 Remote Workshop for Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers (R.26-02-017)

²³ Josh Mathisen, AT&T, Workshop, Recording at 02:27:53.

²⁴ Andy Gormley, T-Mobile, Workshop, Recording at 02:47:54.

²⁵ Andis Kalnins, Verizon, Workshop, Recording at 03:06:15.

²⁶ Josh Mathisen, AT&T, Workshop, Recording at 02:30:54.

²⁷ Andy Gormly, T-Mobile, Workshop, Recording at 02:56:53.

²⁸ Jessica Pyska, Lake County, Workshop, Recording at 02:36:55.

²⁹ Linnea Jackson, Hoopa Valley Public Utilities District, Workshop, Recording at 03:30:10.

³⁰ Matthew Rantanen, Southern California Tribal Charimen's Association, Workshop, Recording at 03:36:59.

³¹ Rhonda Duggan, Mono County, Workshop, Recording at 03:41:02.

³² Sue Hoek, Nevada County, Workshop, Recording at 03:47:20.

demonstrated by the nearly 90% of mobile-originated 911 calls every year,³³ they have different opinions on whether there is sufficient oversight and accountability over wireless carriers.³⁴

To hear directly from the public, the Commission held Public Participation Hearings (PPHs) on July 15, 2026³⁵ and July 23, 2026,³⁶ collecting comments from more than 250 individual callers. In addition to the PPHs, the Commission also collected over 1,200 comments on the proceeding docket card.³⁷ While some reported satisfactory service, the majority of comments detailed concerns in three primary areas: service quality, customer service, and billing or promotion disputes. Among these categories, service quality issues accounted for the largest share of comments. Many reported dropped calls, dead zones, prolonged outages, unreliable access to 911, and limited coverage in rural, tribal, and underserved communities. These service quality issues should be considered in setting wireless service quality standards and enforcement.

In addition to the public hearings, the Commission made multiple efforts to gather information from AT&T, T-Mobile, and Verizon directly. The Commission first requested cost information in R.26-02-017, including cost information on maintaining customer service, outages, restoration, and reporting requirements.³⁸ However, the carriers' initial responses did not provide sufficient information to support their cost assertions. Subsequently, on July 10, 2026, the Administrative Law Judge (ALJ) issued a ruling ordering AT&T, T-Mobile, and Verizon to produce additional cost support data, including California specific cost information, incremental compliance costs, estimated bill impacts, source documents, assumptions, formulas, allocation methods, general ledger support, and outage repair cost estimates.³⁹

The data provided by AT&T, T-Mobile, and Verizon still did not indicate a clear pass-through of service quality related costs to customers. For example, AT&T did not evaluate how the standard of answering 80 percent of calls within the 60 seconds would affect customers'

³³ Data from the Governor's California Office of Emergency Services' Emergency Communications Branch, mobile-originated 911 calls increased from 85% in 2021 to 87% in 2024.

³⁴ See the Discussion section for details.

³⁵ R.26-02-017 Public Participation Hearing Transcript, Volume 1 (July 15, 2026)
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M611/K970/611970656.PDF>.

³⁶ R.26-02-017 Public Participation Hearing Transcript, Volume 2 (July 23, 2026)
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M612/K446/612446014.PDF>.

³⁷ R.26-02-017 Public Comments <https://apps.cpuc.ca.gov/apex/f?p=401:65:::>

³⁸ *Order Instituting Rulemaking Proceeding to Consider Service Quality Rules for Wireless Carriers* (R.26-02-017), Pages 11-16, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M601/K572/601572628.PDF>.

³⁹ Administrative Law Judge's Ruling Ordering AT&T, T-Mobile, and Verizon to Produce Previously Ordered Data (R.26-02-017), Pages 1-6 (July 10, 2026),
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M610/K354/610354735.PDF>.

bills. T-Mobile was unable to estimate what, if any, additional regulatory compliance costs would be passed on to customers, or which customers would be affected by service quality standards and metrics. Similarly, Verizon stated that a specific price change from increased regulatory costs could not be quantified. If carriers cannot show whether compliance costs are incremental costs to existing operating budgets and that such costs would be passed on to customers, which customers would be affected, or how much bills would increase, then those cost claims should be given limited weight.

Wireless Market

Background

AT&T, T-Mobile, and Verizon are facilities-based wireless that each cover a large service territory, in fact they are the largest carriers in California and the nation.⁴⁰ These carriers operate nationwide wireless networks that are advertised as reliable, fast, and extensive. Thus, it is reasonable to require such providers to comply with minimum service quality requirements.^{41, 42} Service quality standards and reporting transparency are necessary to determine whether the carriers advertised network performance translates into reliable service for California customers, including measurable data on network availability, outage duration, restoration time, and coverage.

In 2025, AT&T reported 120.1 million Mobility subscribers, including 90.9 million postpaid⁴³ subscribers, 18.3 million prepaid subscribers, and 10.9 million reseller subscribers.⁴⁴ T-Mobile similarly reported that it provided wireless communications and broadband

⁴⁰ Federal Communications Commission, 2024 Communications Marketplace Report, FCC 24-136, Dec. 31, 2024, Page 45, stating that “there were three facilities based mobile wireless service providers in the United States that this Report refers to as nationwide service providers: AT&T, T-Mobile, and Verizon.”
<https://docs.fcc.gov/public/attachments/FCC-24-136A1.pdf?>

⁴¹ T-Mobile West LLC’s Response to Information Requests in the Order Instituting Rulemaking, R.26-02-017, April 1, 2026, Attachment GIR 3-1, Consalvo Declaration, Page 62 of PDF, stating: “the projected compliance burden of the proposed customer service rules is extraordinarily high.”

⁴² AT&T Mobility LLC Comments on Order Instituting Rulemaking and Responses to Information Requests, R.26-02-017, April 1, 2026, Attachment 2, Brian Williams Declaration, Page 35, stating: “the estimated additional cost burden to implement such changes to AT&T’s systems to comply with the 80/60 second call time Customer Service Standard would be up to” a confidential amount.

⁴³ Wireless service industry customers are usually separated into prepaid and postpaid segments. Prepaid users pay for service upfront for a certain number of months or certain amount of service. “Postpaid wireless service means... paying a monthly plan charge for service that typically includes some combination of calls, texts, and data usage.” See <https://www.att.com/blog/prepaid-phone-plans-vs-postpaid-phone-plans/>

⁴⁴ AT&T Inc., 2025 Form 10-K / Annual Report, Communications Business Unit Discussion and Mobility subscriber table, Pages 23–24.
<https://investors.att.com/~media/Files/A/ATT-IR-V2/financial-reports/annual-reports/2025/2025-annual-report-complete.pdf>.

services to 142.4 million postpaid and prepaid customers as of December 31, 2025.⁴⁵ Verizon reported that its consumer segment accounted for approximately 77 percent of Verizon's consolidated revenues, and served approximately 116 million consumer wireless retail connections as of December 31, 2025.⁴⁶

Pew Research Center reported that 98 percent of U.S. adults own a cellphone and 91 percent own a smartphone, while the National Emergency Number Association reports that, in many areas, 80 percent or more of 911 calls are placed from wireless devices.⁴⁷ Accordingly, AT&T, T-Mobile, and Verizon should be evaluated as providers of essential communications infrastructure and services, not as providers of optional or secondary service.

Performance

The three major wireless carriers' public statements describe their wireless networks as high performing, reliable, and improving, meaning that the carriers have the technical ability to measure and improve service quality to better serve customers.

AT&T stated that in 2025, RootMetrics recognized its wireless network for Best Overall Wireless Network Performance, Most Reliable Wireless Network, Fastest Wireless Network, and Best Call Performance.⁴⁸ AT&T explains that Best Call Performance means customers experience fewer dropped calls than with competitors.⁴⁹ AT&T also reported more than 1.5 million postpaid phone net additions in 2025 for the fifth consecutive year, and 421,000 postpaid phone net additions in the fourth quarter of 2025.⁵⁰

T-Mobile similarly stated that their network performance and customer growth in 2025 was fueled by its "Best Network, Best Value and Best Experiences" combination, and reported 7.8 million total postpaid net customer additions and 3.3 million postpaid phone net

⁴⁵ T-Mobile US, Inc., *2025 Form 10-K / Annual Report*, business description and customer results. https://s29.q4cdn.com/310188824/files/doc_financials/2025/q4/2025-FORM-10-K-vFinal.pdf.

⁴⁶ Verizon Communications Inc., *2025 Form 10-K / Annual Report*, Consumer segment discussion. <https://www.verizon.com/about/sites/default/files/2025-Annual-Report-on-Form-10k.pdf>.

⁴⁷ Pew Research Center, "Mobile Fact Sheet", cellphone and smartphone ownership data <https://www.pewresearch.org/internet/fact-sheet/mobile/>.

⁴⁸ AT&T Inc., "AT&T Customers Win: Company's Wireless Network Outperforms T-Mobile in Speed, Reliability, and Performance", <https://about.att.com/story/2025/ookla-rootmetrics-awards.html>.

⁴⁹ Ibid

⁵⁰ AT&T Inc., "AT&T Reports Strong Fourth-Quarter and Full-Year 2025 Financial Performance Driven by Growth in Converged Fiber and 5G Customers", <https://about.att.com/story/2026/4q-earnings-2025.html>.

customer additions.⁵¹ T-Mobile also cited recognition by Opensignal for overall network experience, 5G performance, and network consistency.⁵²

Verizon likewise publicly markets its network quality, stating that it is backed by 35 consecutive J.D. Power network-quality awards and RootMetrics recognition for Best, Fastest, and Most Reliable 5G Network.⁵³ Verizon also reported 616,000 total postpaid phone net additions in the fourth quarter of 2025, its best quarter of postpaid phone net additions since 2019.⁵⁴

These statistics do not address service quality performance, availability, and transparency needed at the local level. AT&T, T-Mobile, and Verizon claim they already track and measure service performance information in their normal course of business. However, marketing claims and customer growth metrics are not substitutes for transparent information for consumers, including standardized service quality data on network availability, outage duration, restoration time, and coverage. The wireless carriers' performance claims support the feasibility of having established service quality reporting, but they do not eliminate the need for the Commission to establish enforceable service quality standards.

Coverage

The carriers each have websites with maps showing wireless service availability for most of California, but those coverage maps do not reflect availability of service indoors. AT&T states that its Long-Term Evolution (LTE) technology covers more than 337 million people and that its 5G network covers more than 322 million people in the United States and North America.⁵⁵ T-Mobile states that its 5G network covers more than 330 million people, or approximately 98 percent of the United States population, and that its Ultra Capacity 5G network covers more than 300 million people nationwide.⁵⁶ Verizon states that more than

⁵¹ T-Mobile US, Inc., "T-Mobile Delivers Best-in-Class Customer Results in Q4, Translating into Durable and Profitable Financial Growth Driven by Widening Differentiation", <https://www.t-mobile.com/news/business/t-mobile-q4-2025-earnings>.

⁵² T-Mobile US, Inc., "T-Mobile Wins Network Experience Three-Peat", <https://www.t-mobile.com/news/network/t-mobile-wins-overall-network-experience-opensignal>.

⁵³ Verizon Communications Inc., "Verizon remains America's Best Wireless Network, Setting the Highest Bar for Quality and Reliability", <https://www.verizon.com/about/news/verizon-remains-americas-best-wireless-network>.

⁵⁴ Verizon Communications Inc., "Verizon Delivers on 2025 Financial Guidance with Highest Quarterly Net Adds Since 2019", <https://www.verizon.com/about/news/verizon-delivers-2025-financial-guidance-highest-quarterly-net-adds>.

⁵⁵ AT&T Inc., 2025 Form 10-K, "Leading the Next Era of Connectivity: 2025 Annual Report", network coverage discussion, <https://investors.att.com/~media/Files/A/ATT-IR-V2/financial-reports/annual-reports/2025/2025-annual-report-complete.pdf>.

⁵⁶ T-Mobile US, Inc., "T-Mobile's Ultra Capacity 5G Covers 300 million People Months Ahead of Schedule", <https://www.t-mobile.com/news/network/t-mobiles-ultra-capacity-5g-covers-300-million-people-months-ahead-of-schedule>.

280 million people in the United States have access to its 5G Ultra Wideband network.⁵⁷ These carriers claim they have expansive coverage, their maps do not show whether a customer can reliably place and maintain calls indoors, in a vehicle, or outdoors at a specific location and in a consistent manner.⁵⁸

The Federal Communications Commission (FCC) mobile broadband map⁵⁹ demonstrates this lack of information, as mobile coverage maps are organized by technology and service environment, including outdoor stationary and in-vehicle mobile service. However, the FCC explains that its mobile broadband map does not show indoor coverage.⁶⁰ As a result, a general coverage map that shows wireless technology is available in an area may not show actual signal strength – which is commonly measured in decibel-milliwatts (dBm) – or whether quality service is usable in the places where customers most often rely on their phones.⁶¹ This distinction is important because wireless service depends on signal quality, not merely whether a map shows a covered area. A more complete assessment of wireless coverage would account for actual signal strength and distinguish between indoor, outdoor, and in-vehicle service conditions.

Financials

The three major wireless carriers' financial results further support that standardized service quality reporting should not be treated as an unreasonable burden.

In 2025, AT&T Mobility generated \$89.482 billion in total operating revenues and \$27.196 billion in operating income, with a 30.4 percent operating income margin. AT&T also reported 42.0 percent Mobility earnings before interest, taxes, depreciation, and amortization (EBITDA) margin, which equates to approximately \$37.6 billion in Mobility EBITDA.⁶²

⁵⁷ Verizon Communications Inc., “Verizon Has the Best 5G Network in America”, <https://www.verizon.com/about/news/verizon-has-best-5g-network-america>.

⁵⁸ See Verizon, Opening Comments on Staff Proposal, filed September 3, 2024, at 4 in R.22-03-016: “The proposed requirement that coverage maps are capable of ‘verifying coverage at exact address’... requires a level of certainty as to service availability at an address that is...unreasonable for wireless services.”

⁵⁹ The Mobile Broadband Map shows the 3G, 4G, and 5G coverage of each mobile provider for the area displayed. The coverage areas reflect where consumers should be able to connect to the mobile network when outdoors or in a moving vehicle; they do not show indoor coverage. The map also allows you to compare mobile wireless coverage reported by different mobile wireless providers.

⁶⁰ FCC, Broadband Data Collection Help Center, “How to Use the FCC’s National Broadband Map,” <https://help.bdc.fcc.gov/hc/en-us/articles/10467446103579-How-to-Use-the-FCC-s-National-Broadband-Map>.

⁶¹ Ibid.

⁶² AT&T Inc., 2025 Form 10-K, “Leading the Next Era of Connectivity: 2025 Annual Report”, Communications Business Unit Discussion, Mobility Results, and Mobility margin discussion,

T-Mobile reported \$71.3 billion in service revenues, \$11.0 billion in net income, \$33.9 billion in core adjusted EBITDA, representing a core adjusted EBITDA margin of approximately 47.5 percent, \$28.0 billion in net cash provided by operating activities, \$10.0 billion in cash purchases of property and equipment, and \$18.0 billion in Adjusted Free Cash Flow in 2025.⁶³

Verizon reported \$138.2 billion in total operating revenue, \$17.6 billion in consolidated net income, \$50.0 billion in consolidated adjusted EBITDA, representing a consolidated adjusted EBITDA margin of approximately 36.2 percent, \$37.1 billion in cash flow from operating activities, \$20.1 billion in free cash flow, and \$17.0 billion in capital expenditures in 2025.⁶⁴

Although the carriers use different EBITDA related measures, each metric reflects earnings before financing, tax, depreciation, amortization, and adjustments, indicating that these carriers continue to operate at high margins. We also note that over the past decade, wireless carrier consolidation has resulted in only three nationwide facilities-based carriers with high barriers to entry. These three carriers point to the large number of resellers as evidence of the large degree of customer choice in the wireless marketplace, but all resellers ultimately rely on the three facilities-based wireless carriers for service.

The carriers' shareholder returns provide additional context for evaluating cost burden claims. AT&T stated that it returned more than \$12 billion to shareholders through dividends and share repurchases in 2025, more than a 50 percent increase from 2024. T-Mobile reported that it repurchased \$9.9 billion of common stock and paid \$4.1 billion in cash dividends in 2025. In January 2026, Verizon announced a new share repurchase program of up to \$25 billion.⁶⁵ Verizon later reported that it had repurchased \$3.5 billion of shares through the second quarter of 2026 and returned \$9.4 billion of capital to shareholders during the first half of 2026.⁶⁶ These figures are relevant for evaluating and

<https://investors.att.com/~media/Files/A/ATT-IR-V2/financial-reports/annual-reports/2025/2025-annual-report-complete.pdf>.

⁶³ T-Mobile US, Inc., Fourth Quarter and Full-Year 2025 Earnings Results, "T-Mobile Delivers Best-in-Class Customer Results in Q4, Translating into Durable and Profitable Financial Growth Driven by Widening Differentiation", <https://www.t-mobile.com/news/business/t-mobile-q4-2025-earnings>.

⁶⁴ Verizon Communications Inc., "Verizon Delivers on 2025 Financial Guidance with Highest Quarterly Net Adds Since 2019", <https://www.verizon.com/about/news/verizon-delivers-2025-financial-guidance-highest-quarterly-net-adds>.

⁶⁵ Yahoo Finance, "Verizon Announces \$25 Billion Share Buyback," January 30, 2026, reporting that Verizon announced a new share buyback program of up to \$25 billion <https://finance.yahoo.com/markets/stocks/articles/vz-paid-holders-59-billion-135556008.html>

⁶⁶ Verizon, "Verizon Delivers Record 2Q26 Results as Strategic Transformation Accelerates," July 24, 2026, reporting \$3.5 billion of share repurchases year to date and \$9.4 billion of capital returned to shareholders during the first half of 2026 <https://www.verizon.com/about/file/78237/download?token=KV8JW0Dr>

contextualizing claims that service quality reporting, outage tracking, restoration documentation, network availability reporting, and signal strength reporting would constitute unduly burdensome regulation.

Furthermore, data on cost burden claims provided by AT&T, T-Mobile, and Verizon throughout the proceeding fail to establish that service quality reporting, outage tracking, restoration documentation, network availability reporting, or signal strength reporting is burdensome and unreasonable, as detailed below. The relevant question is not whether service quality standards impose a compliance cost, but whether the carriers have shown that those costs are unreasonable in relation to the size, revenues, and resources of their wireless businesses and that these costs will necessarily result in higher monthly customer bills.

Given the carriers' financial strength, the carriers' vague and unverifiable cost burden claims do not outweigh the need for enforceable service quality standards, especially when Californians are being asked to accept rising wireless bills without a requirement to meet basic service quality standards.

Discussion

Community Perspectives

During the workshop, CD staff heard from a wide range of community stakeholders, including advocacy organizations, rural county representatives, tribal governments, and first responders. Although each group brought a perspective shaped by the communities they represent, their testimonies converged on a shared concern that current wireless service quality and coverage reporting standards do not adequately reflect the real-world experience of Californians, particularly those in rural, tribal, and underserved communities.

Advocacy Feedback

Throughout the workshop, advocacy panelists raised concerns about the experience of vulnerable and underserved communities. Itzel Hayward of the Small Business Utility Advocates (SBUA) explained that underserved communities are relying heavily on wireless services to run their businesses.⁶⁷ She urged the Commission to extend the customer service quality standards in General Order 133-E to wireless carriers with updates to ensure the standards protect all ratepayers, including small businesses.⁶⁸ Ms. Hayward

⁶⁷ Itzel Hayward, SBUA, Workshop, Recording at 00:08:21.

⁶⁸ Ibid.

also emphasized that any disparities in service quality should be identified and promptly remedied. She pointed out that the record already shows that the environmental and social justice (ESJ) communities have been underserved and they experience higher trouble report rates and slower infrastructure upgrades.⁶⁹ In conclusion, she recommended that reporting requirements are needed to identify these disparities so that small businesses located throughout California, including in ESJ communities, are not left behind.⁷⁰

Regina Costa of The Utility Reform Network (TURN) expressed concerns about the adequacy of existing outage reporting standards. She noted that the current Cal OES community isolation outage notification requirements⁷¹ may not capture all outages, particularly in areas with smaller populations where the community could have terrible service without meeting the reporting threshold.⁷² Ms. Costa recommended the Commission to consider requiring providers to report additional information such as demographic data. This will help identify certain populations that experience more difficulty navigating customer service or accessing reliable service.

Joshua Srago of Cal Advocates raised concerns that statewide uptime metrics do not reflect a customer's real experience of service quality. He explained that a network could report 99% uptime overall even if the missing 1% is concentrated in the same area for six months, leaving that community with no reliable service.⁷³ As such, averages and median performance metrics can mask significant local service disparities and give the Commission an inaccurate picture of where problems are concentrated. Mr. Srago also stated that carrier-submitted coverage maps often fail to show the actual service availability. Instead, the Commission should rely on signal propagation maps based on voice-transmission frequencies as this model is based on the same scientific methodology that carriers already use for network planning.⁷⁴

Rural County Feedback

Lake County Supervisor Jessica Pyska⁷⁵, Mono County Supervisor Rhonda Duggan⁷⁶, and Nevada County Supervisor Sue Hoek⁷⁷ each urged the Commission to adopt meaningful and enforceable wireless service quality standards for rural counties. They emphasized

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ See the California Governor's Office of Emergency Services Community Isolation Outages section for more details.

⁷² Regina Costa, TURN, Workshop, Recording at 00:33:00.

⁷³ Joshua Srago, Cal Advocates, Workshop, Recording at 05:02:33.

⁷⁴ Joshua Srago, Cal Advocates, Workshop, Recording at 05:14:21.

⁷⁵ Jessica Pyska, Lake County Supervisor, Workshop, Recording at 02:36:33.

⁷⁶ Rhonda Duggan, Mono County Supervisor, Workshop, Recording at 03:41:00.

⁷⁷ Sue Hoek, Nevada County Supervisor, Workshop, Recording at 03:47:17.

that rural communities have waited years for such standards and expressed that it is crucial to view the issue as a matter of public safety rather than a telecommunications policy concern.⁷⁸

Lake County Supervisor Jessica Pyska described Lake County as rural and mountainous where residents depend on both landline and cellular service, however, neither is consistently reliable. When communications fail, residents lose the ability to call 911, receive evacuation alerts, or access emergency information. During a bomb threat that led to the evacuation of schools across Lake County, the volume of calls overwhelmed the network. As a result, parents could not reach their children or schools during the emergency.⁷⁹

Supervisor Pyska further added that wildfires and winter storms create similar strain. Rural communities mostly rely on a single shared power source or backhaul connection, unlike urban areas which benefit from overlapping network coverage. This leaves rural residents particularly exposed during disasters, when connectivity is most essential. Although Lake County has invested in infrastructure improvements, Supervisor Pyska cautioned that those improvements alone do not guarantee a reliable or resilient network, where backup power capacity remains inadequate.⁸⁰

Supervisor Duggan spoke about the challenges facing Mono County residents. Mono County is large and very rural with approximately 13,000 residents and only one incorporated town. She reported that a significant portion of the county consists of public lands over which the county lacks jurisdiction, making it difficult to address service gaps. Therefore, she personally carries two cell phones from different carriers because not one single carrier provides service throughout the county.⁸¹

Supervisor Duggan further described a stretch of U.S Highway 6, a major truck route when U.S. Highway 395 is closed, that does not have any cellular service, leaving no means of communication during emergencies. She recounted a recent fire near her home during which cell towers went down, forcing emergency responders to rely on radios and other alternative communication methods.⁸²

Supervisor Hoek in Nevada County stated that the reliability of cellular service can depend on standing in a particular spot or walking down a road to place a call. Evidently, this challenge becomes more severe during emergencies. She cited the Jones Fire as an

⁷⁸ Jessica Pyska, Lake County Supervisor, Workshop, Recording at 02:37:18.

⁷⁹ Ibid., Recording at 02:38:00.

⁸⁰ Ibid., Recording at 02:39:00.

⁸¹ Rhonda Duggan, Mono County Supervisor, Workshop, Recording at 03:41:18.

⁸² Ibid., Recording at 03:43:04.

example where residents relied on cell phones for evacuation warnings and to contact family, but service became overloaded and unavailable.⁸³

Supervisor Hoek further noted that Wi-Fi calling⁸⁴ is not a dependable substitute when traditional cellular service and power are unavailable. She stated that the public safety agencies depend on emergency calls in order to respond effectively.⁸⁵ In terms of medical services, she added that reliable communication is critical for those who rely on medical monitoring devices connected to cellular service.⁸⁶

Rural representatives recommended that wireless carriers should report performance at the local level because statewide averages often mask repeated failures in specific rural communities.⁸⁷ Further, it is important to track and monitor chronic trouble spots where outages often occur, particularly in emergency scenarios,⁸⁸ where reliable wireless service is most critical, yet most often absent.

Tribal Feedback

Linnea Jackson, General Manager of the Hoopa Valley Public Utilities District, and Matthew Rantanen, Director of Technology of the Southern California Tribal Chairmen's Association, both urged the Commission to apply strict service quality standards to wireless carriers serving tribal lands. They reported that tribal communities face distinct and compounding barriers to reliable wireless service, and that a single outage can immediately threaten life, public safety, and critical infrastructure.^{89, 90}

Linnea Jackson explained that the Hoopa Valley Tribe is a sovereign nation in a rural and geographically isolated part of Humboldt County. Ms. Jackson noted that the tribe operates over 60 departments, including tribal police, ambulance and EMT services, and volunteer and wildland fire units. All these agencies depend on reliable communications services and are vulnerable when outages occur, which often happen during severe weather or wildfire conditions.⁹¹

Ms. Jackson also stated that wireless carriers have historically treated tribal lands as a secondary priority. As a result, when communications network infrastructure fails, major

⁸³ Sue Hoek, Nevada County Supervisor, Workshop, Recording at 03:48:15.

⁸⁴ Wi-Fi calling refers to phone calls over a wireless internet network instead of a cell tower.

⁸⁵ Ibid., Recording at 03:49:59.

⁸⁶ Ibid., Recording at 03:53:43.

⁸⁷ Jessica Pyska, Lake County Supervisor, Workshop, Recording at 02:41:45.

⁸⁸ Emergency scenarios include, but not limited to, wildfire, medical response, and evacuation.

⁸⁹ Linnea Jackson, Hoopa Valley Public Utilities District, Workshop, Recording at 03:30:00.

⁹⁰ Matthew Rantanen, Southern California Tribal Chairmen's Association, Workshop, Recording at 03:36:59.

⁹¹ Linnea Jackson, Hoopa Valley Public Utilities District, Workshop, Recording at 03:30:58.

carriers often take days before deploying technicians to restore service.⁹² She attributed recurring outages to failed generators, backhaul disruptions, and fallen trees affecting service lines.

Matthew Rantanen shared that wireless coverage frequently drops off in inland parts of the reservations. Therefore, a tribal member experiencing an emergency away from the main road may be unable to call 911 or to reach family members.⁹³ Mr. Rantanen stated that wireless carriers have generally been reluctant to invest in tribal lands because they view the return on investment as too low. This leaves carriers under-incentivized to serve tribal communities at the same level as more populated, non-tribal areas.

In addition, the wireless carriers' published coverage maps tend to overstate the service that the tribal members actually receive. Mr. Rantanen stated that these maps consistently understate gaps in tribal areas, leaving tribal communities among those most likely to be left behind by inaccurate carrier coverage claims.⁹⁴

In conclusion, Ms. Jackson and Mr. Rantanen urged the Commission to require carriers to build redundancy and backup power resiliency, including solar power options, at sites serving tribal communities, and to encourage competition and choice among carriers serving tribal communities so that a single carrier's outage does not leave tribal communities without service or the ability to call 911 or reach family members.

First Responder Feedback

Reliable wireless service is essential to first responders' ability to protect public safety, particularly in rural and disaster-prone areas. Chief Ken Kehmna, representing the Western Fire Chiefs Association, stated that describing wireless access as a baseline requirement for rural communities understates its importance.⁹⁵ He explained that rural areas are disproportionately likely to face a natural disaster due to underlying resource deficits, and that reduced population density does not make a community's infrastructure needs any less important.⁹⁶

Chief Kehmna supported that wireless service should be treated as a critical infrastructure rather than a discretionary amenity. He noted that society now relies on wireless connectivity not only for voice calls but for medical devices such as fall detectors, insulin

⁹² Ibid., Recording at 03:32:55.

⁹³ Matthew Rantanen, Southern California Tribal Charimen's Association, Workshop, Recording at 03:38:37.

⁹⁴ Ibid., Recording at 03:39:32.

⁹⁵ Ken Kehmna, Western Fire Chiefs Association, Workshop, Recording at 03:56:42.

⁹⁶ Ibid., Recording at 04:04:20.

pumps, and cardiac monitors. He pointed out that over 80 percent of 911 calls are now placed from wireless devices.⁹⁷

However, rural communities served by only a single tower or a single carrier are not resilient as disasters do not discriminate between well-covered and underserved areas. First responders depend on wireless networks as their authoritative source of real-time information, including evacuation routing, shelter locations, and fire and smoke conditions. He emphasized that incident commanders cannot rely on informal channels such as Facebook to make evacuation and shelter-in-place decisions. The stakes are even higher for rural and elderly populations, who may need more time to evacuate. True resiliency comes from redundancy across all three major carriers, rather than coverage that exists only on paper.⁹⁸

Furthermore, Chief Kehmna noted that first responder equipment depends on a strong wireless backhaul connection to function. He recommended that carriers provide first responders with advance notice of both planned and unplanned outages as well as greater transparency regarding service coverage gaps.

California Governor's Office of Emergency Services Community Isolation Outages

The California Governor's Office of Emergency Services (Cal OES) requires carriers that offer access to 911 service to electronically submit community isolation outage notifications via email to Cal OES.⁹⁹ A community isolation outage limits the end user's ability to make 911 calls or receive emergency notifications.¹⁰⁰ By law, wireless carriers are required to notify Cal OES of community isolation outages that last at least 30 minutes and affect at least 25 percent of a carrier's coverage area in a single zip code.¹⁰¹ This reporting requirement provides an avenue to identify community isolation outages over a geographical layer.

Cal OES began collecting community isolation outage notifications in August 2020. At that time, wireless carriers were required to notify Cal OES if the outages affect at least 50 percent of a carrier's coverage area in a single zip code. In August 2022, Cal OES updated

⁹⁷ Ibid., Recording at 03:58:00.

⁹⁸ Ibid., Recording at 04:00:00.

⁹⁹ California Government Code § 53122

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=53122.&lawCode=GOV.

¹⁰⁰ Cal. Code Regs. Tit. 19, § 2480.2 - Community Isolation Outage Reporting Thresholds

<https://www.law.cornell.edu/regulations/california/19-CCR-2480.2>.

¹⁰¹ Ibid.

the reporting threshold for wireless outages and reduced it from 50 percent to 25 percent of a carrier's coverage area in a single zip code, which went into effect on October 1, 2022.¹⁰²

Carriers have indicated that analysis needs to consider the change in the community isolation outage reporting threshold between 2022 and 2023.¹⁰³ As such, the analyses below focus on the three-year period from 2023 through 2025, during which the outage reporting threshold remained unchanged.

From 2023 through 2025, there were more than 17,000 wireless community outages reported to Cal OES. During the course of the three-year period, outage totals remained consistent, hovering between 5,600 and 6,000 outage occurrences in California annually. Each occurrence represents a unique outage incident¹⁰⁴ that occurs within a single zip code or spans over several zip codes. See Figure 1 for more details.

CalOES Community Isolation Outages (2023 - 2025)			
<u>Unique outage occurrence count</u>			
Type	Wireless		
Carriers	All		
	2023	2024	2025
Grand Total	5,902	5,615	5,956

Figure 1: Cal OES Community Isolation Outages (2023-2025)

The Cal OES community isolation outage reporting captures outages that last longer than 30 minutes. Analyzing these outages by duration reveals that approximately fifty percent of the outages were resolved within four hours. Additionally, more than thirty percent were resolved between four to twelve hours.

For outage occurrences that lasted longer than twelve hours, the three-year data from 2023 through 2025 reflected a somewhat encouraging pattern. While outages of 12-24 hours, 24-48 hours, and 48-72 hours decreased steadily, outages that exceeded 72 hours took a dip

¹⁰² Cal OES, Notice of Approval of Regulatory Action Amending Title 19, California Code of Regulations, §§ 2480.2, 2480.3 <https://www.caloes.ca.gov/wp-content/uploads/PSC/Documents/2022-0621-02S-Approval.pdf>.

¹⁰³ CTIA comments on OIR (April 1, 2026), Page 5 <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M604/K085/604085915.PDF>.

¹⁰⁴ In Cal OES reporting, unique outage incident is denoted by the metadata field labeled *incident id*. For the outage occurrence count, each *incident id* is counted as one outage occurrence regardless of how many zip codes were impacted.

then plateaued. Overall, from 2023 through 2025, outage occurrences of at least 12 hours or longer amount to 1248, 1008, and 878 respectively. See Figure 2 for more details.

CalOES Community Isolation Outages (2023 - 2025)				
<u>Breakdown by outage intervals</u>				
Type	Wireless			
Carriers	All			
	2023	2024	2025	Percent to Total
missing data	35	27	401	2.6%
less than 30 min			3	0.0%
30 min to 1 hr	203	296	568	6.1%
1-2 hours	1,606	1,328	1,413	24.9%
2-4 hours	1,060	1,027	1,074	18.1%
4-6 hours	914	915	813	15.1%
6-12 hours	836	1,014	806	15.2%
12-24 hours	672	607	506	10.2%
24-48 hours	348	233	222	4.6%
48-72 hours	78	65	44	1.1%
over 72 hours	150	103	106	2.1%
Grand Total	5,902	5,615	5,956	100.0%

Figure 2: Cal OES Community Isolation Outages by Duration (2023-2025)

Outages of longer duration inevitably have the most impact to public convenience and safety. In 2023 there were 150 reported outages that lasted longer than 72 hours. While there were only 103 outages longer than 72 hours in 2024, long duration outage resolution did not improve and remained at that level with 106 occurrences in 2025. To further illustrate the severity of these extended outages, the 359 outage occurrences exceeding 72 hours across the three-year period had an average outage duration of 13.8, 6.8, and 10.0 **days** respectively. See Figure 3 for more details.

CalOES Community Isolation Outages (2023 - 2025)			
<u>Average outage duration days for outages exceeding 72 hours</u>			
Type	Wireless		
Carriers	All		
	2023	2024	2025
over 72 hours	13.8	6.8	10.0

Figure 3: Cal OES Community Isolation Outages - Over 72 Hours (2023-2025)

Cal OES community isolation outage data captures outages by zip code. Figure 4 displays a map of all outage occurrences from 2023 to 2025 by zip code. The map uses graduated

circles to symbolize outages that occurred within a zip code. The size of the circles are proportional to the number of outages in each zip code. A majority of the circles that reside within the zip codes of urban areas, such as the San Francisco Bay Area, Los Angeles, Sacramento, and San Diego, are generally smaller, which indicates fewer outage occurrences. The larger circles that represent at least 36 community isolation outages are more widespread outside of these urban hubs.

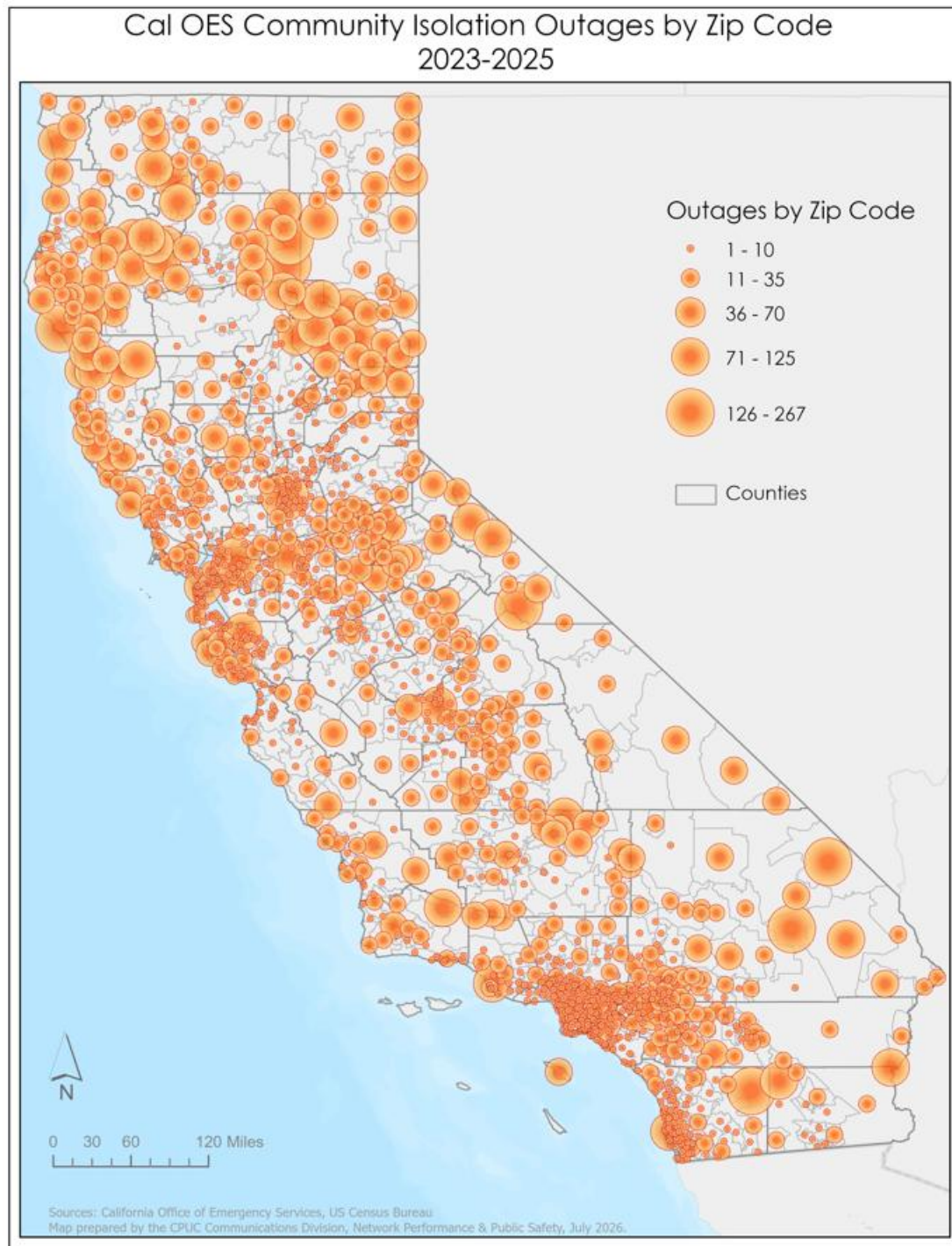


Figure 4: Cal OES Community Isolation Outages by Zip Code (2023-2025)

Industry Perspectives

AT&T, T-Mobile, and Verizon demonstrated that standardized service quality reporting is technically feasible, as the major wireless carriers already measure service quality information internally. AT&T described its wireless service quality as managed through real-

time performance tools and operational metrics such as call drop rate, access failures, and data throughput.¹⁰⁵ T-Mobile identified network availability, call drop rate, call failure rate, and call setup time as key service quality measures, and stated that its network is monitored continuously to identify and respond to degradation.¹⁰⁶ Verizon identified cell availability, Voice over LTE call drop rate and Voice over LTE call ineffective rate as key voice service indicators it used to measure site availability, call completion, sustained calls, and call quality.¹⁰⁷ Therefore, the issue is not whether service quality data can be measured, but whether it should be reported to the Commission in a standardized format.

Customer Service Standards

The Commission should establish wireless customer service standards to create a common baseline for timely access to customer assistance. The carriers' customer service claims show that they already operate sophisticated customer service systems, but those internal systems do not provide the Commission with standardized, comparable information about whether customers can reach assistance to get their issues resolved.

AT&T described customer service operations that rely on internal analytics, a balanced scorecard with key performance indicators, independent third-party benchmarking, and customer-experience strategies.¹⁰⁸

T-Mobile described a nationwide customer care system supported by omnichannel access, Artificial Intelligence-powered routing, virtual hold, specialized care teams, Average Speed of Answer, Care Net Promoter Score, and interactive voice response (IVR) Net Promoter Score.¹⁰⁹

Verizon identified customer service priorities including customer satisfaction, 24-hour digital and chat support, scheduled callbacks, call-answer-time metrics, live customer-service access, timely resolution, and real-time monitoring.¹¹⁰

However, internal customer service systems do not provide the Commission with comparable information about whether automated systems delay access to live representatives, whether customer service performance varies by carrier or community, or whether outage and service quality complaints are resolved in a timely manner. Establishing Commission-imposed service quality standards would allow these carrier-managed systems to be evaluated against a common baseline instead of relying solely on

¹⁰⁵ Josh Mathisen, AT&T, Workshop at 04:23:59.

¹⁰⁶ Craig Sherry, T-Mobile, Workshop at 04:33:03.

¹⁰⁷ Rommel Angeles, Verizon, Workshop at 04:49:57.

¹⁰⁸ Stanley Vigil, AT&T, Workshop at 00:54:00.

¹⁰⁹ John Consalvo, T-Mobile, Workshop at 01:06:33.

¹¹⁰ Connie Chaffins, Verizon, Workshop at 01:19:07.

each carrier's own description of its customer service performance without any verification methods or standardized benchmarks. This evaluation would be particularly useful given the number of concerns raised in public comments and by community representatives.

Competitive Wireless Market

The three wireless carriers' claims about competition should also be evaluated carefully. AT&T argued that competition, investment, and real-time network management drive wireless service quality rather than static regulatory standards.¹¹¹ T-Mobile stated that competition drives investment and identified network availability, call drop rate, call failure rate, and call setup time as key metrics used to improve service quality.¹¹² Verizon similarly stated that performance and network investments are driven by customer demand and intense competition, while internal voice service key performance indicators are used to monitor wireless performance.¹¹³ In AT&T's comments responding to the Order Instituting Rulemaking,¹¹⁴ AT&T cited Light Reading commentary describing the U.S. wireless market as highly competitive and stating that wireless carriers compete on razor-thin profit margins.¹¹⁵

However, evidence of competition or a narrower margin spread does not establish that the carriers lack the financial or technical capacity to report service quality data to regulators. Nor does competition provide the Commission with a common baseline for comparing call drop rates, network availability, outage duration, restoration time, signal strength, or customer service access across carriers and communities. Finally, nationwide competition doesn't always translate to competition at the local level. In many areas of California, residents find themselves with access to only a single wireless carrier or none at all. For those Californians, this lack of option prevents them from enjoying the benefits of competition, such as better prices and improved service quality.

Network Availability

Public comments in this proceeding show that network availability is a service quality issue for Californians. At the July 15, 2026 PPH, Ravi Sen stated that he lived in an area showing coverage but had, at best, only one bar of service at home, experienced dropped calls

¹¹¹ Josh Mathisen, AT&T, Workshop at 04:24:32.

¹¹² Craig Sherry, T-Mobile, Workshop at 04:33:03.

¹¹³ Rommel Angeles, Verizon, Workshop at 04:49:37.

¹¹⁴ AT&T Mobility LLC Comments on Order Instituting Rulemaking and Responses to Information Requests, R.26-02-017, April 1, 2026, p. 5, citing Light Reading, "The Great Convergence: The State of U.S. Wireless Competition," Feb. 6, 2026, and quoting the article's statement that wireless carriers "compete on razor-thin profit margins."

¹¹⁵ Light Reading, "The Great Convergence: The State of US Wireless Competition", <https://www.lightreading.com/wireless/the-great-convergence-the-state-of-u-s-wireless-competition>.

about 20 times a day, and described a 911 call during his father's heart attack that dropped before the family completed the call using a landline.¹¹⁶ Pete Stiglech of Cottonwood stated that wireless service in rural Shasta County is functionally unreliable, unsafe, and far below any reasonable standard of service quality, especially during fire season, and requested enforceable standards including minimum signal strength requirements, maximum outage durations, tower failure reporting, rural coverage benchmarks, penalties for nonperformance, and transparency requirements for marketing maps.¹¹⁷ Lori Godwin of Santa Rosa stated that her household has consistently experienced dropped calls, weak or no signals, delayed text and voice messages, and that these connectivity problems affect personal safety.¹¹⁸ These comments illustrate why network availability should be measured at a geographic level that can identify localized failures, rather than relying only on statewide or annual averages.

T-Mobile's response to the July 10, 2026 ALJ ruling also shows that network availability is already measurable. T-Mobile's July 27, 2026 response included a graph titled "Average Provider Coverage Availability in California - Opensignal," which reports California coverage availability above 98 percent from 2023 through 2026 and describes the metric as measuring the proportion of time people have a network connection in places they commonly frequent.¹¹⁹ T-Mobile also stated that its Cal OES analysis calculated "that there were no reported Cal OES outages[.]"¹²⁰ See Figure 5 for more details. However, broad network availability figures can still mask localized service failures. An annual average of 98.4 percent still represents 1.6 percent unavailability, or approximately 140 hours over a year without services. To effectively identify localized failures and quantify

¹¹⁶ Public Participation Hearing Transcript, R.26-02-017, July 15, 2026, Statement of Speaker Sen, Pages 18-19.

¹¹⁷ Public Participation Hearing Transcript, R.26-02-017, July 15, 2026, Statement of Speaker Stiglech, Page 20.

¹¹⁸ Public Participation Hearing Transcript, R.26-02-017, Volume 1, July 15, 2026, Statement of Speaker Lori Godwin, Pages 84-85.

¹¹⁹ T-Mobile West LLC's Response to the Administrative Law Judge's Ruling Ordering AT&T, T-Mobile, and Verizon to Produce Previously Ordered Data, R.26-02-017, July 27, 2026, Attachment RIR_2-02, Page 57 of PDF, graph titled "Average Provider Coverage Availability in California – Opensignal".
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M612/K428/612428819.PDF>

¹²⁰ T-Mobile West LLC's Response to the Administrative Law Judge's Ruling Ordering AT&T, T-Mobile, and Verizon to Produce Previously Ordered Data, R.26-02-017, July 27, 2026, Gormley Verification and Declaration, Page 34.
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M612/K428/612428819.PDF>

impact, standardized network availability reporting must be enforced at a specified geographic level on a daily basis.

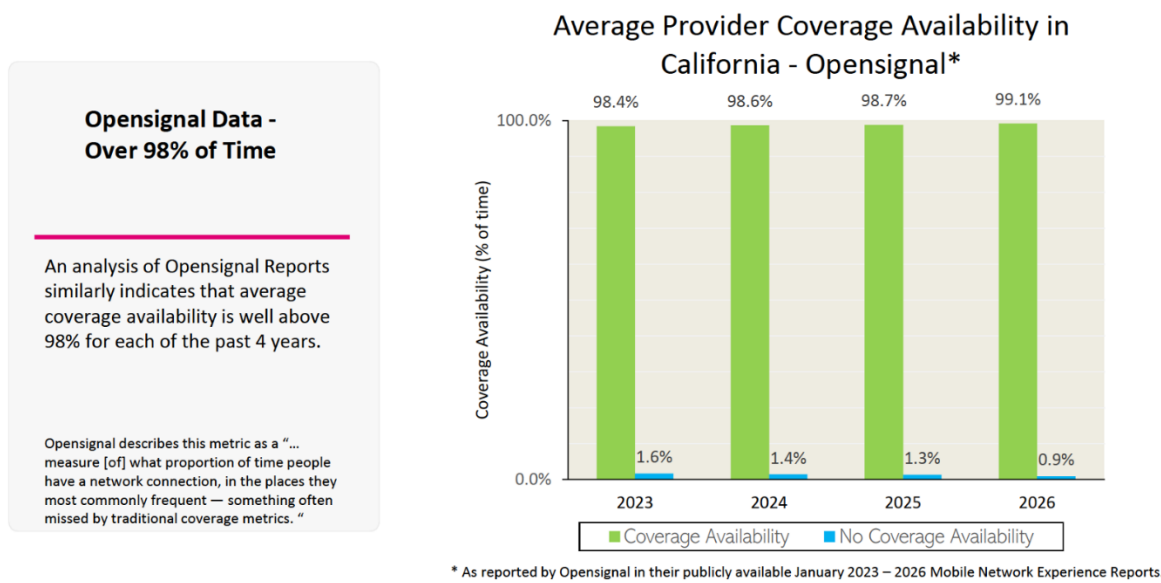


Figure 5: Average Provider Coverage Availability in California by Opensignal (2023-2026)

Advertised Coverage versus Signal Propagation

Advertised coverage presents another service quality problem. Carrier coverage maps may indicate that wireless technology is available in an area, but they do not establish actual signal strength, indoor usability, in vehicle service, call reliability, or network availability. AT&T's own radio frequency materials recognize this limitation, explaining that its public Coverage Viewer maps display approximate coverage and that actual coverage may differ based on terrain, weather, network changes, foliage, buildings, construction, high usage periods, customer equipment, and other factors.¹²¹ AT&T also stated that phone signal bars are an imprecise and slow to update estimate of service quality, and that customers may still be unable to initiate voice calls, complete calls, or download data reliably.¹²²

More precise coverage analysis can be based on Reference Signal Received Power (RSRP), measured in dBm. In AT&T's proposed Santa Cruz facility materials, AT&T used RSRP thresholds to distinguish expected service conditions: green areas with RSRP greater than -90 dBm indicated acceptable indoor coverage, yellow areas with RSRP greater than -100 dBm indicated acceptable in vehicle coverage, and blue or white areas reflected

¹²¹ Hammett & Edison, Inc., Consulting Engineers, AT&T Mobility Radio Frequency Statement, Santa Cruz County Planning Commission Agenda Materials, <https://www2.santacruzcountyca.gov/planning/plnmeetings/PLNSupMaterial/PC/agendas/2024/20240327/007a.pdf>.

¹²² Ibid.

weaker signal ranges where customers may have difficulty receiving consistently acceptable service.¹²³ This distinction is important because advertised coverage does not necessarily equal usable service. Unlike advertised coverage maps, signal propagation maps provide a more comprehensive coverage assessment that accounts for actual signal strength and distinguishes among indoor, in vehicle, and outdoor service conditions. See Figure 6 for more details. Moreover, in the Carrier of Last Resort Proceeding (Rulemaking 24-06-012), Cal Advocates proposes a minimum RSRP threshold of -84 dBm as a requisite signal strength outside a home to ensure sufficient signal quality inside a home.¹²⁴ Cal Advocates asserts that the 6 dBm increase should adequately address the signal loss expected from the need to penetrate exterior walls made from standard glass and wood.¹²⁵

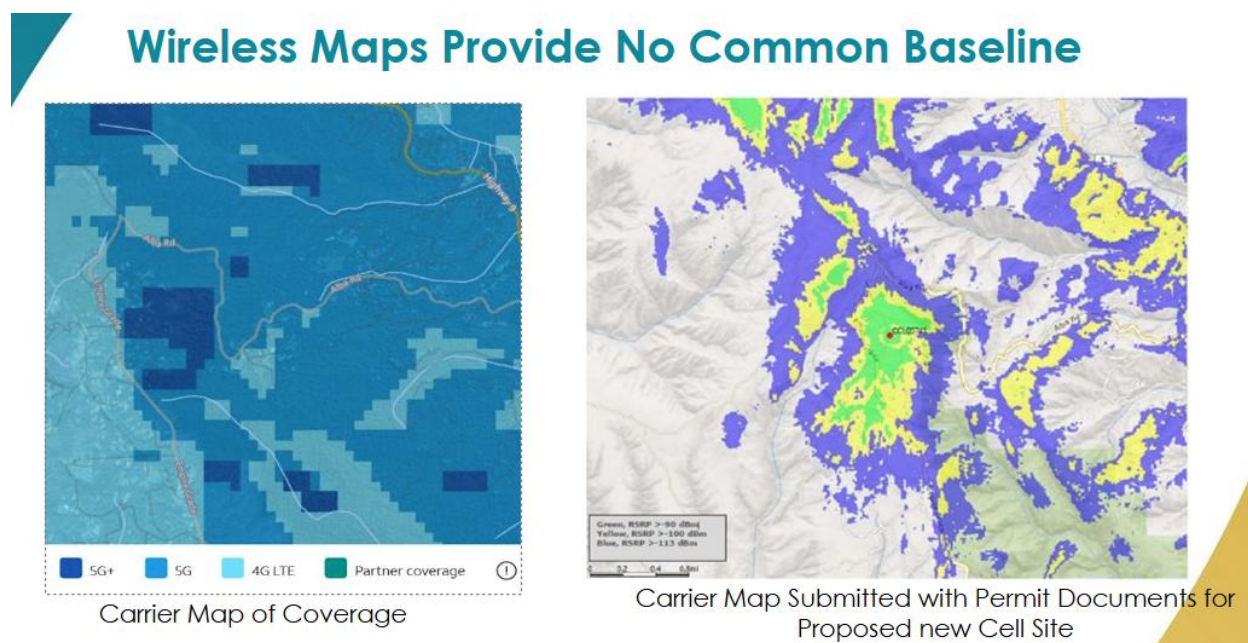


Figure 6: Advertised Coverage Map vs. Signal Propagation Map (expected service condition)

Geographic Analysis

Public Use Microdata Area (PUMA) Geography

Wireless carriers monitor key performance indicators, such as statewide network availability on an annual basis. As advocacy panelists noted at the workshop, this high-level reporting structure obscures which communities experience outages, masks chronic

¹²³ Ibid.

¹²⁴ Public Advocates Office Opening Comments on the Administrative Law Judge's Ruling Issuing Staff Proposal for Comment, Order Instituting Rulemaking Proceeding to Consider Changes to the Commission's Carrier of Last Resort Rules, Jan. 30, 2026, Page 21.

¹²⁵ Joshua Srago, Cal Advocates, Workshop, Recording at 05:06:36.

failure areas, and leaves emergency responders with insufficient outage information.¹²⁶ These limitations have made it difficult for CD staff to identify disparities or to understand where outage patterns intersect with demographic vulnerability.

To address these concerns, CD staff proposes using U.S. Census Public Use Microdata Areas (PUMAs) as the primary geographic unit for evaluating wireless network availability and service reliability on an annual basis. PUMAs are non-overlapping standardized census areas designed for demographic analysis and contain no fewer than 100,000 residents each.¹²⁷ PUMAs are used to tabulate and disseminate decennial census and American Community Survey (ACS) and Public Use Microdata Sample (PUMS) data.¹²⁸ Their stability and alignment with census boundaries make them well suited for regulatory review.

Using PUMA geography would greatly improve the Commission's ability to identify chronic outages, an issue repeatedly raised by consumer advocates, rural county officials, and public safety agencies. Workshop participants emphasized the need for tools that can reveal repeated outages, slow restoration timelines, and insufficient redundancy.¹²⁹ PUMA level analysis would allow staff to build longitudinal reliability profiles, assess geographic clustering of outages, and have a clearer picture of which communities experience persistent service failures. This information would better support regulatory requirements such as corrective action plans, redundancy expectations, backup power strategies, and vegetation management compliance.

California currently contains 281 PUMAs based on decennial 2020 data with an average population of 140,705.¹³⁰ See Figure 7 for a map of PUMAs in California with an overlay of Cal OES Community Isolation Outages by zip code for the combined years of 2023, 2024, and 2025. The maps clearly indicate higher reported outages in large, rural PUMAs compared with smaller urbanized PUMAs.

¹²⁶ Itzel Hayward, SBUA; Madison Alcalay, Cal Advocate; Paul Goodman, Center for Accessible Technology; Regina Costa, TURN, Workshop, Recording from 00:08:03 to 00:36:58.

¹²⁷ US Census Bureau, "Public Use Microdata Areas (PUMAs)", <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/pumas.html>.

¹²⁸ US Census Bureau, "What are Public Use Microdata Areas (PUMAs)? Understanding When to Use this Geography", April 11, 2024. <https://www2.census.gov/about/training-workshops/2024/2024-04-11-puma-transcript.pdf>.

¹²⁹ Madison Alcalay, Cal Advocates; Paul Goodman, Center for Accessible Technology; Regina Costa, TURN, Workshop, Recording from 00:3:36 to 00:34:33.

¹³⁰ US Census Bureau, "PUMA – Census Bureau Maps", [https://data.census.gov/map/040XX00US06\\$7950000?q=PUMA&layer=VT_2022_795_P2_PY_D1&loc=37.4190,-121.4780,z3.6951](https://data.census.gov/map/040XX00US06$7950000?q=PUMA&layer=VT_2022_795_P2_PY_D1&loc=37.4190,-121.4780,z3.6951).

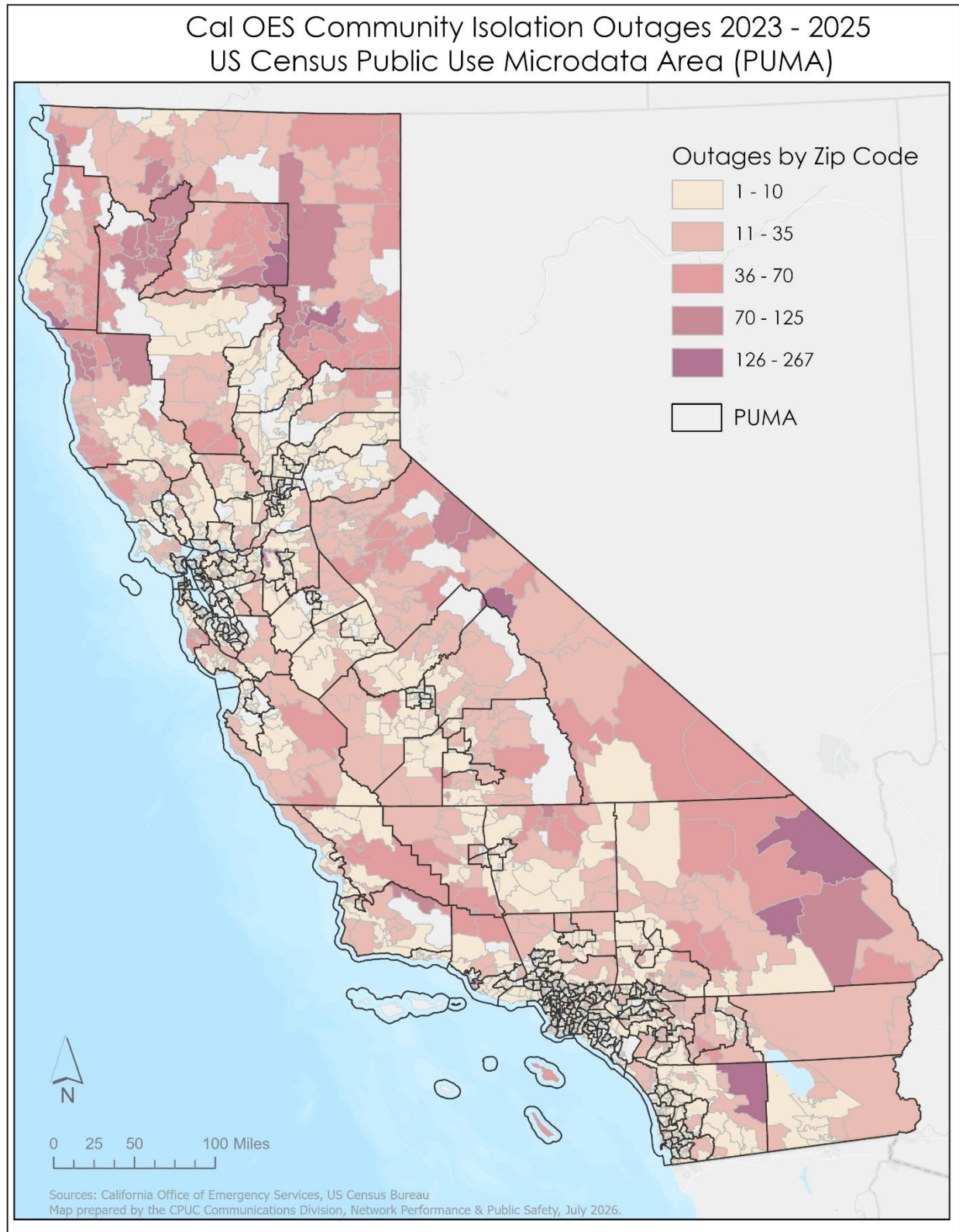


Figure 7: Cal OES Community Isolation Outages with Statewide PUMA Overlay (2023-2025)

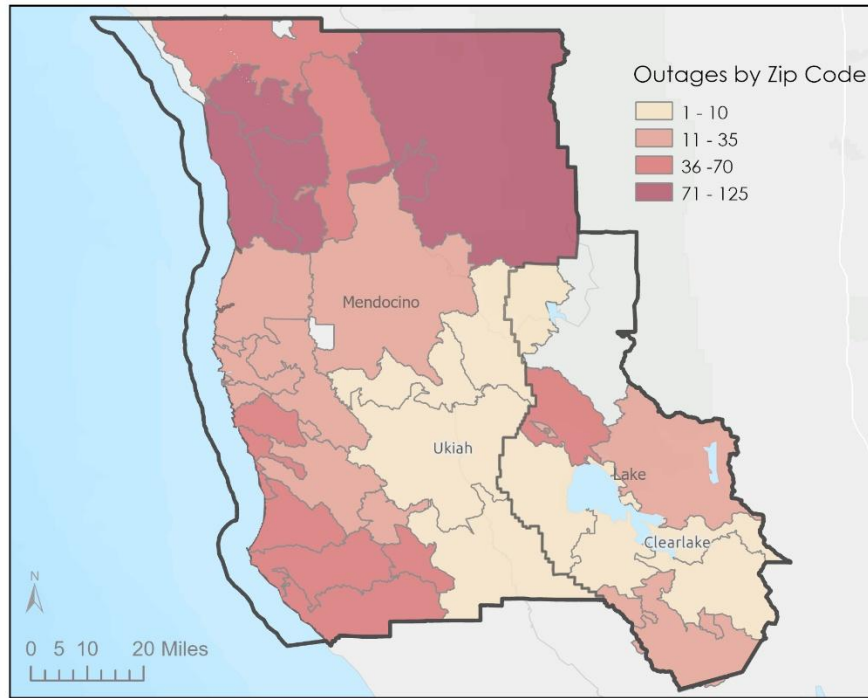
To further examine the dichotomy of reported outages in large, rural PUMAs versus smaller urbanized PUMAs, let's deep dive into several individual PUMAs. Figure 8 provides a closer look at the Lake County – Mendocino County PUMA, which is a predominantly rural area. This PUMA, which consists of two counties, has a combined 2020 census population of 159,764. The median household income is \$60,130 compared to the statewide median income of \$100,149.¹³¹ The poverty rate is 16.2% compared to the statewide poverty rate of 11.8%.¹³² From 2023 through 2025, there were 618 wireless community isolated outages reported to Cal OES with an average outage duration of 9.4 hours.¹³³

¹³¹ US Census Bureau, “Lake & Mendocino Counties PUMA; California”, July 30, 2026 [United States - Census Bureau Profile](#).

¹³² US Census Bureau, “How the Census Bureau Measures Poverty”, <https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html>.

¹³³ Cal OES Community Isolation Outages, 2023 – 2024, <https://www.caloes.ca.gov/office-of-the-director/operations/public-safety-communications/ca-9-1-1-emergency-communications-branch/community-isolation-reporting/>.

Cal OES Community Isolation Outages by Zip Code 2023 - 2025 Lake County - Mendocino County PUMA



LAKE COUNTY - MENDOCINO COUNTY PUMA (Rural)

2020 POPULATION - 159,764

AREA- 5,207 sq. miles

Median Household Income - PUMA - \$60,130

Median Household Income - California - \$100,149

Poverty Rate - PUMA -16.2%

Poverty Rate - California - 11.8%

Number of Outages (2023-2025) - 618

Average Outage Duration - 9.4 hours

Number of Outages by Duration

30 min to 1 hour	43
1 -2 hours	196
2 - 4 hours	119
4 - 6 hours	59
6 - 12 hours	65
12 - 24 hours	85
24 - 48 hours	42
48 - 72 hours	1
Over 72 hours	8

Figure 8: Cal OES Community Isolation Outages with Lake County - Mendocino County PUMA Overlay (2023-2025)

Several other PUMAs consist of multiple counties, including the Nevada-Sierra Counties PUMA (see Figure 9) and the Alpine-Amador-Calaveras-Inyo-Mariposa-Mono-Tuolumne Counties PUMA (see Figure 10). The Nevada-Sierra Counties PUMA has a 2020 population of 105,477.¹³⁴ From 2023 to 2025, there were 205 wireless community isolated outages reported to Cal OES in this PUMA with an average outage duration of 14.0 hours.¹³⁵ The Alpine-Amador-Calaveras-Inyo-Mariposa-Mono-Tuolumne Counties PUMA is geographically vast and spans seven counties with a combined 2020 population of 191,932.¹³⁶ From 2023 to 2025, there were a staggering 1,820 wireless community isolated outages reported to Cal OES in this PUMA with an average outage duration of 16.1 hours.¹³⁷

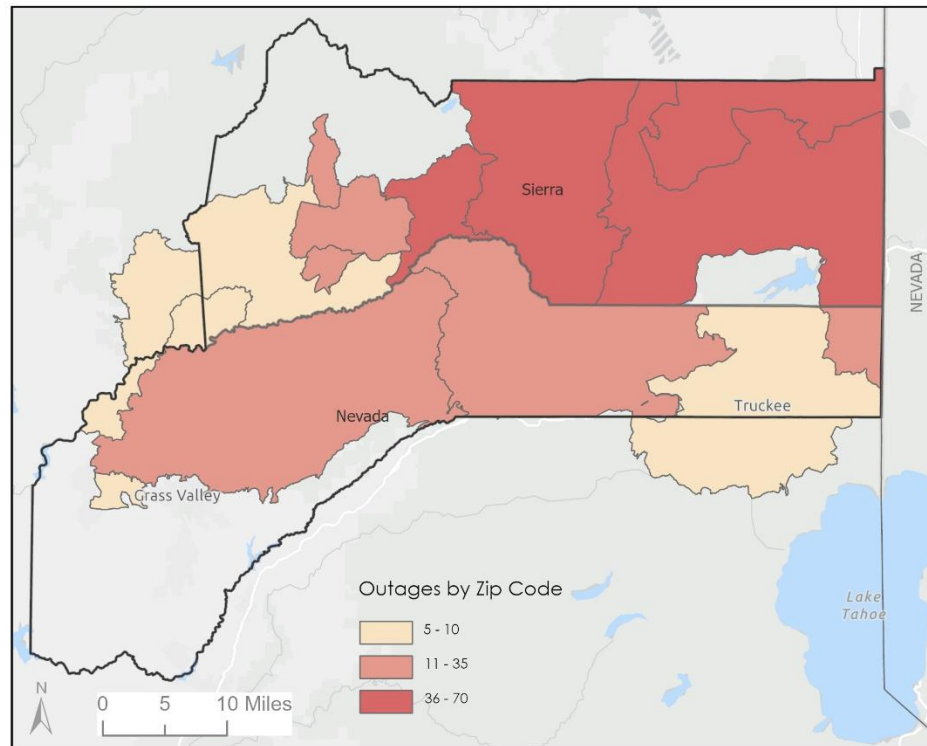
¹³⁴ US Census Bureau, “Nevada & Sierra Counties PUMA; California”, August 4, 2026, [United States - Census Bureau Profile](#).

¹³⁵ Cal OES Community Isolation Outages, 2023 – 2024, <https://www.caloes.ca.gov/office-of-the-director/operations/public-safety-communications/ca-9-1-1-emergency-communications-branch/community-isolation-reporting/>.

¹³⁶ US Census Bureau, “Alpine, Amador, Calaveras, Inyo, Mariposa, Mono & Tuolumne Counties PUMA; California”, https://data.census.gov/profile/Alpine,_Amador,_Calaveras,_Inyo,_Mariposa,_Mono_and_Tuolumne_Counties_PUMA,_California?g=795XX00US0600300.

¹³⁷ Cal OES Community Isolation Outages, 2023 – 2024, <https://www.caloes.ca.gov/office-of-the-director/operations/public-safety-communications/ca-9-1-1-emergency-communications-branch/community-isolation-reporting/>.

Cal OES Community Isolation Outages by Zip Code 2023-2025 Nevada County - Sierra County PUMA



Nevada County - Sierra County PUMA (Rural)

2020 POPULATION - 105,477

AREA- 1,936 sq. miles

Median Household Income - PUMA - \$101,378

Median Household Income - California - \$100,149

Poverty Rate - PUMA - 8.3%

Poverty Rate - California - 11.8%

Number of Outages (2023 - 2025) - 205

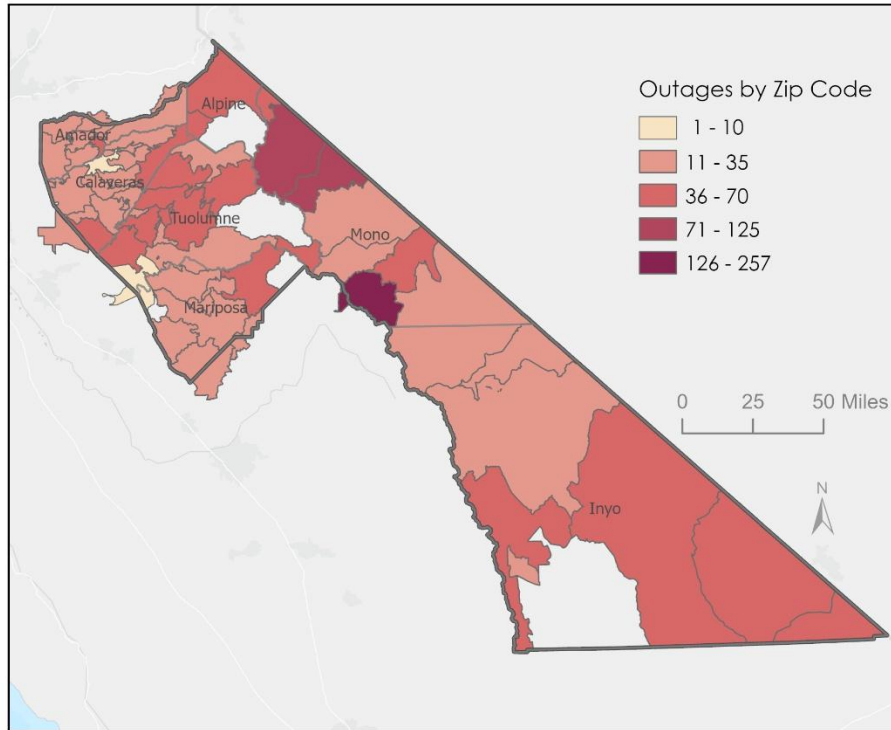
Average Outage Duration - 14 hours

Number of Outages by Duration

30 min to 1 hour	4
1 -2 hours	37
2 - 4 hours	35
4 - 6 hours	38
6 - 12 hours	40
12 - 24 hours	19
24 - 48 hours	15
48 - 72 hours	8
Over 72 hours	9

Figure 9: Cal OES Community Isolation Outages with Nevada County - Sierra County PUMA Overlay (2023-2025)

Cal OES Community Isolation Outages by Zip Code 2023-2025
Alpine-Amador-Calaveras-Inyo-Mariposa-Mono-Tuolumne Counties PUMA



Alpine - Amador - Calaveras - Inyo - Mariposa - Mono - Tuolumne Counties PUMA (Rural)

2020 POPULATION - 191,932

AREA- 19,482.23 sq. miles

Median Household Income - PUMA - \$85,007

Median Household Income - California - \$100,149

Poverty Rate - PUMA - 10%

Poverty Rate - California - 11.8%

Number of Outages (2023-2025) - 1,820

Average Outage Duration - 16.1 hours

Number of Outages by Duration

30 min to 1 hour	70
1 -2 hours	462
2 - 4 hours	340
4 - 6 hours	160
6 - 12 hours	346
12 - 24 hours	261
24 - 48 hours	86
48 - 72 hours	30
Over 72 hours	65

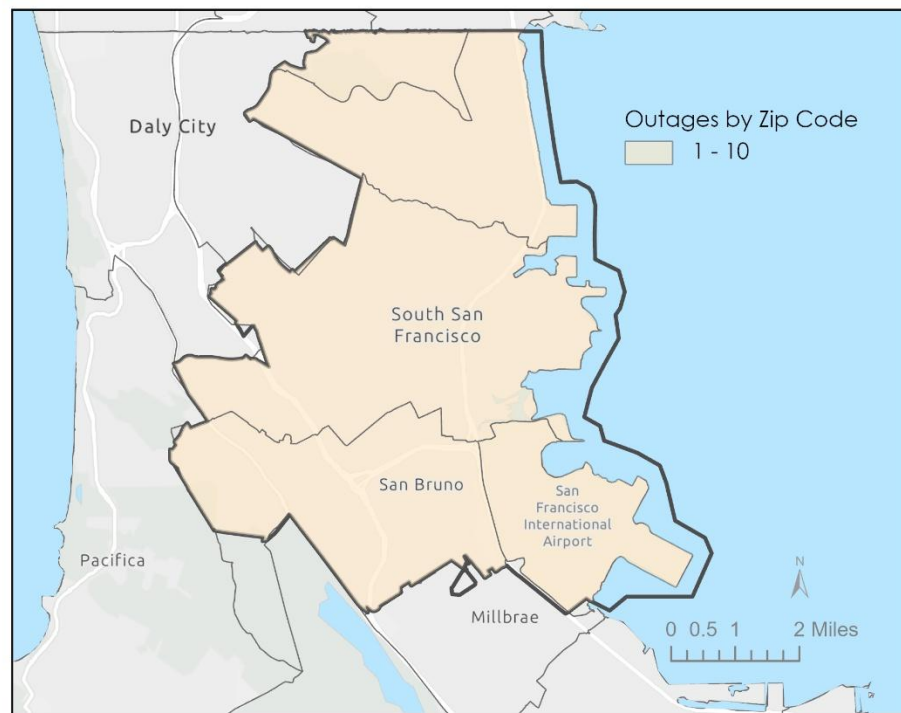
Figure 10: Cal OES Community Isolation Outages with Alpine - Amador - Calaveras - Inyo - Mariposa - Mono - Tuolumne Counties PUMA Overlay (2023-2025)

In contrast to these large, rural PUMAs, the South San Francisco – San Bruno – Brisbane PUMA (see Figure 11), an urbanized area within San Mateo County, has only five wireless community isolated outages reported to Cal OES during the same time period.¹³⁸ These five outages had an average outage duration of 6.4 hours. This predominantly urban PUMA had a 2020 population of 123,800 and a median household income of \$144,501, 44% higher than the statewide median.¹³⁹

¹³⁸ Ibid.

¹³⁹ US Census Bureau, “San Mateo County (North Central) – South San Francisco, San Bruno & Brisbane Cities PUMA; California”, [https://data.census.gov/profile/San_Mateo_County_\(North_Central\)--South_San_Francisco,_San_Bruno_and_Brisbane_Cities_PUMA,_California?g=795XX00US0608102](https://data.census.gov/profile/San_Mateo_County_(North_Central)--South_San_Francisco,_San_Bruno_and_Brisbane_Cities_PUMA,_California?g=795XX00US0608102).

Cal OES Community Isolation Outages by Zip Code 2023-2025
South San Francisco - San Bruno - Brisbane PUMA



SOUTH SAN FRANCISCO, SAN BRUNO & BRISBANE PUMA (Urban)

2020 POPULATION - 123,800

AREA- 29.58 sq. miles

Median Household Income - PUMA - \$144,501

Median Household Income - California - \$100,149

Poverty Rate - PUMA - 4.7%

Poverty Rate - California - 11.8%

Number of Outages (2023-2025) - 5

Average Outage Duration - 6.4 hours

Number of Outages by Duration

30 min to 1 hour	1
1 - 2 hours	2
2 - 4 hours	1
4 - 6 hours	0
6 - 12 hours	0
12 - 24 hours	1
24 - 48 hours	0
48 - 72 hours	0
Over 72 hours	0

Figure 11: Cal OES Community Isolation Outages with South San Francisco - San Bruno - Brisbane PUMA Overlay (2023-2025)

Wireless reliability is essential for Californians to fully participate in society and to reach emergency services in times of need. Comments from community advocates, local government officials, and first responders at the workshop provided detailed observations on network reliability issues, gaps in coverage, deficiencies in outage reporting, concerns about resiliency infrastructure, and subsequent implications for public safety. As Lake County Supervisor Jessica Pyska stated, “*where a person lives should not determine whether they can call for help, receive an evacuation warning, or stay connected during an emergency.*”¹⁴⁰

Utilizing PUMAs to evaluate wireless network availability and outage patterns directly addresses many of the reporting issues raised by stakeholders. SBUA stressed the need for disaggregated, timely service quality data to reveal disparities affecting emergency communication.¹⁴¹ Cal Advocates stated that wireless networks must function reliably throughout each carrier’s service territory because inconsistent coverage creates public safety vulnerabilities. They recommended improving customer access to outage information.¹⁴² Paul Goodman from the Center for Accessible Technology emphasized the need for more granular wireless coverage data, explaining that high-level averages hide repeated outages for the same communities.¹⁴³ Unlike other geographical overlay such as statewide and even zip codes,¹⁴⁴ PUMA-based analysis has the capability to enhance the Commission’s ability to assess service reliability, improve public safety, support ESJ communities, and design effective regulatory measures.

Recommendations

During the course of the proceeding, the wireless carriers have continuously asserted that the competitive wireless market propels them to achieve the best possible service quality and coverage. However, the statements from various community stakeholders indicate a different picture. Wireless service plays a crucial role in connecting 911 calls and transmitting emergency notifications. Human lives are at stake in these scenarios. Wireless service is an essential communications service.¹⁴⁵ The Commission has an obligation for oversight of wireless carriers’ delivery of quality service to every community in California,

¹⁴⁰ Jessica Pyska, Lake County Supervisor, Workshop, Recording at 02:43:33.

¹⁴¹ Itzel Hayward, SBUA, Workshop, Recording at 00:08:03.

¹⁴² Madison Alcalay, Cal Advocates, Workshop, Recording at 00:11:41.

¹⁴³ Paul Goodman, Center for Accessible Technology, Workshop, Recording at 00:18:40.

¹⁴⁴ Zip codes, which lack population-based demographic data, are intended for postal routing and can incur changes according to postal logistics.

¹⁴⁵ Decision 20-07-032. *Decision Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Service*, Page 27.

<https://docs.cpuc.ca.gov/PublishedDorcs/Published/G000/M344/K049/344049206.PDF>

including rural counties and tribal areas.¹⁴⁶ As such, staff proposes the following service quality standards, reporting requirements, and enforcement framework based on analyses and testimonies examined in the Wireless Market and Discussion sections.

Cal OES Community Isolation Outage Standard

Description

Cal OES community isolation outage notification and reporting requirements are grounded on the public safety requirement to be able to make 911 calls and receive emergency notifications. Unlike individual customer outage tickets, community isolation outages impact an entire community delineated by zip codes. In Rulemaking 22-03-016, the Commission proposed a Cal OES Community Isolation Outage Standard and fine mechanism based on individual outage occurrence.¹⁴⁷ Parties argued that assessing an outage based on occurrence alone is inadequate and fails to consider prolonged outages.¹⁴⁸ Indeed, prolonged outages at a community level pose a huge risk to public safety, especially if that particular community is only served by one wireless carrier and offers no other viable option to make 911 calls and receive emergency notifications.

As indicated in the Discussion section, during the three-year period from 2023 to 2025, there were more than 17,000 outage occurrences; of these occurrences 1,349 exceeded 24 hours in duration. While that represented only 7.7% of the outage occurrences, each occurrence impacted the entire community and not just an individual customer. Further, 359 outages exceeded 72 hours with average outage durations lasting 13.8 days in 2023, 6.8 days in 2024, and 10 days in 2025.¹⁴⁹

CD staff recommends that the wireless community isolation outages must be restored within 24 hours. This standard is consistent with the POTS¹⁵⁰ and VoIP¹⁵¹ Outage Repair Standard of General Order 133-E.¹⁵² Any proposed penalty must take outage duration into

¹⁴⁶ CA Pub Util Code § 2896 (c). Reasonable statewide service quality standards, including, but not limited to, standards regarding network technical quality, customer service, installation, repair, and billing.

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=2896&lawCode=PUC

¹⁴⁷ See Decision 25-09-031, September 18, 2025 in R.22-03-016, *Decision Adopting General Order 133-E*, Page 100, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M581/K594/581594362.PDF>

¹⁴⁸ Regina Costa, TURN, Workshop, Recording at 5:25:00.

¹⁴⁹ Cal OES Community Isolation Outages, 2023 – 2024, <https://www.caloes.ca.gov/office-of-the-director/operations/public-safety-communications/ca-9-1-1-emergency-communications-branch/community-isolation-reporting/>.

¹⁵⁰ POTS stands for Plain Old Telephone Service.

¹⁵¹ VoIP stands for Voice over Internet Protocol, specifically fixed interconnected VoIP.

¹⁵² General Order 133-E.

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M581/K578/581578154.PDF>.

consideration since each outage occurrence impacts an entire community, especially those with only one wireless carrier.

Reporting and Enforcement Mechanism

Reporting requirement

CD staff shall determine reporting parameters, such as metadata fields, formatting, file types, and submission methods. CD staff proposes the following reporting requirement.

Wireless carriers must submit quarterly reports to the Commission at the end of each calendar quarter. Consistent with the wireless community isolation outage data provided to Cal OES, these reports must include the following metadata fields: incident ID, carrier name, year, month, date, outage start time, actual outage restoral time, outage duration in minutes, outage duration in hours, county, city, zip code, and outage cause.

CD should be delegated the authority to specify the reporting template, file format, submission method, and filing deadline.

Carriers are required to submit accurate and complete reports in a timely manner. Erroneous data, incomplete entry, and late submission are considered noncompliance and are subject to fines of at least \$500 for each offence.¹⁵³

Penalty assessment

Failure to meet the CalOES Community Isolation Outage Standard shall result in a general fund fine.¹⁵⁴ For wireless community isolation outages that are not repaired within 24 hours, staff proposes that the Commission assess a base fine of \$5,000 per outage occurrence (identified by incident ID) per day with multipliers up to four times the base fine amount based on the outage duration.

For example, an outage occurrence that lasts six days means it fails to meet the 24-hour repair standard by five days. In this case, the assessed penalty for this single outage occurrence is as follows:

\$5,000 (first day of noncompliance) + \$10,000 (second day of noncompliance) + \$15,000 (third day of noncompliance) + \$20,000 (fourth day of noncompliance) + \$20,000 (fifth day of noncompliance) = \$70,000 in total fine. Given the aforementioned CalOES outage data, these penalties would impact less than 10% of wireless outages in California. Based on the

¹⁵³ Pursuant to Public Utility Code §2107 and §2108, the Commission has the authority to enact penalties and assess monetary fines for failures or negligence to comply with any of its orders. Every violation of compliance is regarded as a separate and distinct offense. Furthermore, for continuing violations, each day's continuance is regarded as a separate and distinct offense.

¹⁵⁴ Ibid.

number and duration of community isolation outages reported in 2025, CD's proposed fine would result in fines totaling \$17,310,000 split among the three wireless carriers.¹⁵⁵

Network Availability by PUMA Standard

Description

As highlighted in the Wireless Market and Discussion sections, community stakeholders have indicated that network availability is a localized service quality issue for Californians, whereas wireless carriers have asserted that network availability is already a measurable performance concept. Therefore, CD staff recommends a network availability standard of 99 percent, measured separately for each PUMA by day where wireless carriers provide cellular service. The Network Availability by PUMA Standard measures the percentage of time during a calendar day that the carrier's wireless network is available within that PUMA. Network Availability by PUMA should be calculated as: total minutes during the calendar day that the carrier's wireless network is available within the PUMA divided by total minutes in the calendar day, as a percentage.¹⁵⁶ A 99 percent standard is not unreasonable, as T-Mobile's submitted Opensignal graph shows average provider coverage availability in California above 98 percent from 2023 through 2026, including 99.1 percent in 2026.¹⁵⁷ Measuring the standard at the PUMA level is necessary because statewide or companywide averages can hide localized service quality problems. A carrier may report high overall network availability while customers in specific communities experience repeated outages, unreliable access, or recurring network failures.

Reporting and Enforcement Mechanism

Reporting requirement

CD staff shall determine reporting parameters, such as metadata fields, formatting, file types, and submission methods. CD staff proposes the following reporting requirement.

Wireless carriers must submit quarterly reports to the Commission at the end of each calendar quarter. Carriers should calculate their Network Availability by PUMA

¹⁵⁵ In 2025, there were 372 community isolation outages exceeding 24 hours in duration. Of the 372 outages, 222 lasted over 24 hours but less than 48 hours, incurring a fine amount of \$1,110,000. 44 outages lasted over 48 hours but less than 72 hours, incurring a fine amount of \$660,000. 106 outages lasted longer than 72 hours, incurring a fine amount of \$15,540,000. Of those 106 outages, 17 outages exceeded one week, 19 outages exceeded two weeks, and 9 outages exceeded three weeks in duration.

¹⁵⁶ To recognize that planned maintenance is necessary for network reliability, the duration of planned maintenance should be excluded from both the numerator and the denominator, provided the maintenance is scheduled, documented, and not used to mask recurring service failures.

¹⁵⁷ T-Mobile West LLC, Response to the Administrative Law Judge's Ruling Ordering AT&T, T-Mobile, and Verizon to Produce Previously Ordered Data, R.26-02-017, July 27, 2026, Attachment RIR_2-02, p. 57.

performance at the daily level. Each quarterly report should include the network availability percentage for each PUMA for each day in the quarter, and the average network availability percentage for each PUMA by week, by month, and by quarter. This reporting structure gives the Commission daily data to identify localized service failures while also providing a weekly, monthly, and quarterly averages to compare performance across carriers and geographic areas.

CD should be delegated the authority to specify the reporting template, file format, submission method, and filing deadline.

Carriers are required to submit accurate and complete reports in a timely manner. Erroneous data, incomplete entry, and late submission are considered noncompliance and are subject to fines of at least \$500 for each offence.¹⁵⁸

Penalty assessment

Failure to meet the Network Availability by PUMA Standard shall result in a general fund fine.¹⁵⁹ The fine should be assessed per carrier, per PUMA, per day when daily Network Availability by PUMA falls below 99 percent. The penalty amount shall also take into consideration the severity of each noncompliant occurrence and utilize a multiplier up to four times the base fine amount of \$5,000 for each violation. If the Network Availability by PUMA is 90 percent or higher but below the 99 percent standard for a given day, then the fine is \$5,000 for each noncompliant PUMA. If the Network Availability by PUMA is 80 percent or higher but below 90 percent for a given day, then the fine is \$10,000 for each noncompliant PUMA. If the Network Availability by PUMA is 70 percent or higher but below 80 percent for a given day, then the fine is \$15,000 for each noncompliant PUMA. If Network Availability by PUMA is below 70 percent for a given day, then the fine is \$20,000 for each noncompliant PUMA. See Figure 12 for details.

¹⁵⁸ Pursuant to Public Utility Code §2107 and §2108, the Commission has the authority to enact penalties and assess monetary fines for failures or negligence to comply with any of its orders. Every violation of compliance is regarded as a separate and distinct offense. Furthermore, for continuing violations, each day's continuance is regarded as a separate and distinct offense.

¹⁵⁹ Ibid.

Network Availability by PUMA Standard Fine Structure	
Daily Network Availability by PUMA	Fine per Noncompliant PUMA per Day
90% or higher but below 99%	\$5,000
80% or higher but below 90%	\$10,000
70% or higher but below 80%	\$15,000
Below 70%	\$20,000

Figure 12: Network Availability by PUMA Standard Fine Structure

This tiered structure recognizes that a minor failure below 99 percent should not be treated the same as a severe outage, while preventing carriers from averaging away repeated daily failures.

Failure to report Network Availability by PUMA for a required day shall be treated as a separate noncompliance occurrence and assessed at the same penalty level as a daily Network Availability result below 70 percent, unless the carrier demonstrates that the omission was due to an excusable reporting error and promptly corrects the missing data.

Customer Service Standard

Description

From a customer service perspective, wireless customers should expect customer service that is at least on par with landline customers. In fact, due to the mobile nature of wireless services, factors such as access restriction based on location must be taken into consideration. As such, staff recommends adopting all five criteria of the Customer Service Standard in General Order (GO) 133-E¹⁶⁰ for wireless carriers, with some modifications.

General Order 133-E Customer Service Standard

The Customer Service Standard requires telephone corporations to comply with the following five criteria:

1. Maintain a local, toll-free or collect call telephone access line which will be available to its subscribers 24 hours a day, seven days a week: At minimum, trained company representatives will be available to respond to customer telephone inquiries during normal business hours (Monday to Friday between

¹⁶⁰ General Order 133-E Customer Service Standard applies to Plain Old Telephone Service and fixed interconnected Voice over Internet Protocol service providers with 5,000 or more access lines.

8am and 5pm Pacific Standard Time). After normal business hours, a call may be answered by a service or an automated response system, including an answering machine. Inquiries received after normal business hours must be responded to by a trained company representative on the next business day.

2. A customer representative must answer 80 percent of the customer service calls within 60 seconds. Telephone corporations may offer a callback service. If customers choose to use this callback service, and a customer service representative responds to the customer service call within 24 hours, then this call will not count against meeting this criterion.
3. Provide a postal mail component for customer service inquiries. The postal mail contact must be provided on the company's website, via customer service telephone line, and bill inserts.
4. Resolve billing-related inquiries within 90 days from the initial customer inquiry.
5. All outage-related inquiries must be directed towards the appropriate wireless standards.¹⁶¹

Staff recommends that the Commission adopt all five Customer Service Standards criteria¹⁶² for wireless service, with the following two clarifications.

Clarification #1

Staff recommends that the 60-second response window begin from the point when a customer selects the option to speak with a representative or agent, rather than at the start of the call. This clause is predicated on the requirement that the option to speak with a representative or agent in the first prompt presented to the customer, rather than requiring callers to navigate through multiple menu layers before that option appears. These changes ensure that the 60-second standard measures a carrier's actual response time once a customer has clearly requested live assistance.

Public comments received during July 15 PPH support the need for this change. Wayne Clemons, a former network and field technician with wireless carriers, testified that customers were being left on hold for extended periods, specifically 30 to 60 minutes, before being connected to a representative unable to resolve their issue.¹⁶³

Cost data submitted by a major carrier in this proceeding also supports this approach. Verizon's declarations indicate that meeting a standard requiring 80 percent of customer calls answered within 60 seconds using an interactive voice response (IVR) system entails

¹⁶¹ Cal OES Community Isolation Outage Standard and Network Availability by PUMA Standard.

¹⁶² Note that *criteria* v has been adjusted to adhere to wireless service.

¹⁶³ Wayne Clemons, Public Participation Hearing transcript (July 15, 2026, Page 22).
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M611/K970/611970656.PDF>

a substantial annual cost. Specifically, that cost increases significantly if an IVR cannot be used to respond to calls initially. Verizon suggested clarifying the standard so that the 60-second window only begins when the customer has affirmatively requested a representative or agent. This will allow carriers to continue using IVR systems for initial call routing while still ensuring customers are not made to wait unreasonably long once they have asked for live assistance.¹⁶⁴

Clarification #2

Staff recommends reducing the callback window under the optional callback service from 24 hours to 30 minutes. A 24-hour window does not reflect the practical reality that customers experiencing a service issue are unlikely to remain available or continue waiting for a resolution for a full day. By the time a callback occurs, customers are likely to have moved on to other obligations, making the 24-hour window ineffective for resolving real-time service problems.

Regina Costa of TURN provided a specific example describing a call to one of the major carriers where she spent most of a 15-minute call on hold while the representative searched for her account information. She was then disconnected after being given an inaccurate response. When she called back, she was placed on hold again and ultimately had to wait 136 minutes for a scheduled callback. Ms. Costa further testified that patients and other customers have reported being placed on hold for up to 45 minutes or experiencing dropped calls after waiting 30 minutes. She argued that customers should not be made to wait in their car or otherwise remain on standby for hours for a callback.¹⁶⁵

Connie Chaffins, representing Verizon, testified that scheduled callback functionality is already standard industry practice and that carriers work to ensure their IVR systems route customers to an appropriately trained agent once contacted, supporting the feasibility of a shorter callback window.¹⁶⁶

Reporting and Enforcement Mechanism

Reporting requirement

CD staff shall determine reporting parameters, such as metadata fields, formatting, file types, and submission methods. CD staff proposes the following reporting requirement.

Carriers shall indicate whether they have complied with all five criteria of the Customer Service Standard at the daily level and submit the results to the Commission at the end of

¹⁶⁴ Verizon, Response to July 10, 2026 Administrative Law Ruling (Public Version, July 27, 2026, Pages 4-5). <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M612/K777/612777740.PDF>.

¹⁶⁵ Regina Costa, TURN, Workshop, Recording at 00:31:16 – 00:32:48.

¹⁶⁶ Connie Chaffins, Verizon, Workshop, Recording at 01:24:39 – 01:25:21.

each calendar quarter. The Customer Service Standard shall be measured at the company level.¹⁶⁷

CD should be delegated the authority to specify the reporting template, file format, submission method, and filing deadline.

Carriers are required to submit accurate and complete reports in a timely manner. Erroneous data, incomplete entry, and late submission are considered noncompliance and are subject to fines of at least \$500 for each offence.¹⁶⁸

Penalty assessment

Failure to meet any of the five criteria of Customer Service Standard shall result in a general fund fine.¹⁶⁹ The fine amount is \$20,000 per day for each day of noncompliance.

Wireless Coverage Transparency and Other Service Quality Measures

Signal Propagation Map

Carrier coverage maps are not sufficient to show whether wireless service is usable. As discussed in the Advertised Coverage versus Signal Propagation subsection, general coverage maps may show that service is available in an area without showing whether customers can place and maintain calls indoors, in a vehicle, or outdoors at a specific location. Wireless service depends on signal quality, not merely whether a map shows a covered area. Signal strength measures, such as dBm and RSRP, provide a more precise way to evaluate whether service is likely to be usable.

Reporting and Enforcement Mechanism

Reporting requirement

CD staff recommends that the Commission shall require wireless carriers to post signal propagation maps on their public websites where they advertise or provide wireless coverage maps. These signal propagation maps should distinguish expected service conditions using clear color categories based on signal strength thresholds. For example, AT&T's "Patrick Road CL @ 140' LTE 700 Coverage" exhibit uses RSRP thresholds of green

¹⁶⁷ This is the same as GO 133-E Customer Service Standard reporting requirement.

¹⁶⁸ Pursuant to Public Utility Code §2107 and §2108, the Commission has the authority to enact penalties and assess monetary fines for failures or negligence to comply with any of its orders. Every violation of compliance is regarded as a separate and distinct offense. Furthermore, for continuing violations, each day's continuance is regarded as a separate and distinct offense.

¹⁶⁹ Ibid.

for RSRP greater than -90 dBm, yellow for RSRP greater than -100 dBm, and blue for RSRP greater than -113 dBm.¹⁷⁰ See Figure 13 for more details. Following Cal Advocates' proposal, wireless carriers must display the following coverage thresholds in an online, publicly available map: -84 dBm, -100 dBm, and -120 dBm. At a minimum, the map shall be updated annually by January 31.

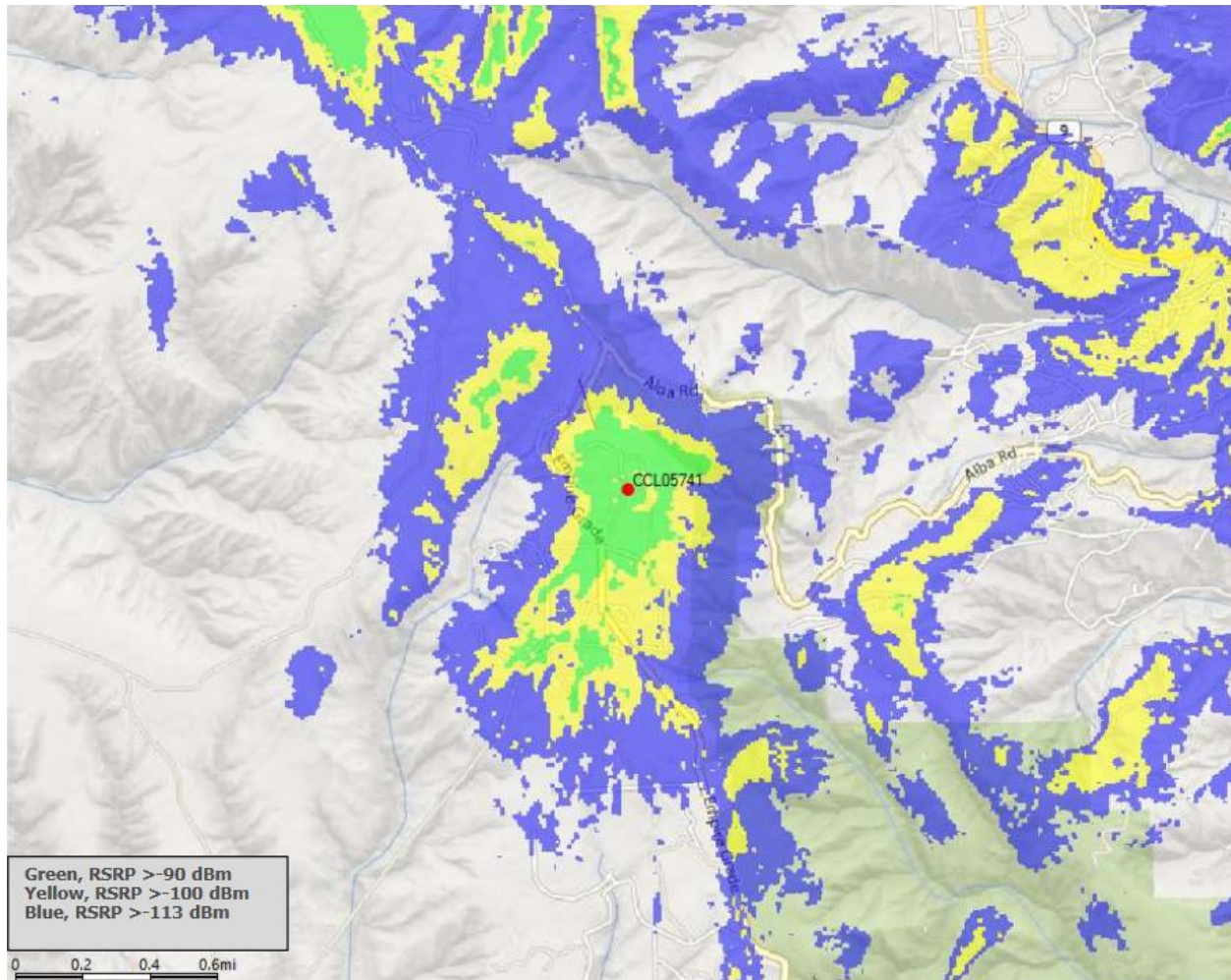


Figure 13: Signal Propagation Map for AT&T Mobility Proposed Base Station Site No. CCL05741

In this exhibit, green corresponds to coverage suitable for indoor calling, yellow corresponds to coverage suitable for in vehicle calling, and blue corresponds to coverage suitable for outdoor calling only. Posting this information alongside advertised coverage

¹⁷⁰ Hammett & Edison, Inc., Consulting Engineers, AT&T Mobility Radio Frequency Statement, Santa Cruz County Planning Commission Agenda Materials, March 27, 2024, Exhibit 7, "Patrick Road CL @ 140' LTE 700 Coverage," Page 37
<https://www2.santacruzcountyca.gov/planning/plnmeetings/PLNSupMaterial/PC/agendas/2024/20240327/007a.pdf>

maps would give customers clearer information about expected service conditions before selecting or continuing wireless service. This requirement would also help customers make more educated choices and set clearer expectations about whether service is likely to be usable at the locations where they live, work, travel, and rely on during emergencies.

This recommendation is not the same as the prior GO 133-D wireless coverage map requirement.¹⁷¹ GO 133-D previously included a wireless coverage map requirement, but general coverage maps are different from signal propagation maps. Coverage maps show broad areas where service may be available, while signal propagation maps show predicted signal strength and service usability by location. Signal propagation maps are therefore more precise, more useful for customers, and more appropriate for evaluating whether advertised wireless coverage reflects usable service.

Penalty assessment

Failure to post signal propagation maps on the carrier's public website where the carrier advertises or provides wireless coverage maps should subject the carrier to a Corrective Action Plan. See the Corrective Action Plan and Additional Enforcement Measures section for more details.

Corrective Action Plan and Additional Enforcement Measures

Wireless carriers may be required to submit a corrective action plan for repeated noncompliance of service quality standards in a specific geographic area. The Commission retains the right to assess whether further enforcement actions are necessary if carriers fail to meet wireless service quality standards, including but not limited to, requiring carriers to file and implement a Corrective Action Plan, referring the matter to the Commission's Consumer Protection Enforcement Division, opening an Order Instituting Investigation, etc. Furthermore, the Commission has the authority to impose a carrier's obligation to comply with other legal requirements, including but not limited to Public Utilities Code §271 and §272, Resolution T-17601¹⁷² and Rule 1.1 of the Commission's Rules of Practice and Procedure.

Environmental and Social Justice Considerations

The Commission retains the right to implement additional enforcement actions, as deemed appropriate, in response to substandard wireless service quality performance in

¹⁷¹ General Order 133-D, §5 https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/proceedings/proceedings_rules/go133d.pdf

¹⁷² Resolution T-17601 authorizes Communications Division to implement a citation program for enforcing compliance by telecommunications carriers with the Commission's Resolutions, Decisions, Orders and the Public Utilities Code. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M216/K795/216795045.PDF>

ESJ communities, which include (i) disadvantaged communities, defined as census tracts that score in the top 25% of CalEnviroScreen,¹⁷³ (ii) all tribal lands, (iii) low-income households, and (iv) low-income census tracts.¹⁷⁴ This is consistent with GO 133-E, which requires POTS and fixed interconnected VoIP service providers to comply ESJ reporting requirements.¹⁷⁵

¹⁷³ Office of Environmental Health Hazard Assessment, CalEnviroScreen homepage <https://oehha.ca.gov/calenviroscreen>

¹⁷⁴ CPUC, “Environmental and Social Justice Action Plan”, <https://www.cpuc.ca.gov/news-and-updates/newsroom/environmental-and-social-justice-action-plan>

¹⁷⁵ General Order 133-E, §2.1(g), §2.2(g), and §3.2.