BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking To Evaluate Telecommunications Corporations Service Quality Performance and Consider Modification to Service Quality Rules.	Rulemaking 11-12-001 (Filed December 1, 2011)

COMMENTS OF THE OFFICE OF RATEPAYER ADVOCATES ON COMMUNICATIONS DIVISION'S FEBRUARY 2015 PROPOSAL FOR MODIFICATIONS TO GENERAL ORDER 133-C

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I. INTRODUCTION AND BACKGROUND

The Office of Ratepayer Advocates ("ORA") hereby responds to the Assigned Administrative Law Judge's February 2, 2015 Ruling ("Ruling") seeking comments on the *Proposal for Modifications to G.O. [General Order] 133-C* ("Staff Proposal") prepared by the California Public Utilities Commission's ("Commission") Communications Division ("CD").[1]

ORA supports most aspects of the Staff Proposal, but urges the Commission to take further steps now to better ensure, going forward, that telephone corporations comply with their statutory obligations with respect to service quality: (1) to "furnish and maintain adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities…as are necessary to promote the safety, health, comfort, and convenience" of California consumers and the public[2]; and (2) to "provide customer service to telecommunication customers that includes…[r]easonable statewide service quality standards, including, but not limited to standards regarding network technical quality, customer service, installation, repair, and billing."[3]

As noted by the Commission, "the public health and safety, as well as California's economy, depend heavily on reliable and well-functioning wireline and wireless voice and data communications networks. These networks are virtually ubiquitous,

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[1] G.O.133-C *Rules Governing Telecommunications Services* (effective July 9, 2009) establishes "uniform minimum standards of service to be observed in the operation of public utility telephone corporations." See Decision (D.) 09-07-019, which adopted current General Order (G.O.) 133-C, and Rule 1.1(a) at 1. Public Utilities (P.U.) Code section 216 defines a "public utility" to include "every …telephone corporation." (§ 216(a).) Section 234 defines a "telephone corporation" to include "every corporation or person owning, controlling, operating, or managing any telephone line for compens;2ation within this state." (§ 234(a).) Section 233 further defines a "telephone line" to include "all conduits, ducts, poles, wires, cables, instruments, and appliances, and all other real estate, fixtures, and personal property owned, controlled, operated, or managed in connection with or to facilitate communication by telephone, whether such communication is had with or without the use of transmission wires." (§ 233.) All section references are to the P.U. Code unless otherwise stated.

[2] § 451.

[3] § 2896(c).

interconnected, and interdependent."[4] Service quality standards help to ensure that the facilities upon which these networks rely are properly maintained[5] and that the telecommunications provided to customers are of an appropriate quality.[6] The "widespread availability of *high quality* telecommunications services to all Californians" serves California's commitment to universal service.[7] High quality telecommunications also promotes competition, as Competitive Local Exchange Carriers (CLECs) who rely on the Incumbent Local Exchange Carrier (ILEC) copper facilities have stated that poor service quality has competitive implications for them.[8]

Current G.O. 133-C sets forth the "minimum standards of service to be observed in the operation of public utility telephone corporations" and includes "five minimum sets of service quality measures for installation, maintenance, and operator answer time for local exchange telephone service."[9] According to the Commission, "[t]he goal of these service quality measures was to ensure that telecommunications carriers provide relevant information to the Commission so that it may adequately protect California customers and the public interest."[10] As explained below, simply "providing relevant information to the Commission" is insufficient to meet the mandates of sections 451 and 2896. The Commission must require that telephone corporations meet the minimum service quality

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[4] See *Petition of the California Public Utilities Commission and the People of the State of California for Rulemaking on States' Access to the Network Outage Reporting System (NORS) Database and a Ruling Granting California Access to NORS*, ET Docket No. 04-35 (Nov. 12, 2009) (CPUC Petition), at 13.

[5] Two of G.O. 133's service quality measures, *Customer Trouble Reports and Out of Service Repair Interval*, measure the provider's level of "maintenance." See G.O. 133-C, Rule 2, at 5.

[6] See e.g., § 2896 (customer service that includes reasonable statewide service quality standards).

[7] § 709(a), emphasis added.

[8] See *Order Instituting Rulemaking to Evaluate Telecommunications Corporations Service Quality Performance and Consider Modification to Service Quality Rules* ("OIR"), (R.) 11-12-001, *mimeo*, at 3.

[9] OIR, *mimeo*, at 4. The five service measures are: (1) Installation Intervals, (2) Installation Commitments, (3) Customer Trouble Report, (4) Out-of-Service Report, and (5) Answer Time. See *id*, at 5.

[10] *Ibid*.

standards it establishes, or as Staff proposes, be ordered to issue refunds and/or to pay penalties.

ORA makes several proposals that will better secure public safety and a reliable and well-functioning network going forward: (1) refunds and fines should apply to all telephone corporations,[11] and not just the uniform regulatory framework (URF) telephone corporations; (2) outage reporting should include both customer-initiated trouble reports and/or any outages discoverable by service providers; (3) major service outage reporting should include all outages that meet a lower reporting threshold of 90,000 user minutes, rather than the current 900,000 user minutes threshold which follows federal outage reporting requirements;[12] (4) service quality standards should apply to wireless and all interconnected Voice over Internet Protocol (VoIP) service providers, without exemptions; and (5) the Commission should conduct an examination of the physical network on which Californians depend for safety as ordered in Decision (D.) 13-02-023.

II. SUMMARY OF ORA'S POSITION

Adequate consumer protection pursuant to P.U. Code section (section) 2896 means that the Commission "shall require telephone corporations to provide customer service" that includes "[r]easonable statewide service quality standards, including but not limited to, standards regarding network technical quality, customer service, installation repair, and billing."[13] The September 2014 Staff Report demonstrates that the largest telephone corporations have consistently failed to provide customer service that meets the

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[11] ORA proposes that interexchange carriers be excluded from G.O. 133-C requirements because they do not provide customers with access to 9-1-1.

[12] ORA's proposal, summarized at Appendix A, differs from the Staff Proposal in that it proposes to modify the two "maintenance" measures, to add two further measures (Major Service Outage Reports and Customer Trouble Resolution Interval) in lieu of staff's proposed Emergency and Disaster Reports. ORA's proposal expands the seven service quality measures to include seven measures, rather than five currently in G.O. 133-C.

[13] § 2896(c).

G.O. 133-C standards.[14] These failures (in apparent violation of sections 451[15] and 2896) have been without consequences, as G.O. 133-C contains "no penalties if a carrier does not meet the minimum standards, and there are no incentives for good performance."[16]

A. Refunds and Fines

The Staff Proposal seeks to motivate carriers to comply with their fundamental service quality obligations by proposing a "Service Quality Refunds and Fines" mechanism.[17] The Staff Report found that the "corrective action reports" required of non-complying carriers "have not been an effective means to improve service quality performance."[18] Accordingly, "the ongoing failure of carriers to meet the minimum standards of the service quality measures warrants consideration of revising current measures and adopting penalty/incentive methodologies to motivate the carriers to improve performance."[19] ORA agrees and supports modifying G.O. 133-C to include staff's Refund and Fine Proposal, but with two changes: (1) all telephone corporations, and not just the uniform regulatory framework (URF) telephone corporations, should be subject to refunds and fines and (2) all telephone corporations that fail to provide the requisite service quality reports should also be subject to penalties for violating a Commission order.

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[14] Staff Proposal, Attachment A (*Service Quality Refunds and Fines Proposal*), at A-2, *citing* September 2014 Staff Report (*California Wireline Telephone Service Quality Pursuant to General Order 133-C Calendar Years 2010 through 2013*).

[15] Section 451 states, in part: "Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public."

[16] September 2014 Staff Report, at 2, 3.

[17] See Staff Proposal, Attachment A; § 451; § 2896.

[18] Staff Report, at 3.

[19] September 2014 Staff Report, at 3; see also Staff Proposal, Attachment A, at A-2 (The staff report revealed that multiple carriers failed to meet one or more service quality standards from 2010 through 2013 and also identified that some carriers continued to fail the standards consecutively month after month for the four year reporting period. AT&T and Verizon did not meet the minimum standard for the Out-of Service measure in any of the months from 2010 through 2013.")

B. Modifications to G.O. 133-C's Outage Reporting and Repair Intervals

A significant issue with the current service quality rules is the reporting requirements on service outages. Pursuant to G.O. 133-C, reported outages are limited to customer-initiated trouble reports, excluding all other outages that are discoverable by carriers or other entities. In addition, carriers have subjectively reported outages, excluding outages that they deem to fall under exemptions, such as outages resulting from circumstances beyond their control and/or catastrophic or widespread events. To address some of these issues, the Staff Proposal recommends that telephone corporations report unadjusted results when calculating out of service restoration intervals. However, this reporting continues to only capture outages reported by customers and leaves out outages that carriers themselves discover. Customer Trouble Reports should include all customer initiated outages except for major service outages.[20] The intent of the *Major Service Outage Report*, a new measure that ORA proposes, is to capture all outages, regardless of how they are discovered, through customer complaints or otherwise discovered by a carrier. As such, ORA recommends modifications to the *Customer Trouble Reports* and *OOS Repair Interval* measure as further described in Section V, *infra*.

G.O. 133-C also requires telephone carriers to submit to the Commission the Federal Communications Commission's (FCC) Network Outage Reporting System (NORS) reports, which captures major service interruption that meet certain threshold reporting requirements. In an effort to capture outages in sparsely populated areas in the State, referred to as "communities of place," which are not currently reported under G.O. 133-C, the Staff Proposal adds another major service interruption report, Emergency and Disaster Report. While the Staff Proposal's outage reporting requirements move in the right direction, it does not solve the aforementioned issues,

[20] Major service outages is defined under *Major Service Outage Report* requirements in Table 1, 30-31.

such that outages are adequately reported. To that end, ORA proposes the Commission (1) lower triggering reporting thresholds for outage reporting to 90,000 user minutes (2) apply objective definitions, and (3) eliminate exemptions. Therefore, in lieu of the *Emergency and Disaster Reports* and in addition to the FCC NORS report, the Commission should require a California specific *Major Service Outage Report* with the recommended thresholds listed above and described in Section V.

ORA also proposes the Commission consider adding new service quality standards related to network technical quality, as required by section 2896, and require voice service providers to report on Best Practices.[21] Appendix A contains a comparison of G.O. 133-C, the Staff Proposal, and ORA's Proposal.

C. Service Quality Standards Should Apply to Wireless and Interconnected VoIP Service Providers

A significant issue not addressed by the Staff Proposal, however, is consideration of service quality measures/standards for wireless or all interconnected VoIP providers.[22] As the September 24, 2012 scoping memo states, "a central focus of this proceeding is on service quality for voice communications services provided to customers."[23] Wireless and interconnected VoIP technology are "used to facilitate communication by telephone," and any corporation or person that owns, controls, operates, or manages the facilities that are used in voice communications are "telephone corporations" bound by the obligation to comply with "reasonable statewide service quality standards" adopted by the

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[21] The Network Reliability and Interoperability Council (NRIC) and Communication, Reliability, and Interoperability Council (CSRIC) have developed a list of Best Practices that are designed to prevent and/or reduce the effects of outages. http://transition.fcc.gov/pshs/outage/nors_manual.pdf, at 34.

[22] As written, the Staff Proposal would only apply to two interconnected VoIP providers that have (1) CPCNs *and* (2) are either or both (a) a designated Eligible Telecommunications Carriers and/or (b) authorized to offer California LifeLine services. Staff Proposal, at 1. Considering service quality rules for all interconnected VoIP providers is clearly within the scope of this proceeding. See September 24, 2012 *Assigned Commissioner's Scoping Memo and Ruling*.

[23] Staff Proposal, at 2, citing September 24, 2012 *Assigned Commissioner's Scoping Memo and Ruling*, at 7.

Commission.[24] As explained below, the Commission has jurisdiction to both impose reporting requirements and to adopt service quality standards for wireless and interconnected VoIP providers.

Immediate consideration of this important issue is necessary for the Commission to carry out its section 2896 mandate, as well as to further California's stated telecommunications policy "to encourage fair treatment of consumers through provision of sufficient information for making informed choices, *establishment of reasonable service quality standards, and establishment of a process for equitable resolution of billing and service problems*."[25] ORA's Proposal is guided by this policy, which may only be achieved by establishing and enforcing reasonable service quality standards for all telephone corporations regardless of the technology they use to provide voice communications to their customers.

G.O. 133-C does not protect customers of wireless and interconnected VoIP providers and the Staff Proposal does not address this deficiency. While the Staff Proposal requires wireline carriers to meet service quality standards and issue automatic refunds to aggrieved customers, the Staff Proposal does not extend that same protection to wireless or interconnected VoIP customers. There is no reasonable basis to treat these customers, who comprise over 40 million[26] of California's voice customers, differently for consumer protection purposes related to service quality. The Legislature requires these customers, as with wireline customers, to pay surcharges to fund the state's public purpose programs.[27] It is only equitable then that wireless and interconnected VoIP customers also receive the same benefits and protections as wireline customers. Leaving wireless voice and interconnected VoIP customers without service quality standards

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[24] § 233; § 234; § 2896; § 451.

[25] § 709(h) (emphasis added).

[26] See discussion, section IV, *infra*.

[27] See e.g., § 285.

violates the state's express policy "to encourage fair treatment of consumers" of telecommunications services.

While ORA does not object to moving forward now with addressing the modifications to G.O. 133-C as proposed in the Staff Proposal, the Commission should make clear that it *will* consider the issue of adopting service quality standards for wireless and interconnected VoIP providers in this proceeding without further delay. No state or federal law prohibits the Commission from establishing service quality standards for these other types of telephone corporations.[28]

D. Study of Carrier Network Infrastructure as Ordered in Decision (D.) 13-02-023

Finally, the Staff Proposal ***should not be understood as a substitute for an actual examination of the physical network on which Californians depend for safety.*** As detailed below, recent events – like a car crash which took out 400 feet of AT&T fiber,[29] leading to the failure of emergency communications in western Mendocino County during a major wildfire – show that not only the condition of the terminating network, but also the redundancy of middle mile and transit trunk lines, is key to protecting public safety. As the Commission said in D.13-02-023:

> 1. A study of carrier network infrastructure, facilities, policies, and practices as described in the scoping memo and ruling issued on September 24, 2012, is a necessary foundational activity within this proceeding to help gauge the condition of carrier infrastructure and facilities and ensure the facilities support a level of service consistent with public safety and customer needs.[30]

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[28] See discussion, section III, *infra*.

[29] The OIR also cites to a series of severe rainstorms that battered Southern California, which resulted in flooding that led to the Governor's declaration of a state of emergency in twelve counties in Southern California, as a basis for opening this proceeding. See OIR, at 7-8.

[30] D.13-02-023, Finding of Fact 1, at 7, found at http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M057/K614/57614588.pdf.

There is no substitute for such a physical inspection. ORA understands that a Request for Proposals (RFP) is ready or near-ready to solicit bids on doing this study and inspection. The Staff Proposal, therefore, should not be a substitute for the necessary physical inspection of the telecommunications network as ordered by the Commission in D.13-02-023.

III. THE COMMISSION HAS JURISDICTION TO ADOPT TECHNOLOGY-NEUTRAL SERVICE QUALITY REPORTING REQUIREMENTS & SERVICE QUALITY STANDARDS FOR WIRELESS AND INTERCONNECTED VOIP PROVIDERS OF VOICE COMMUNICATIONS

As a threshold matter, the Commission has jurisdiction to require service quality reporting *and* to adopt service quality standards for wireless and interconnected VoIP providers. The provision of voice communications services in California by these entities for profit subjects them to the Commission's jurisdiction as "public utility" "telephone corporations."[31] The Commission has a statutory duty to require *all* telephone corporations to provide customer service that meets reasonable statewide service quality standards.[32]

Any corporation or person "owning, controlling, operating, or managing any telephone line for compensation within this state" is a "telephone corporation" subject to the jurisdiction and control of the Commission.[33] Section 233 defines "telephone line" to include "all conduits, ducts, poles, wires, cables, instruments, and appliances, and all other real estate, fixtures, and personal property owned, controlled, operated, or managed in connection with or to facilitate communication by telephone, whether such communication is had with or without the use of transmission wires." [34] As explained

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[31] §§ 216, 233, 234.

[32] § 2896; see also OIR, at 12.

[33] § 234 (definition of "telephone corporation"); § 216 ("definition of public utility").

[34] § 233.

below, both wireless and interconnected VoIP providers operate telephone lines in their provision of voice communications and are thus subject to the Commission's jurisdiction.

Neither federal nor state law absolves these telephone corporations from "service quality" obligations. Further, the definition of a "telephone corporation" does not draw jurisdictional distinctions based on the technology used in connection with the telecommunications service.

A. Wireless Carriers are "Telephone Corporations"

The Commission has found that wireless carriers are telephone corporations pursuant to section 234.[35] Indeed, the Court of Appeal has affirmed the Commission's interpretation of section 233 to include wireless service.[36] While federal law does preempt the Commission from regulating "rates" and "entry" of wireless providers, requiring reports and enforcing service quality standards do not constitute rate or entry regulation. Under the applicable federal statute of the 1996 Federal Communications Act, 47 U.S.C.S § 332, subdivision (c)(3)(A) ("Communications Act"), state regulation of wireless carriers is only limited to regulating "the entry of or the rates charged by any commercial mobile service or any private mobile service."[37] Importantly, the Communications Act expressly preserves state jurisdiction over the "other terms and conditions*"* of wireless service.[38]

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[35] See e.g., D.10-10-007; see also D.11-01-027, Rehearing of D.10-10-007 Denied.

[36] *City of Huntington Beach v. Public Utilities Com*., (2013) 214 Cal. App. 4th 566, 585, 586 ("Telephone Corporation" defined broadly, without regard to the particular manner by which users of telephones are put into communication; "The California Public Utilities Code contemplates that telephone corporations may provide mobile telephony services.").

[37] The statute uses the term "commercial mobile service" rather than wireless or cellular. See also Pub. Util. Code § 216.8 [defining "commercial mobile radio service" to mean "commercial mobile service" as used in federal law]; 47 U.S.C.S. § 332, subd. (c)(3)(A).

[38] 47 U.S.C. § 332, subd. (c)(3)(A). ["…except that this paragraph shall not prohibit a State from regulating the other terms and conditions of commercial mobile services."]. Federal preemption of entry and rates for wireless carriers also does not "exempt providers of commercial mobile services (where such services are a substitute for land line telephone exchange service for a substantial portion of the communications within such State) from requirements imposed by a State commission on all providers of telecommunications services necessary to ensure the universal availability of telecommunications service

While the Communications Act does not define the terms "entry" or "other terms and conditions," the congressional intent regarding how those terms should be used in the Act is provided in the following House of Representatives' report:

> Section 332(c)(3) provides that state or local governments cannot impose rate or entry regulation on private land mobile service or commercial mobile services; this paragraph further stipulates that nothing here shall preclude a state from regulating the other terms and conditions of commercial mobile services. It is the intent of the Committee that the states still would be able to regulate the terms and conditions of these services. *By "terms and conditions," the Committee intends to include such [] matters as customer billing information and practices and billing disputes and other consumer protection matters; facilities citing issues (e.g. zoning); transfers of control; the bundling of services and equipment; and the requirement that carriers make capacity available on a wholesale basis or such other matters as fall within a state's lawful authority. [] This list is intended to be illustrative only and not meant to preclude other matters generally understood to fall under "terms and conditions*."[39]

For example, in 2010, this Commission amended General Order 168 and expanded the applicability of cramming reporting requirements for wireless carriers in D.10-10-034.[40] Therefore, the Commission has jurisdiction to adopt service quality reporting requirements, as well as service quality standards that apply to wireless carriers.

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at affordable rates." 47 U.S.C.S. § 332 (c)(3)(A). Moreover, upon a showing of certain conditions, the Federal Communications Commission may allow states to regulate the rates of wireless providers, notwithstanding preemption. (*Ibid.*)

[39] *Moriconi v. AT&T Wireless PCS, LLC* (E.D. Ark. 2003) 280 F.Supp.2d 867, 873-874, *citing* H.R. Rep. No. 103-111 (1993), reprinted in 1993 U.S.C.C.A.N. 378, 588, emphasis added.

[40] G.O, 168, Part 4 § 2.5.

B. Interconnected VoIP Providers Meet the Definition of "Telephone Corporation"

The Commission may similarly apply service quality reporting requirements and standards to interconnected VoIP providers. Section 239 defines VoIP as "voice communications service that uses Internet Protocol or a successor protocol to enable real-time, two-way voice communication that originates from, or terminates at, the user's location in Internet Protocol or a successor protocol."[41] The plain language of section 239 makes clear that VoIP service utilizes "conduits, ducts, poles, wires, cables, instruments, or appliances" to facilitate communication by telephone. Accordingly, any corporation or person providing VoIP service for profit in California meets the definition of a "telephone corporation" under state law.

In 2004, in Investigation (I.) 04-02-007, *Order Instituting Investigation on the Commission's Own Motion to Determine the Extent to Which the Public Utility Telephone Service Known as Voice Over Internet Protocol Should be Exempt from Regulatory Requirements*, the Commission tentatively concluded that "those who provide VoIP service interconnected with the PSTN [public switched telephone network] are public utilities offering a telephone service subject to our regulatory authority."[42] In reaching this tentative conclusion, the Commission analyzed the functionalities of VoIP, especially from the end-user's perspective, and interpreted VoIP service providers to fall within the definition of a public utility telephone corporation pursuant to sections 216 and 234. Subsequently, in 2011, in Rulemaking (R.) 11-01-008, *Order Instituting Rulemaking on the Commission's Own Motion to Require Interconnected Voice Over Internet Protocol Service Providers to Contribute to the Support of California's Public Purpose Programs,* the Commission reached the same tentative conclusion that "interconnected VoIP service providers fall within the broad definition of "telephone

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[41] § 239.

[42] I.04-02-007, Slip. Op., at p. 4.

corporation."[43] While these tentative conclusions were never adopted in final Commission decisions, ORA is unaware of any Commission decision that concludes otherwise.

Moreover, neither section 239 (defines "VoIP" and "IP enabled" services) nor section 710 (limits the CPUC's jurisdiction over VoIP or IP enabled services) alter or amend the relevant definitions of "public utility" (section 216), "telephone line" (section 233), or "telephone corporation" (section 234) that govern the jurisdictional analysis here.

C. Even if the Commission Declines to Classify Interconnected VoIP Telephone Providers as "Telephone Corporations," the Commission Has Jurisdiction to Require the Underlying Providers of Connectivity to Report on the Status of their Networks

1. Section 710(f) Exception: Monitoring and Discussing VoIP Issues

The Staff Proposal cites section 710(f) as the basis for allowing the Commission to adopt these reporting requirements for interconnected VoIP providers, notwithstanding the limits to the Commission's "jurisdiction and control over VoIP and IP enabled services" imposed by section 710(a).[44] ORA agrees.

Section 710(f) expressly preserves "the [C]ommission's ability to monitor and discuss VoIP services" and to do that meaningfully, the Commission would need to obtain service quality data from interconnected VoIP carriers.[45] Absent 710(f), the

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[43] R.11-01-008, Slip Op., at p.27.

[44] Staff Proposal, at 6,7; § 710(a) states: "The commission shall not exercise regulatory jurisdiction or control over Voice over Internet Protocol and Internet Protocol enabled services except as required or expressly delegated by federal law or expressly directed to do so by statute or as set forth in subdivision(c). In the event of a requirement or delegation referred above, this section does not expand the commission's jurisdiction beyond the scope of that requirement or delegation."

[45] § 710(f) states: "This section does not limit the commission's ability to continue to monitor and discuss VoIP services, to track and report to the Federal Communication's Commission and the Legislature, within its annual report to the Legislature, the number and type of complaints received by the commission from customers, and to respond informally to customer complaints, including providing VoIP customers

Commission would still be able to require service quality reports from interconnected VoIP providers.

2. The CPUC's Administrative Subpoena Power

The Commission has jurisdiction to require *at least* accurate and detailed *reporting* by VoIP providers on two other separate grounds: (1) the inherent power of an administrative agency to seek information that will itself define the parameters of its jurisdiction; and (2) specifically as to VoIP, the Commission has delegated power from federal law (Section 706(a) of the 1996 Federal Telecommunications Act ("Section 706")) to promote advanced telecommunications capability (e.g., VoIP service), to promote competition, and to remove barriers to entry in the VoIP marketplace. Technology neutral service quality rules, including interconnected VoIP reporting requirements and service quality standards, further these federal mandates. This second argument is discussed in section III.D, *infra*, as it applies to both issues of reporting and setting service quality standards for VoIP service.

First, the Commission has plenary power to obtain from any regulated entity any document in the utility's possession, custody or control.[46] So, to the extent that a regulated company is offering both regulated and unregulated service, the Commission can inquire if for no other reason than to determine where regulated service ends and unregulated service begins.

Moreover, the Commission has administrative subpoena power (*see, e.g.,* Government Code §§ 11180 *et seq.*) to inquire of any entity operating in California as to matters which are or may be under the Commission's jurisdiction.[47] California courts

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who contact the commission information regarding available options under state and federal law for addressing complaints."

[46] *See* P.U. Code §§ 311, 314, 581-82, and 584.

[47] See, generally, D.05-06-033, approving CPUC use of administrative subpoenas.

have noted with approval the U.S. Supreme Court's upholding of broad administrative subpoena power:

> As has been said by the United States Supreme Court, the ***power to make administrative inquiry is not derived from a judicial function but is more analogous to the power of a grand jury, which does not depend on a case or controversy in order to get evidence but can investigate 'merely on suspicion that the law is being violated***, or even just because it wants assurance that it is not.' [48]

Therefore, the Commission may lawfully order VoIP providers to provide service quality reports concerning their interconnected VoIP service.

D. Federal Law Delegates Authority for the CPUC to Establish Service Quality Standards for Interconnected VoIP Service

1. Section 706(a) of the 1996 Federal Telecommunications Act

Section 706(a) of the 1996 Federal Telecommunications Act (Section 706) states, in relevant part:

> The Commission and each State commission with Regulatory jurisdiction over telecommunications services[49] shall *encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans* (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience and necessity, price cap regulation, regulatory forbearance, measures that *promote competition* in the local telecommunications market, or other

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[48] *People v. West Coast Shows, Inc.* (1970) 10 C.A.3d 462, 470, *quoting United States v. Morton Salt Co.*, 338 U.S. 632, 642-643 (1950) (emphasis added).

[49] The Communications Act defines Telecommunications as "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received." (47 U.S.C. § 153 (50).) The Communications Act defines "telecommunications service" as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used." (47 U.S.C. § 153 (53).)

> regulating methods that *remove barriers to infrastructure investment*.[50]

The language of Section 706 provides a specific grant of authority to the Federal Communications Commission (FCC) and to each state with regulatory jurisdiction over telecommunications services to "encourage the deployment of advanced telecommunications capabilities on a reasonable and timely basis."[51] The CPUC is the state commission in California with regulatory jurisdiction over telecommunications services.[52] Thus, the "advanced telecommunications capability"[53] referenced in Section 706, which includes VoIP service, is within the Commission's subject matter jurisdiction, consistent with section 710.

Since Section 706 by its terms confers parallel powers on state commissions and the FCC,[54] the same rationale applied by the D. C. Circuit in its review of the FCC's 2010 *Open Internet Order* anti-discrimination rules also applies to this Commission's attempt to ensure safety on today's integrated network of broadband and plain old telephone service (POTS). The District of Columbia Circuit Court of Appeals (D.C. Circuit) delivered the most definitive reading of Section 706 to date. To Verizon's objection that "Congress would not be expected to grant both the FCC and state commissions the regulatory authority to encourage the deployment of advanced telecommunications," the D.C. Circuit responded, "Congress has granted regulatory

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[50] Codified at 47 U.S. C. § 1302(a) (emphasis added).

[51] *Ibid.*

[52] *See, e.g.,* P.U. Code §§ 216, 233, 234, 239, 285, 709, 2871-2897.

[53] Section 706 defines "Advanced Telecommunications capability" to include VoIP. Section 706(d)(1) states that: "The term 'advanced telecommunications capability' is defined, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology."

[54] 47 U.S.C. § 1302(a)*; Verizon v. FCC*, 740 F.3d 623, 638 (D.C. Cir. 2014). *See also Order on In the Matter of Preserving the Open Internet; Broadband Industry Practices* (*Open Internet Order*), 25 F.C.C.R. 17905, 17968, ¶ 117 (2010).

authority to state telecommunications commissions on other occasions, and we see no reason to think that it could not have done the same here."[55] At no point in *Verizon v. FCC* does the D.C. Circuit distinguish between the grant of authority to the FCC and the grant of authority to the states.

Just as the FCC may take note of the potentially adverse consequences of Internet service provider (ISP) discrimination, the Commission may take note of the potentially adverse consequences of service quality lapses – including in the wholesale market – on the deployment of VoIP in California, and may at least mandate reporting about such lapses, if not impose conditions to prevent their reoccurrence.

VoIP, broadband competition and build-out, and public safety all stand in close relationship with one another. If California's emerging VoIP and broadband network, which today interfaces with and is slowly supplanting the switched telephone network,[56] is not capable of providing reliable service, this creates a large public safety problem. It also may slow the growth of VoIP and broadband competition that are necessary to provide service in rural areas, bring down prices, and improve adoption in urban areas. The FCC's recent Open Internet Order cites Commissioner Sandoval's concern that the lack of an open – *and reliable* – network

> … undermines public safety and universal service, and increases barriers to adopting Internet-based applications such as Internet-enabled demand response communications electric and gas utilities use to prevent power blackouts, forestall the need to build fossil-fueled power plants, promote environmental sustainability, and manage energy resources.[57]

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[55] 740 F.3d at 638, *citing* 47 U.S.C. § 251(f) (granting state commissions the authority to exempt rural local exchange carriers from certain obligations imposed on other incumbents); and 47 U.SC..§ 252(e) (requiring all interconnection agreements between incumbent local exchange carriers and entrant carriers to be approved by a state commission).

[56] See discussion, section IV, *infra*.

[57] Open Internet Order (February 27, 2015), at ¶ 126 and fn. 291.

The lack of safe and reliable facilities depresses the demand for VoIP services the same way that a terminating broadband monopolist's discrimination among edge-provider content does (the case in *Verizon v. FCC*), and thus runs counter to Section 706's mandate to promote competition in broadband and other advanced telecommunications services, like VoIP:

> The Commission's theory, to reiterate, is that its regulations protect and promote edge-provider investment and development, which in turn drives end-user demand for more and better broadband technologies, which in turn stimulates competition among broadband providers to further invest in broadband.[58]

Accordingly, the Commission should exercise its Section 706 authority to establish service quality standards for interconnected VoIP providers.[59]

2. P.U. Code Section 710(a) Expressly Preserves Commission Jurisdiction Delegated by Federal Law Concerning VoIP service

While industry may argue that reliance on Section 706 is precluded by P.U. Code section 710, the Commission can and should conclude that Section 706 of the Communications Act provides the express delegation of authority allowed by section 710:

> The Commission shall not exercise regulatory jurisdiction or control over Voice over Internet Protocol or Internet Protocol enabled services *except as required or expressly delegated by federal law*….[60]

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[58] 740 F.3d at 643. Although Verizon derided this theory as a "triple cushion shot," the Circuit Court found that such a triple-cushion shot "counts the same as any other shot," and that the FCC had presented a reasonable theory of competition. *Id.*

[59] Consumer groups agree with ORA's position. See Reply Comments of The Utility Reform Network, The Greenlining Institute, and Center for Accessible Technology on 2014 Staff Report on Wireline Telephone Service Quality, at 2-5.

[60] Pub. Util. Code § 710(a) (emphasis added).

In view of the D.C. Circuit Court's conclusion that Section 706 is "an affirmative grant of authority" to the FCC and the state commissions, it falls clearly within the highlighted exemption in section 710.

The Senate Report on the 1996 Telecommunications Act states that Section 706 is "intended to ensure that one of the primary objectives of the [1996 Act]--to accelerate deployment of advanced telecommunications capability--is achieved," and emphasized that Section 706 is "'a necessary fail-safe' to guarantee that Congress's objective is reached."[61] This also is a primary objective of California policy, as reflected (*inter* alia) in P.U. Code sections 709-709.5. As the FCC observed, and the D.C. Circuit quoted in *Verizon v. FCC*, "[i]t would be odd indeed to characterize Section 706(a) as a 'fail-safe' that 'ensures' the Commission's ability to promote advanced services if it conferred no actual authority."[62]

Under Section 706, the FCC and state commissions have, as the D.C. Circuit put it, a "direct mandate" to promote broadband competition, including the adoption of service quality rules and standards for VoIP providers in order to ensure that VoIP and the broadband facilities on which it rides are being "reasonably and timely deployed" in California.[63] *Service quality is thus inextricably linked to the deployment of advanced communications capability.*

ORA's position on Section 706 and section 710 is consistent with the position the Administrative Law Judge (ALJ) has taken in A.14-04-013, et al. the proceeding on the proposed merger of Comcast Corporation and Time Warner Cable, Inc. In the Proposed Decision on that matter, the ALJ stated that the Commission has jurisdiction to review the merger under Section 706 and concludes "that Section 706(a) of the 1996

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[61] Committee Reports, 104th Congress (1995-1996) **Telecommunications Competition and Deregulation Act of 1995,** S. Rep. No. 104-23, at 50-51 (1995). *See also Open Internet Order*, 25 F.C.C.R. at 17969-17970, ¶ 120; *See also Verizon v. FCC*, 740 F.3d at 639.

[62] *Open Internet Order*, 25 F.C.C.R. at 17969-17970, ¶ 120. *See also Verizon v. FCC*, 740 F.3d at 639.

[63] *Comcast v. FCC*, 600 F.3d 642, 658 (D.C. Cir. 2010).

Telecommunications Act provides the express delegation of authority allowed by § 710."[64]

Under the California Constitution, the Commission is required to implement and follow Section 706, which not only creates a specific grant of regulatory authority for the Commission, but is also a mandatory, versus a permissive statute.[65] Section 3.5 of the California Constitution provides:

> An administrative agency, including an administrative agency created by the Constitution or an initiative statute, has no power:
>
> (a) To declare a statute unenforceable, or refuse to enforce a statute, on the basis of it being unconstitutional unless an appellate court has made a determination that such statute is unconstitutional;
>
> (b) To declare a statute unconstitutional;
>
> (c) To declare a statute unenforceable, or to refuse to enforce a statute on the basis that federal law or federal regulations prohibit the enforcement of such statute unless an appellate court has made a determination that the enforcement of such statute is prohibited by federal law or federal regulations.[66]

Therefore, this Commission has a duty and obligation to implement and effectuate Section 706, unless and until an appellate court tells it otherwise.

Lastly, as discussed in detail below, requiring non-VoIP providers to follow service quality rules in California, but having no service quality standards for VoIP and wireless carriers harms consumers, creates an uneven playing field, and is the opposite of the technological neutrality for which the Commission strives.

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[64] A.14-04-013, et al., Proposed Decision Granting with Conditions Application to Transfer Control (PD) at 21. *See also* PD at 18-20; A.14-04-013, et al., Scoping Memo and Ruling of Assigned Commissioner and ALJ of August 14, 2015 at 10-12.

[65] *See* 47 U.S.C. § 1302(a) and its use of the word "shall."

[66] CA Const. § 3.5.

IV. WHY SHOULD THE COMMISSION ESTABLISH SERVICE QUALITY STANDARDS THAT WIRELESS AND VOIP VOICE CUSTOMERS CAN RELY UPON?

In addition to fulfilling the aforementioned state and federal mandates,[67] the Commission should establish service quality standards for both wireless and VoIP services to protect consumers[68] and to further California's telecommunications policies.[69] Current statistics indicate a growing trend of California customers subscribing to wireless and VoIP voice services. In the past ten years, wireline subscriptions in California have decreased by about 54% from 23.5 million subscriptions in 2003 to 10.7 million subscriptions in 2013.[70] Meanwhile, wireless subscriptions have increased by about 80% from 20.4 million subscriptions in 2003 to 36.4 million subscriptions in 2013.[71] VoIP subscriptions increased three-fold from 2.2 million subscriptions in 2008 to 5.7 million subscriptions in 2013.[72] Figure 1 shows California subscriptions for voice service by technology from December 2003- December 2013.

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[67] P.U. Code §§ 451 and 2896; Section 706.

[68] See *Telecommunications Service Quality*, National Regulatory Research Institute, March 1996, Executive Summary, at v ("State regulatory commissions have over a century of experience in economic regulation, assuring a fair rate-of-return on the fair value of their investment for stockholders and affordable rates for customers. Protective regulation, the *raison d'etre* for many well-established government agencies, has lived in the shadow of traditional economic regulation. As we move towards an era of a network of networks in telecommunications, a new emphasis on protective regulation is needed to assure Americans of the quality they want."), found at http://www.ipu.msu.edu/library/pdfs/nrri/Davis-Telecom-Service-Quality-96-11-Mar-96.pdf (last visited 3/30/15).

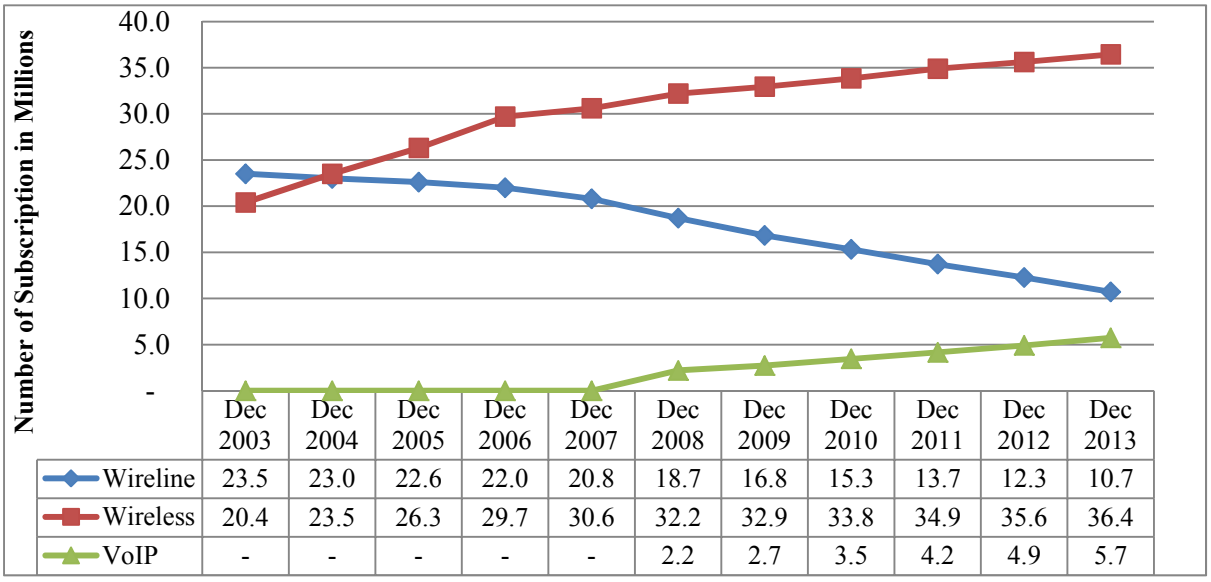
[69] §§ 709-709.5.

[70] Sources: FCC Form 477 filings, December 2003 - December 2013.

[71] *Ibid.*

[72] There was no reported data for VoIP subscriptions in Form 477 prior to 2008.

Figure 1: California Voice Service Subscriptions by Technology (Millions of Subscriptions) ***Sources: FCC Form 477 filings, Dec 2001 - Dec 2013***



	Dec 2003	Dec 2004	Dec 2005	Dec 2006	Dec 2007	Dec 2008	Dec 2009	Dec 2010	Dec 2011	Dec 2012	Dec 2013
Wireline	23.5	23.0	22.6	22.0	20.8	18.7	16.8	15.3	13.7	12.3	10.7
Wireless	20.4	23.5	26.3	29.7	30.6	32.2	32.9	33.8	34.9	35.6	36.4
VoIP	-	-	-	-	-	2.2	2.7	3.5	4.2	4.9	5.7

Wireless subscriptions constituted more than 60% of all voice subscriptions in California for the period between 2008 and 2013. During this period, wireline subscriptions continued to decline (35% in 2008 to 20% in 2013) and VoIP subscriptions continued to increase (4% in 2008 to 11% in 2013). As of December 2013, VoIP and Wireless subscriptions constituted about 80% of total voice subscriptions in California, whereas wireline subscriptions accounted for the remaining 20%. Refer to Figure 2 for the percentage of voice subscription by technology in California for the period between December 2008 and December 2013.

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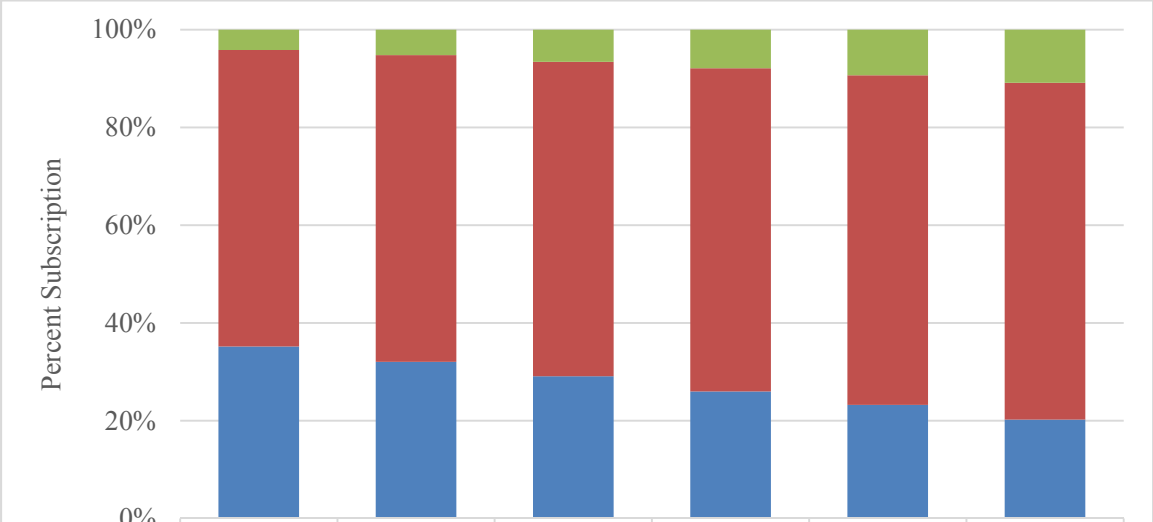
Figure 2: Percent of Voice Service Subscriptions by Technology in California (June 2008-December 2013)

Sources: FCC Form 477 filings, Dec 2001 - Dec 2013



	Dec 2008	Dec 2009	Dec 2010	Dec 2011	Dec 2012	Dec 2013
VoIP	4%	5%	7%	8%	9%	11%
Wireless	61%	63%	64%	66%	67%	69%
Wireline	35%	32%	29%	26%	23%	20%

Public safety and consumer protection is currently at risk, given that there are more than 40 million subscriptions to wireless and VoIP services in California.[73] In a recent report issued by the FCC titled "*April 2014 Multistate 911 Outage: Cause and Impact*,"[74] a preventable software coding error that occurred at one location[27] affected 81 Public Safety Answering Points in seven states, including California. According to the report, over 11 million Americans or about three and half percent of the population of the United States, were at risk of not being able to reach emergency services through dialing 9-1-1. About 71% of those failed calls were VoIP and wireless, while 29% were wireline calls. This example illustrates the importance of setting minimum standards to address

[73] Note that a customer can subscribe to more than one service.

[74] April 2014 Multistate 911 Outage: Cause and Impact, Report and Recommendations. Public Safety Docket No. 14-72. PSHSB Case File Nos. 14-CCR-0001-0007, found at http://www.fcc.gov/document/april-2014-multistate-911-outage-report.

public safety regardless of the type of technology used to provide voice services. As stated in the report:

> *The introduction of [Next Generation 911] NG911 and IP-based technologies will require industry as well as state, local, tribal and territorial governments and commissions to move aggressively to ensure that technology enabled optimization does not introduce unacceptable risks that threaten imperiling 911 reliability and resiliency. Everyone has a role in ensuring that 911 works as it should, when it is most needed.*[75]

In early august 2014, parts of Mendocino County experienced a telecommunications outage that lasted 45 hours impacting about 17,400 residents. The report indicating the exact number of residents affected by the outage is unknown, but estimated to be many thousands of people. The cause of the incidents appear to be a "hit and run" accident that took out 400' of aerial AT&T fiber optic cable affecting telephone, internet, cellular and 911 services.[76] If the impact of this outage is as estimated (i.e. 17,400 affected users), pursuant to the FCC's methodology,[77] this outage would have affected 783,000 user minutes, which falls below the FCC NORS reporting threshold of 900,000 user minutes. Consequently, this outage would not be reported to the FCC and the Commission, and 9-1-1 special facilities would not be notified. Also, this outage would have been exempted from being reported by a traditional wireline, under the current service quality rules as it would have been characterized as "circumstances beyond the carrier's control."[78]

The growing trend in statistics signify the importance of setting service quality measures and standards applied to interconnected VoIP and wireless[79] service providers

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[75] *Id.*, at 2 (emphasis in original).

[76] http://www.co.mendocino.ca.us/bos/pdf/CPUC_Incident_Report_Letter_-_2_Incident_Report.pdf

[77] 783,000 user minutes is calculated as follows: 30-minutes outage * 17,400 affected users; see also Appendix B.

[78] See Section 3.4 (b) G.O. 133-C, at 7.

[79] The Commission has the authority to require wireless carriers to provide information on service quality

to ensure service reliability, public safety and consumer protections for the large majority of Californians who currently rely on these technologies for their voice services.

Adopting a minimum set of service quality standards also advances the deployment of advanced telecommunications services such as high-speed broadband and VoIP services. VoIP phone service is rapidly replacing traditional land-line phone service and with the assurance of minimum service quality standards in place, consumers are more likely to be encouraged to adopt such services, thereby resulting in added deployment of advanced telecommunication services. Governor Schwarzenegger's executive order S-21-06 clearly identifies that "deploying broadband networks and advanced communication services [which includes VoIP] throughout California will enable continued improvements in healthcare, public safety, education, and the economy; and ….a technology-neutral approach to removing barriers to broadband deployment will encourage lower prices and creation of more consumer choices."[80]

V. ORA'S PROPOSAL

The Commission should follow similar principles that guided it in D.12-12-038, where the Commission revised the definition of basic telephone service.[81] The revised

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and customer complaints. See P.U. Code § 2885.6., which states in relevant parts "(a) The commission shall require mobile telephony service, as defined in Section 224.4, carriers to provide the commission, within six months of the effective date of the act that adds this section, and thereafter as requested by the commission, with information, as specified by the commission, concerning service quality and customer complaints. (b) In addition to any other sanctions available, the commission shall have the authority to assess any and all of the following specific penalties for mobile telephony carrier noncompliance with commission rules, practices, and procedures respecting the filing of required periodic information and reports to the commission: (1) The revocation or suspension, on an expedited basis, of temporary tariffing authority granted the carrier. (2) The revocation or suspension, on an expedited basis, of other rate flexibility or promotional program authority granted the carrier."

[80] http://gov.ca.gov/news.php?id=4818.

[81] "*As a framework for adopting basic service revisions, we apply guiding principles and criteria designed to: a. Consolidate and streamline existing listings of service elements. b. Apply technology-neutral terminology and definitions. c. Preserve standards necessary to meet essential universal service needs while not degrading existing basic service or standards*." D.12-12-038, Slip. Op., at 12.

definition of basic telephone service applied to any telephone corporation regardless of the technology used to provide the service. ORA, therefore, proposes that the Commission follow the following similar principles in its consideration of revisions to the service quality rules:

1) Apply reasonable, comprehensive, clear and objective service quality measures and standards[82]
2) Apply technology-neutral terminology and definitions[83]
3) Preserve standards necessary to meet essential universal service needs while not degrading existing basic service or standards[84]
4) Apply service quality standards that preserve essential consumer protections necessary to safeguard consumer's access to emergency services and promote consumer's safety and health while flexible to accommodate evolving communication technologies.

A. New Service Measures to Capture More Outages

G.O. 133-C currently has two service quality measures that capture outages: (1) Customer Trouble Reports[85] and (2) Out of Service Repair (OOS) Intervals.[86] In addition to requiring reporting of these two measures, G.O. 133-C requires all facilities-based certified and registered public utilities telephone corporations to report to the Commission "Major Service Interruptions," by submitting the FCC's Part 4 NORS reports and annual ETC outage reports.

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[82] D.09-07-019, fn. 1: "Measures are the aspects or features of service subject to evaluation and reporting. Standards are the minimum acceptable values that measure must meet to be in compliance with the Commission's requirements."

[83] Aligning with the Commission framework applied in D.12-12-038, at 12.

[84] *Ibid.*

[85] *Customer Trouble Reports* are described as "*service affecting, and out of service trouble reports, from customers and users of telephone service relating to dissatisfaction with telephone company services*." G.O. 133-C, at 7.

[86] *Out of Service Repair Interval* is described as "*a measure of the average interval, in hours and minutes from the time the reporting carrier's receipt of the out of service trouble report to the time service is restored for residential and small business*." G.O. 133-C, at 7.

The Staff Proposal retains those aforementioned reports and proposes adoption of a new report: *Emergency and Disaster Reports.* The purpose of this report is to capture outages that are not captured by NORS reports or the other outage reports. NORS Reports are not triggered until an outage affects 900,000 user minutes (equivalent to an outage of 30 minutes affecting 30,000 users). The *Emergency and Disaster* reporting requirement is meant to capture outages that occur in sparsely populated areas in the State, areas referenced to as "communities of place."[87] In its proposal, staff asks for a practical manner to identify *communities of place* that will provide the Commission with information on outages in these areas.[88]

Technically, service outages should be reported under *Customer Trouble Report*s, regardless of the duration. However, there are two main issues with the current reporting rules for outages:

1) Outages reported under the *Customer Trouble Reports* are based on customer-initiated trouble reports, excluding all other outages that are discoverable by the carriers themselves. This means that an outage impacting a customer or a community would not be reported unless the customer reported it.
2) Carriers have subjectively reported outages under *Customer Trouble Reports* and *Out of Service Repair Intervals*. This is because the current rules allow carriers to exclude maintenance durations for outages due to: (a) "circumstances beyond the carrier's control," including catastrophic event and/or widespread outages, (b) Sundays and federal holidays, and (c) customer requested appointments.[89]

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[87] Staff Proposal, at 7.

[88] *Ibid.*

[89] Staff stated that it was difficult to replicate the carrier's calculations of the Out of Service Repair Interval measure because exempted conditions were hard to identify and carriers applied different interpretations on how exempted conditions were treated, such as the beginning and end of catastrophic events and/or State emergency. Attachment A to ALJ Amended Scoping Memo and Ruling, *California Wireline Telephone Service Quality* (Staff Report, September 2014), at 15, found at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M111/K579/111579788.PDF.

CD's proposed new *Emergency and Disaster* reporting requirement does not solve the current reporting issues outlined above. All outages should be captured, not just emergency and disaster related outages. ORA's proposal attempts to capture a broader range of outages by applying objective definitions and lower triggering thresholds.

First, the current approach of measurement for *Out of Service Repair Interval*[90] leads voice service providers to report outages inconsistently, as well as excluding outages that are deemed out of their control. The intent of this measure is to include out of service intervals caused by voice service providers' maintenance services, regardless of the circumstance or root cause of an outage. The impact to the customers is of equal significance whether an outage resulted from circumstances within or outside a voice service provider's control. This measure is not only a reflection of a voice service provider's responsiveness to customer complaints but also to the state of the voice service provider's network and/or facility design and operation.

To set clear and objective measures, all service outages and repair intervals should be reported, regardless of the circumstances and root-cause of the outage or whether or not the outage is discovered by a voice service provider or a customer. This

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[90] "Commitment is measured by taking the total number of the repair tickets restored within less than 24 hours divided by the total outage report tickets. In addition, the system average outage duration is measured by summing each repair interval, expressed in clock hours and minutes, between the time the customer called to report loss of service and when the customer regains dial tone, divided by the total outage report tickets. These measurements include only residential and small business customer tickets. The measurements exclude Sundays and federal holidays and tickets when maintenance is delayed due to circumstances beyond the carrier's control. Typical reasons for delay include, but are not limited to: outage caused by cable theft, third-party cable cut, lack of premise access when a problem is isolated to that location, absence of customer support to test facilities, or customer's requested appointment. Changed appointments shall be reported separately by identifying the number of such appointments and the time, in hours and minutes, associated with these appointments. When reporting includes a delay for one or more months, the carrier shall provide supporting information as to why the month should be excluded and work papers that show the date(s) of the catastrophic event and/or widespread outage and how the adjusted figure was calculated. A catastrophic event, an event where there is a declaration of a state of emergency by a federal or state authority, and a widespread service outage (an outage affecting at least 3% of the carrier's customers in the state) are circumstances beyond the carrier's control." Section 3.4 (b) of G.O. 133-C.

recommended change will eliminate the need for voice service providers to apply exemptions, (such as catastrophic event, widespread outages, and/or circumstances beyond voice service providers' control), as well as, allow the Commission to obtain accurate information regarding repair time for major outages, while collecting information on the causes, location, duration and the size of the impacted users.

Table 1 below provides a summary of ORA's Proposal relating to outage reports that should be modified or added to G.O. 133-C. The approach to estimating the outage reporting threshold in California is based on derived scaling factors related to U.S. and California populations and households, as detailed in Appendix B.

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Table 1: ORA Recommendations on Changes to G.O. 133-C Rules

ORA Recommendations on Changes to G.O. 133-C Rules
1) ***Major Service Outage Reports*** (new measure) *All service outages of at least 30-minutes in duration that are discovered by a customer or a voice service provider on any facilities that they own, operate, lease, or otherwise utilize that:* a. Affects a Mobile Switching Center (*Applies to wireless service providers only*); b. Potentially affects at least 90,000 user minutes;[91] c. Potentially affects at least 150 DS3 minutes;[92] *d.* Potentially affects any special offices and facilities;[93] or *e.* Potentially affects a 911 special facility (with modifications to the definition of 911 special facility 900,000 user minutes to 90,000 user minutes).[94] *Service providers who have less than 3,000 customers shall report all service outages of at least 30-minutes in duration that potentially affects 3% of their customers (or 3% of the DS3 circuits) in the state.*[95]

[91] For wireless and wireline service providers, "user minutes" refers to user minutes of telephony service; for VoIP service providers, "user minutes" refers to user minutes of interconnected VoIP service resulting in complete loss of service.

[92] See 47 C.F.R § 4.7 (d) DS3 minutes are defined as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of previously operating DS3 circuits that were affected by the outage.

[93] See 47 C.F.R § 4.5 (b) Special offices and facilities are defined as major military installations, key government facilities, nuclear power plants, and those airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airports Systems (NPIAS) (as issued at least one calendar year prior to the outage). The member agencies of the National Communications System (NCS) will determine which of their locations are "major military installations" and "key government facilities." 911 special facilities are addressed separately in paragraph (e) of this section.

[94] See 47 C.F.R § 4.5 (e) An outage that potentially affects a 911 special facility occurs whenever: (1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: The failure is neither at the PSAP(s) nor on the premises of the PSAP(s); no reroute for all end users was available; and the outage lasts 30 minutes or more; or (2) There is a loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes duration; or (3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or (4) There is a loss of ANI/ALI (associated name and location information) and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or location determination equipment was then currently deployed and in use, and the failure is neither at the PSAP(s) or on the premises of the PSAP(s)).

[95] The recommended 3% threshold is based on the definition widespread outage (an outage affecting at least 3% of the carrier's customers in the state). G.O. 133-C, at 8.

ORA Recommendations on Changes to G.O. 133-C Rules
2) Customer Trouble Reports (modification to existing measure) *"Service affecting trouble reports, and out of service trouble reports that do not meet the reporting criteria under "major service outage," from customers and users of ~~telephone~~ voice service relating to dissatisfaction with the telephone company services"*
3) Customer Trouble Resolution Interval (new measure) The intent of this measure is to measure repair intervals for the modified "*Customer Trouble Reports*." *Description:* "A measure of the average interval, in hours and minutes from the time the reporting carrier's receipt of the **Customer Trouble Report** to the time the trouble report is resolved for a customer" *Minimum Standard Reporting Level*: 90% of all Customer Trouble Reports resolved within 24 hours.
4) Out of Service Repair Intervals (modification to existing measure) The intent of this measure is to measure repair intervals for the new "major service outage reports." *Description:* "A measure of the average interval, in hours and minutes from the time a service provider discovery of a **major service outage**" *Minimum Standard Reporting Level:* To be established after the Commission collects information on major service outages.

1. *Major Service Outage Report*: Minimum Standard for Out of Service Repair Interval

Given the lack of data to determine the percentage of major outages that should be fixed within a certain duration, the Commission should first collect data on *Major Service Outages* and *Out of Service Repair Interval* for at least six months, but not more than one year, before adopting minimum standards for these measures.[96] There are a variety of variables impacting the repair time for major service outages, including but not

[96] Although it is not clear from Staff's report, the causes and nature of the reported outages, AT&T California and Verizon California did not meet the minimum standard for Out of Service Repair Interval by a huge margin. In 2013, AT&T California repaired 59% of the unadjusted outages in 24 hours, while Verizon California repaired 65% of unadjusted outages in 24 hours (Staff Report, Appendix C, p. C-2). For the combined years 2010-2011, AT&T and Verizon needed on average up 110 hours to repair 90% of actual outages. For combined years 2012-2013, both carriers repaired 90% of their outages in 72-hours (Staff Report, at 16).

limited to: type of service providers, causes and root causes, location of an outage, design of networks and network alarms, frequency of maintenance, technicians and repair crew availability, applications of best practices, etc.[97] For example, a voice service provider that performs regular maintenance, testing and troubleshooting on its network, can prevent major outages from occurring. On the other hand, a voice service provider that does not apply best practices in maintaining its network can create a situation that results in major preventable outages impacting thousands of customers. Similarly, an outage that results from a cable-cut can take multiple days for one carrier to repair and only couple of hours for another to repair, depending on the availability and prompt dispatch of technicians to the field. By understanding typical outage repair durations under different scenarios, the Commission can then make an informed decision to set reasonable minimum requirements for *Out of Service Repair Intervals*.

Additionally, the Commission should require voice service providers to follow the same notification and reporting requirements as required with the FCC NORS reports to ensure that emergency facilities are notified promptly and the Commission receives adequate information on service outages in the state.

FCC NORS reporting requires voice service providers to submit three notification and reporting requirements: notification, initial and final reports. To minimize the number of reports to be filed by wireless, wireline, and interconnected VoIP service providers to the Commission, voice service providers should be required to submit Notification and Final Reports only. Please see Appendix C for details on recommended reporting requirements for the Notifications and Final Reports.

B. Remove the URF ILECs and URF CLECs Exemptions from Reporting on Two of the Standards

URF ILECs and URF CLECs are currently exempt from reporting and meeting the standards addressing service installations: installation intervals and installation

[97] https://www.fcc.gov/nors/outage/bestpractice/BestPractice.cfm.

commitments. URF carriers should report on all service quality rules. It is important that customers receive timely installations of phone services to ensure public safety. AT&T California and Verizon California have consistently failed to meet the minimum standards of service quality.[98] Given the performance of URF carriers, especially AT&T California and Verizon California, URF carriers should not be exempted from reporting on the two installation measures in G.O. 133-C. Service quality rules should be applied consistently to all voice service providers.

C. ORA Supports CD's Customer Refunds and Corporations Fines Proposal with Modification

ORA supports CD's proposal to require refunds for customers and assess corporate fines to voice service providers that do not meet service quality rules. However, Staff did not propose to apply the refunds and fines to GRC ILECs because these companies meet the service quality rules at this time.[99] ORA disagrees; these requirements should be applied consistently to all voice service providers, including GRC ILECs, wireless service providers, and all interconnected VoIP providers. Failure to submit the requisite reports should also be subject to penalties as a violation of a Commission order.[100]

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[98] Service Quality Results of California Wireline Telecommunication Carriers for Calendar Years 2010 through 2013, Attachment A to ALJ Amended Scoping Memo and Ruling, California Wireline Telephone Service Quality (Staff Report, September 2014), at 3.

[99] Staff Proposal , at A-1.

[100] See §§ 2107, 2108, and 2111.

D. Additional Recommendations not Addressed in the Staff Proposal

1. Standards for Network Technical Quality

Pursuant to P.U. Code §2896, the Commission should establish standards regarding "network technical quality." Currently there are no network technical quality standards in G.O. 133-C.[101]

Telecommunication Standards are frequently published by international standards setting bodies, such as the International Telecommunication Union (ITU),[102] which is the United Nations specialized agency for information and communication technologies, and the European Telecommunication Standards Institute (ESTI), which produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged, broadcast and internet technologies.[103]

To ensure service reliability, as well as the sound design and operation of communication infrastructure in California, the Commission should conduct a study to establish network technical standards applicable to all voice service providers in California.

2. Application of Best Practices

In its report, CD indicated that corrective action reports provided by carriers who did not meet the service quality standards did not result in performance improvements.[104] The Network Reliability and Interoperability Council (NRIC) and Communication,

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[101] See P.U. Code §2896, which states that: "The commission shall require telephone corporations to provide customer service to telecommunication customers that includes, but is not limited to, all the following: ...(c) Reasonable statewide service quality standards, including, but not limited to, standards regarding network technical quality, customer service, installation, repair, and billing. (d) Information concerning the regulatory process and how customers can participate in that process, including the process of resolving complaints."

[102] http://www.itu.int/pub/T-REC.

[103] http://www.etsi.org/.

[104] Attachment A to ALJ Amended Scoping Memo and Ruling, *California Wireline Telephone Service Quality* (Staff Report, September 2014), at 3.

Reliability, and Interoperability Council (CSRIC) have developed a list of Best Practices that are designed to prevent and/or reduce the effects of outages. The FCC requires communication service providers to report Best Practices that: (a) could have prevented an outage or reduced its effects; and (b) actually used by the voice service providers to lessen the effects of an outage, such as shorten the outage, reduced the restoration times, prevented the outage from affecting more customers, and/or reduced the effects on customer (e.g. ensured that E911 was not affected).[105]

The Commission should require voice service providers to report on Best Practices that they are implementing to prevent or reduce the effects of outages. These reports should be submitted to the Commission on quarterly basis with the G.O. 133-C reports. This requirement ensures that service providers are implementing Best Practices to improve service reliability. Examples of relevant Best Practices addressing service reliability and public safety are provided in Appendix D.

VI. CONCLUSION

For the aforementioned reasons, the Commission should adopt ORA's Proposal on service quality rules that advance service quality and reliability, public safety and customer protection. On an expedited basis, the Commission should issue a ruling that would allow parties to address the important issue of whether to adopt service quality standards for wireless and all interconnected VoIP providers. As explained above, the Commission has jurisdiction to adopt wireless and interconnected VoIP service quality standards. Over 40 million wireless and VoIP customers need to have reasonable service quality standards to ensure they are adequately protected in times of emergencies, as well as to thrive in this new wireless and digital age.

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[105] http://transition.fcc.gov/pshs/outage/nors_manual.pdf, at 34.

Respectfully submitted,

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APPENDIX A

APPENDIX A: COMPARISON OF G.O. 133-C, STAFF PROPOSAL AND ORA PROPOSAL

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
DEFINITIONS	**DEFINITIONS**	**DEFINITIONS**
1.3(i.) Facilities-based Carrier: A local exchange carrier that uses facilities it owns, operates, manages, or controls to provide service, including partially or totally owning, operating, managing or controlling such facilities. A local exchange carrier providing service solely by resale of the ILEC's local exchange services is not a facilities-based carrier. By Commission Decision (D.) 95-12-057, facilities-based carriers must file an environmental assessment report and undertake mitigation efforts addressing any adverse environmental impacts associated with construction activities under their CPCN.	**Facilities-based:** a telephone corporation or interconnected VoIP provider that owns or controls facilities used to provide voice communication for compensation, including the line to the end-user's location.	**Facilities-based:** a telephone corporation, including a wireless or interconnected VoIP provider, that owns or controls facilities used to provide voice communication for compensation, including the line to the end-user's location.
	Community of Place: A community of people who are bound together because of where they reside, work, visit or otherwise spend a continuous portion of their time. For purposes of this proposal, such a community is a geographic location where people are livening in proximity, and can be a town or unincorporated area.	ORA does not agree with Staff's recommended definition of "Community of Place" and proposes new measures for reporting service outages (see below).
	Customer: A customer is a separate account number for voice service, or a bundle of services including voice, and includes large business (6 or more lines), small business (5 or more lines), and residential.	ORA agrees with Staff's recommended definition of "Customer".
	Emergency or Disaster: An event which is the proximate cause of a major outage, including but not limited to storms, lighting strikes, fires, floods, hurricanes, volcanic activity, landslides, earthquakes, wind storms, tidal waves, vandalism, terrorist attacks, riots, civil disobedience, wars, chemical spills, explosions, and airplane or train wrecks.	ORA does not agree with Staff's recommended definition of "Emergency or Disaster" and proposes new measures for reporting service outages (see below).
	Interconnected VoIP service: An interconnected Voice Over Internet Protocol	ORA agrees with Staff's recommended definition of "**Interconnected VoIP service.**"

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
	(VoIP) service is a service that: 1) Enables real-time, two-way voice communications; 2) Requires a broadband connection from the user's location; 3) Requires Internet protocol-compatible customer premises equipment (CPE); and 4) Permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network.	
1.3(m.) Line – An access line (hardwire and/or channel) which provides dial tone and which runs from the local central office (Class 4/5, Class 5, or a remote) to the subscriber's premises.	**Line:** An access line (hardware and/or channel) which runs from the local central office or functional equivalent (Class 4/5, Class 5 or a remote) to the subscriber's premises.	ORA agrees with Staff's recommended definition of "**Line**."
	Outage: A significant degradation in the ability of an end user to establish and/or maintain a channel of communications as a result of failure or degradation in the performance of a communications provider network.	ORA agrees with Staff's recommended definition of "**Outage**."
	Public Safety: Generally addresses safety of life and/or property. Reportable incidents are those which: (a) result in fatality or personal injury arising to the level of in-patient hospitalization and attributable, or allegedly attributable, to utility owned facilities, and (b) are the subject of significant public attention	ORA does not agree with Staff's recommended definition of "**Public Safety**" and proposes new measures for reporting service outages (see below).

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
	or media coverage and are attributable, or allegedly attributable, to utility owned facilities. Staff Proposal, at 3-4.	
2. STANDARDS OF SERVICE	**2. STANDARDS OF SERVICE**	**2. STANDARDS OF SERVICE**
2.1 General. These rules establish minimum standards and uniform reporting levels for installation, maintenance, and operator answer time for local exchange telephone service. The service measures established are as follows: **Service Measure — Type of Service** Installation Interval — Installation Installation Commit. — Installation Customer Trouble Rpts. — Maintenance OOS Repair Interval — Maintenance Answer Time — Operator Srvs.		**2.1 General.** These rules establish minimum standards and uniform reporting levels for installation, maintenance, and operator answer time for local exchange telephone service. The service measures established are as follows: **Service Measure — Type of Service** Installation Interval — Installation Installation Commit. — Installation Customer Trouble Rpts. — Maintenance Customer Trouble Resolution Interval — Maintenance Major Service Outage — Maintenance OOS Repair Interval — Maintenance Answer Time — Operator Srvs.
3. MINIMUM TELEPHONE SERVICE MEASURES	**3. MINIMUM TELEPHONE SERVICE MEASURES**	**3. MINIMUM TELEPHONE SERVICE MEASURES**
3.1: Installation Interval – Applies to all GRC [General Rate Case] ILECs [Incumbent Local Exchange Carriers]	No Change	**3.1: Installation Interval –** Applies to all telephone corporations as defined by P.U. Code section 234, except interexchange carriers.
3.2: Installation Commitments – Applies to All GRC ILECs	No Change	**3.2: Installation Commitments –** Applies to all telephone corporations as defined by P.U. Code section 234, except interexchange carriers.
3.3: Customer Trouble Reports – Applies to GRC ILECs and facilities-based URF [Uniform Regulatory Framework] Carriers with 5,000 or more customers and to any URF Carrier with fewer than 5,000	No Change	**3.3 Customer Trouble Reports –** Applies to all telephone corporations as defined by P.U. Code section 234, except interexchange carriers. **1) Modified "Customer Trouble Report"** **a. Description:** "Service affecting trouble

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
customers that is a COLR [Carrier of Last Resort]. Trouble reports apply to residential and small business customers (those that purchase five or fewer lines.) **a. Description**: Service affecting, and out of service trouble reports, from customers and users of telephone service relating to dissatisfaction with telephone company services. Reports received will be counted and related to the total working lines within the reporting unit in terms of reports per 100 lines. **b. Measurement**: Customer trouble reports received by the utility will be counted monthly and related to the total working lines within a reporting unit.		reports, and out of service trouble reports that do not meet the reporting criteria under "major service outage," from customers and users of ~~telephone~~ voice service relating to dissatisfaction with the telephone company services" **2) Add New "Major Service Outage Report" Description:** All service outages of at least 30-minutes in duration that are discovered by a customer or a voice service provider on any facilities that they own, operate, lease, or otherwise utilize that: **a.** Affects a Mobile Switching Center (Applies to wireless service providers only); **b.** Potentially affects at least 90,000 user minutes; **c.** Potentially affects at least 150 DS3 minutes; **d.** Potentially affects any special offices and facilities; or **e.** Potentially affects a 911 special facility (with modifications to the definition of 911 special facility 900,000 user minutes to 90,000 user minutes). Service providers who have less than 3,000 customers shall report all service outages of at least 30-minutes in duration that potentially affects 3% of their customers (or 3% of the DS3 circuits) in the state.
3.4: Out of Service (OOS) Repair Intervals – Applies to GRC ILECs and facilities-based URF Carriers with 5,000 or more customers and to any URF Carrier		Applies to all telephone corporations as defined by P.U. Code section 234, except interexchange carriers.

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
with fewer than 5,000 customers that is a COLR. **a. Description**: A measure of the average interval, in hours and minutes from the time of the reporting carrier's receipt of the out of service trouble report to the time service is restored for residential and small business customers. **b. Measurement:** Commitment is measured by taking the total number of the repair tickets restored within less than 24 hours divided by the total outage report tickets….These measurements include only residential and small business customer tickets. The measurement exclude Sundays and federal holidays and tickets when maintenance is delayed due to circumstances beyond the carrier's control….A catastrophic event, an event where there is a declaration of a state of emergency by a federal or state authority, and a widespread service outage (an outage affecting at least 3% of the carrier's customers in the state) are circumstances beyond the carrier's control. **c. Minimum Standard Reporting Level:** 90% of all out of service trouble reports within 24 hours is the set minimum standard. Both the percentage of outages meeting the 24-hour standard and the actual system-wide average outage duration should be reported. **d. Reporting Unit**. Reporting is at the state-wide level. However, carriers shall	"a catastrophic event should end when the trouble ticket level returns to the average level	**1) Add a new service quality measure *Customer Trouble Resolution Intervals*** **a. Description***:* "A measure of the average interval, in hours and minutes from the time the reporting carrier's receipt of the *Customer Trouble Report* to the time the trouble report is resolved for a customer" **b. Measurement:** Commitment is measured by taking the total number of the repair tickets restored within less than 24 hours divided by the total outage report ticket. (Remove all exemptions) **c. Minimum Standard Reporting Level:** 90% of all Customer Trouble Reports resolved within 24 hours. **2) Modifications to *Out of Service Repair Intervals*** **a. Description:** "A measure of the average interval, in hours and minutes from the time a service provider discovery of a major service outage" ***b.* Measurement:** Commitment is measured by taking the total number of the repair tickets restored within less than 24 hours divided by the total outage report ticket. (Remove all exemptions) **c. Minimum Standard Reporting Level:** To be established after the Commission collects information on major service outages. ORA's new measures for reporting service outages (detailed above), replaces the need to add

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
submit with the report the underlying data at the exchange or wire center level, whichever is smaller, that supports the information being reported….All reporting carriers shall submit the raw data included in the report.	three months prior to the catastrophic event. The average level should be calculated by summing the actual number of trouble tickets for residential, small business, and large business customers for the three calendar months prior to the declared State of Emergency divided by the number of days in the prior three months." Staff Proposal, at 4. "Telephone corporations reporting under G.O. 133-C shall continue to provide raw trouble ticket data in the quarterly reporting. The trouble ticket data must include, as part of the individual trouble ticket data, indicators that identify each type of allowable adjustment used in the calculation of outage duration. When a telephone corporation believes that a catastrophic event has occurred, an explanation shall be included in the quarterly reporting as to what the catastrophic event was, the specific area(s) affected, and the total number of lines affected including large business, small business, and residential lines." Staff Proposal, at 5-6.	the Staff Proposal's definition of catastrophic event and adjustments of outage calculations.
3.5: Answer Time for trouble reports and billing and non-billing inquiries applies to GRC ILECs, facilities-based URF Carriers with 5,000 or more customers, and any URF Carrier with fewer than 5,000 customers that is a COLR. **a. Reporting Frequency.** Compiled quarterly and reported annually on February 15 for percent answered within 60 seconds.	**a**. **Reporting Frequency.** Compiled monthly ~~quarterly~~ and reported quarterly ~~annually~~ on February 15 for percent answered within 60	**3.5: Answer Time** for trouble reports and billing and non-billing inquiries applies to all telephone corporations as defined in P.U. Code section 234. ~~GRC ILECs, facilities-based URF Carriers with 5,000 or more customers, and any URF Carrier with fewer than 5,000 customers that is a COLR~~. ORA agrees with Staff's recommended modifications and additional reporting requirements of "Answer Time Reporting

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
	seconds. Staff Proposal, at 8. Staff also proposes: "The current operator answer time measure reporting provides the overall results for all customer calls received which include billing, non-billing inquiries and trouble reports. In addition to overall results, Staff proposes that each carrier identify the results by the type of calls: billing, non-billing inquiries, and trouble reports." Staff Proposal, at 8-9.	Frequency."
4. MAJOR SERVICE INTERRUPTION	**4. MAJOR SERVICE INTERRUPTION**	**4. MAJOR SERVICE INTERRUPTION**
4. Major Service Interruption – Applies to all facilities-based certificated and registered public utility telephone corporations. **a. Description.** The Commission adopts for its major service interruption reporting the FCC's Part 4 rules concerning communications disruption and outages, the FCC's Network Outage Reporting System (NORS) reporting requirements, and the annual ETC outage report, as modified by FCC over time…. **b. Reporting Procedures:** (i) Written reports are normally satisfactory. In cases where large number of customers are impacted or that are otherwise of great severity, a telephone report should be made promptly.	"Staff proposes that interconnected VoIP providers issued a CPCN by the Commission, have been designated a federal ETC in California, and/or provide California Lifeline service, submit to the Communications Division copies of all Network Outage Reports (NORS) that these carriers are required to submit to the Federal Communications Commission (FCC)." Staff Proposal, at 6-7. In addition to the FCC NORS reports, **"**Staff proposes to adopt a new Emergency and Disaster Reporting for all emergencies and disaster events that affect 9-1-1/Public Safety for all customers in communities of place.	ORA disagrees with Staff's recommended applicability criteria for interconnected VoIP service providers. Consistent with the FCC requirements, which requires NORS reporting from all interconnected VoIP service providers, all interconnected VoIP providers should submit copies of the FCC NORS reports to the CPUC (Communications Divisions and ORA). ORA disagree with Staff's recommended new Emergency and Disaster Reporting. ORA proposal on New measures for reporting service outages (detailed above), replaces the need to collect the new Emergency and Disaster

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
	The new reporting will be applicable to all facilities-based telephone corporations: GRC LECs, facilities-based URF carriers, and interconnected VoIP providers which have been issued a CPCN by the Commission, designated a federal ETC in California, and/or provide California Lifeline service…The Emergency and Disaster reporting for wireless providers will be deferred to another phase of this proceeding or a separate future proceeding." Staff Proposal, at 7-8.	reports.
7. STAFF INVESTIGATIONS AND ADDITIONAL REPORTING REQUIREMENTS	**7. STAFF INVESTIGATIONS AND ADDITIONAL REPORTING REQUIREMENTS**	**7. STAFF INVESTIGATIONS AND ADDITIONAL REPORTING REQUIREMENTS**
7. Staff Investigation and Additional Reporting Requirements Commission staff may investigate any reporting unit that does not meet a minimum standard reporting level and any major service interruption….Staff may require carriers with two or more measures below the reporting service level in one year or one measure below the industry average to meet with staff and present proposals to improve performance and to report monthly if poor performance continues.	"telephone corporations that fail to meet any standard for two consecutive months or more" are required "to file with the Communications Division, or its successor, a Corrective Action Plan that explains the reason(s) for missing the standard(s) and the actions the company will take to correct the causes and improve performance to a level that meets adopted standards and measures." Staff Proposal, at 9.	ORA agrees with Staff's recommended modifications to "Staff Investigation and Additional Requirements."
	INFORMATION ON NUMBER OF CUSTOMERS	**INFORMATION ON NUMBER OF CUSTOMERS**
	"each telephone corporation be required to report under G.O. 133-C the number of customers that it had at the beginning and end	ORA agrees with Staff's recommended reporting requirements on "Information on Number of Customers."

Current G.O. 133-C Rules	Staff Proposal	ORA Proposal*
	of each reported month…broken down by type of voice service (traditional wireline and VoIP) and the class of customer (large business, small business, and residential. Each telephone corporation shall affirmatively state in its quarterly reports whether VoIP customers are included in the trouble reports and OOS measurement results." Staff Proposal, at 6.	
	REFUNDS AND FINES	**REFUNDS AND FINES**
	"Staff proposes to adopt refunds for customers that have been out of service for more than 24 hours and fines for URF Carriers that do not meet one or all of the Commission's minimum standards for the three Service Quality measures applicable to URF Carriers. Staff does not propose to apply the refunds and fines to GRC LECs because at this time they meet the Service Quality measures." Staff Proposal, at 4; Staff Proposal, Attachment A.	ORA agrees with adding refunds and fines, but disagrees that they should not apply to GRC LECs. All telephone corporations, as defined in section 234, except interexchange carriers, should be subject to refunds and fines. Failure of voice service providers to comply with the service quality reporting rules should also be subject to penalties for violating a Commission order. The Commission may impose the maximum penalties allowed under P.U. Code sections 2107, 2108 and 2111.
*ORA also recommends that the Commission establish Service Quality rules to include a measure that addresses *network technical quality* and to establish a reporting requirement for telephone service providers to ensure the application of Best Practices.		

APPENDIX B

APPENDIX B: APPROACH TO ESTIMATING THE MAJOR SERVICE OUTAGE REPORTING THRESHOLD IN CALIFORNIA

To obtain a reporting threshold that could capture the impacts of outages at the state level that are not captured through the FCC's NORS reporting threshold, ORA derived a scaling factor and proxy based on: (a) U.S. and California populations, and (b) U.S. and California households.[1]

Note that out of the 30 wireline carriers serving California, only eight carriers have more than 30,000 working lines (average working lines reported in 2013).[2] Under ORA's proposed reporting threshold of 3,000 affected users, 22 of these wireline carriers would report major outages. The remaining eight carriers (those with customers less than 3,000) would report major outages that affect 3% of their customers.

ORA used the ratio of the FCC's NORS threshold of 30,000 affected users to U.S. population (318,857,056) to obtain a scaling factor (9.41E-05). Appling the derived scaling factor to California's population (38,802,500), the equivalent threshold in California is 3,651 affected users. Thus, the reporting threshold for major outages in California becomes 109,523 user minutes, which is equivalent to an outage of 30-minutes duration affecting 3,651 users. The calculation steps are as follows:

Scaling Factor based on Population =

30,000 affected users (FCC's NORS threshold) / 318,857,056 (U.S. Population) = 9.41E-05

Affected Users in California =

9.41E-05 (Scaling Factor) × 38,802,500 (California Population) = 3,651Affected Users

Reporting Threshold in User Minutes in California =

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[1] http://quickfacts.census.gov/qfd/states/06000.html

[2] Attachment A to ALJ Amended Scoping Memo and Ruling, *California Wireline Telephone Service Quality* (Staff Report, September 2014), p.A-2

30 minutes (outage duration) × 3,651 (affected users) =

109,523 User Minutes

When using households instead of population, the scaling factor becomes 2.59E-04. The equivalent threshold in terms of number of affected users in California is 3,255 affected users. Thus, an outage of 30-minutes duration affecting 3,255 users results in 97,640 user minutes. The calculation steps are as follows:

Scaling Factor based on Households =

30,000 affected users (FCC's NORS threshold) / 115,610,216 (U.S. Households) = 2.59E-04

Affected Users in California =

2.59E-04 (Scaling Factor) × 12,542,460 (California Households) =

3,255 Affected Users

Reporting Threshold in User Minutes in California =

30 minutes (outage duration) × 3,255 (affected users) =

97,640 User Minutes

ORA recommends setting the threshold for reporting outages in California as follows: an outage of at least 30-minutes outage duration that affects at least 90,000 user minutes (by rounding down the number of affected users to the smallest whole number of 3,000).

ORA also estimated the number of DS3 minutes at the State level to be equal to 150 DS3 minutes.[3] The FCC's NORS reporting threshold is 1350 DS3 minutes, which is equivalent to 30-minutes outage affecting 45 DS3 circuits. The scaling factor (1.41E-07)

[3] The reporting threshold of 164 DS3 user minutes is calculated based on the ratio of FCC NORS reporting threshold of 1350 DS3 minutes (30 minutes outage affecting 45 circuits). The scaling factor is derived by dividing 45 by the U.S. population. Multiplying the resulting scaling factor (1.41E-07) by California population results in 5-circuits. Thus, an outage of 30 minutes affecting 5-circuits is 150 user minutes. Note that the number of affected circuits based on population is 5.48; this number would be 4.88 if we use households as the scaling metric. We rounded the number of affected-circuits to five.

is derived by dividing 45 DS3 circuits by the U.S. population (318,857,056). Appling the derived scaling factor to California's population (38,802,500), the equivalent threshold in California becomes 5.48 DS3 circuits. Thus, the reporting threshold for major outages in California becomes 164 user minutes, which is equivalent to an outage of 30-minutes duration affecting 5.48 DS3 circuits. DS3 reporting threshold calculation steps based on population are as follows:

Scaling Factor based on Population =

45 DS3 circuits (FCC's NORS threshold) / 318,857,056 (U.S. Population)

= 1.41E-07

Affected DS3 Circuits in California =

1.41E-07 (Scaling Factor) × 38,802,500 (California Population)

= 5.48 DS3 Circuits

Reporting Threshold in User Minutes in California =

30 minutes (outage duration) × 5.48 (DS3 Circuits) =

164 DS3 Minutes

DS3 reporting threshold calculation steps based on households are as follows:

Scaling Factor based on household =

45 DS3 circuits (FCC's NORS threshold) / 115,610,216 (U.S. Households)

= 3.89E-07

Affected DS3 Circuits in California =

3.89E-07 (Scaling Factor) × 12,542,460 (California Households)

= 4.88 DS3 Circuits

Reporting Threshold in User Minutes in California =

30 minutes (outage duration) × 4.88 (DS3 Circuits) =

140 DS3 Minutes

ORA recommended 150 DS3 minutes as the reporting threshold by rounding down the number of affected DS3 circuits to 5-DS3 circuits,

Table 1 shows a summary of ORA recommended outage reporting thresholds, as well as the estimated outage reporting thresholds based on scaling factors derived from U.S. and California population and households.

Table 1: Estimates of Outage Reporting Threshold at California Level

	FCC NORS Threshold (National Level)	Estimated Reporting Threshold based on Population	Estimated Reporting Threshold based on Households	ORA Recommended Reporting Threshold
Affected Users	30,000	3,651	3,255	3,000
Affected User Minutes	900,000	109,523	97,640	90,000
Affected DS3 Circuits	45	5.48	4.88	5
Affected DS3 Minutes	1350	164	146	150

APPENDIX C

APPENDIX C:

ORA PROPOSED REPORTING REQUIREMENTS FOR NEW "MAJOR SERVICE OUTAGE" REPORTS

Reporting requirements for *Major Service Outages Reports* should include the following:[1]

1) Notifications:
    a. Wireline and Wireless service providers shall submit electronic notifications to the Commission (Communication Division and ORA or their successor) within 120-minutes of discovering an outage of at least 30 minutes duration:
        i. Affects a Mobile Switching Center (*Applies to wireless service providers only*);
        ii. Potentially affect at least 90,000 user minutes of telephony service
        iii. Potentially affects at least 150 DS3 minutes
        iv. Potentially affects any special offices and facilities
        v. Potentially affects a 9-1-1 special facility in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 9-1-1 facility as the provider's contact person for communications outages at that facility, and the provider shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on efforts to communicate with that facility.
    b. Interconnected VoIP service providers shall submit electronic notifications to the Commission:

[1] These reporting requirements are based on FCC NORS reporting requirements, with the recommended modification.

i. Within 240 minutes of discovering an outage of at least 30 minutes duration that potentially affects a 9-1-1 special facility, in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider's contact person for communications outages at that facility, and the provider shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on efforts to communicate with that facility; and

ii. Within 24 hours of discovering an outage of at least 30 minutes duration:

1. that potentially affect at least 90,000 user minutes of interconnected VoIP service and results in complete loss of service; or
2. that potentially affects any special offices and facilities.

2) Final Communication Outage Report: No later than 30-days from discovering an outage, the provider shall submit electronically, a Final Communication Outage Report to the Commission (Communication Division and ORA or their successor).

ORA also recommends the Commission adopt a modified FCC definition of 911 special facilities (See 47 C.F.R. § 4.5 (e)) to align with ORA's proposed major outage reporting threshold for California, as follows:

An outage that potentially affects a 911 special facility occurs whenever: (1) There is a loss of communications to PSAP(s) potentially affecting at least 90,000 ~~900,000~~ user-minutes and: The failure is neither at the PSAP(s) nor on the premises of the PSAP(s); no reroute for all end users was available; and the outage lasts 30 minutes or more; or (2) There is a loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes duration; or (3) One or more end-office or MSC switches

or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or (4) There is a loss of ANI/ALI (associated name and location information) and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 90,000 ~~900,000~~ user-minutes (provided that the ANI/ALI or location determination equipment was then currently deployed and in use, and the failure is neither at the PSAP(s) or on the premises of the PSAP(s)).

APPENDIX D

APPENDIX D: EXAMPLES OF BEST PRACTICES

Table 1 below shows some examples of Best Practices pertaining to service reliability developed by NRIC and CSRIC.[1]

Table 1: Examples of Best Practices on Service Reliability

Number	Priority	Description
9-7-0435	Critical	ID Network Reliability Functions: Network Operators, Service Providers, Equipment Suppliers and Property Managers should assess the functions of their organization and identify those critical to ensure network reliability.
9-7-0464	Important	Network Operators and local municipalities should cooperate on zoning issues that affect reliability of communication networks serving the public good (e.g., noise from emergency backup power generators, aesthetics of tower placement, public safety and health concerns).
9-7-0492	Critical	Network Operators should provide back-up power (e.g., some combination of batteries, generator, fuel cells) at cell sites and remote equipment locations, consistent with the site specific constraints, criticality of the site, the expected load and reliability of primary power.
9-7-0565	Important	Equipment Suppliers should establish and use metrics to identify key areas and measure progress in improving quality, reliability, and security during product development and field life cycle.
9-7-0618	Highly Important	Network Operators and Service Providers should establish mutually agreed upon reliability thresholds with Equipment Suppliers for new hardware (e.g., routers, switches, call servers, signaling servers) brought into service on the network.
9-7-0681	Important	Network Operators, Equipment Suppliers and Property Managers should ensure that fuses and breakers meet quality Level III reliability per Technical Reference (SR-332), "Reliability Prediction Procedure for Electronic Equipment."
9-7-0735	Important	Network Operators should evaluate the performance of their contracted excavators and internal excavators to foster improved network reliability.
9-7-0747	Important	Network Operators, Service Providers and Equipment Suppliers should work together to establish reliability and performance objectives in the field environment.
9-7-1064	Highly Important	Network Operators, Service Providers and Equipment Suppliers should implement minimum network management controls in order to promote reliability of the interconnected network.
9-7-5135	Important	Network Operators, Service Providers and Equipment Suppliers should participate in the Communications Security, Reliability and Interoperability Council (CSRIC) and its focus groups in order to develop industry Best Practices for addressing and mitigating public communications infrastructure vulnerabilities.

[1] https://www.fcc.gov/nors/outage/bestpractice/BestPractice.cfm.

Number	Priority	Description
9-7-5214	Highly Important	Network Operators, Service Providers and Property Managers should consider placing all power and network equipment in a location to increase reliability in case of disaster (e.g., floods, broken water mains, fuel spillage). In storm surge areas, consider placing all power related equipment above the highest predicted or recorded storm surge levels.
9-7-5263	Important	Network Operators, Service Providers and Equipment Suppliers should use cables with adequate reliability and cable signal integrity. Such properties as flammability, strain reliefs and signal loss should be considered. If non-standard cables are used because of an emergency restoration, they should be marked as temporary and should be replaced with standard cables as soon as practical.
9-8-8003	Important	Control Plane Reliability: Service Providers and Network Operators should minimize single points of failure in the control plane architecture (e.g., Directory Resolution and Authentications services). Critical applications should not be combined on a single host platform. All security and reliability aspects afforded to the User plane (bearer) network should also be applied to the Control plane network architecture.
9-8-8734	Important	Identity Data Security – Service providers creating, maintaining, using or disseminating individually identifiable information should take appropriate measures to assure its reliability and should take reasonable precautions to protect it from loss, misuse or alteration. Organizations should take reasonable steps to assure that third parties to which they transfer such information are aware of these security practices, and that the third parties also take reasonable precautions to protect any transferred information.
9-9-0400	Highly Important	Network Operators, Service Providers, and Public Safety should establish measurements to monitor their network performance.
9-9-0530	Highly Important	Network Operators, Service Providers, Public Safety, and Equipment Suppliers should participate in interoperability testing (including services), as appropriate, to maintain reliability across connected networks.
9-9-0536	Highly Important	As appropriate, Network Operators and Service Providers should deploy security and reliability related software updates (e.g., patches, maintenance releases, dot releases) when available between major software releases. Prior to deployment, appropriate testing should be conducted to ensure that such software updates are ready for deployment in live networks. Equipment Suppliers should include such software updates in the next generic release and relevant previous generic releases.
9-9-0547	Highly Important	Network Operators and Service Providers should place critical network databases (e.g., directory server, feature server, Service Control Point (SCP)) in a secure environment across distributed locations to provide service assurance (e.g., maintainability, connectivity, security, reliability) consistent with other critical network elements.
9-9-0579	Critical	Network Operators, Service Providers and Public Safety should routinely team to develop, implement, test, evaluate and update, as needed, plans for managing 9-1-1 disruptions (e.g., share information about network and system security and reliability where appropriate).
9-9-3211	Highly Important	Network Operators, Public Safety and Service Providers should develop and maintain operations plans that address network reliability issues. Network Operators and Service Providers should proactively include Public Safety authorities when developing network reliability plans in support of 9-1-1 services.

The table below shows some examples of Best Practices pertaining to public safety developed by NRIC and CSRIC.[2]

Table 2: Examples of Best Practices on Public Safety

Number	Priority	Description
9-9-0401	Critical	Network Operators, Service Providers, and Public Safety should monitor their network to enable quick response to network issues.
9-9-0402	Critical	Network Operators, Service Providers, and Public Safety should, where appropriate, design networks (e.g., Time Division Multiplexing (TDM) or Internet Protocol (IP)) to minimize the impact of a single point of failure (SPOF).
9-9-0417	Critical	Network Operators, Service Providers, and Public Safety should design and implement procedures to evaluate failure and emergency conditions affecting network capacity.
9-9-0476	Critical	Network Operators, Public Safety, and Property Managers should consider conducting physical site audits after a major event (e.g., weather, earthquake, auto wreck) to ensure the physical integrity and orientation of hardware has not been compromised.
9-9-0510	Critical	Network Operators, Service Providers, Public Safety and Equipment Suppliers should, by design and practice, manage critical Network Elements (e.g., Domain Name Servers, Signaling Servers, Gateway Servers) that are essential for network connectivity and subscriber service as critical systems (e.g., secure, redundant, alternative routing).
9-9-0566	Critical	Network Operators, Service Providers and Public Safety should consider placing and maintaining 9-1-1 TDM or IP based networks over diverse interoffice transport facilities (e.g., geographically diverse facility routes, automatically invoked standby routing, diverse digital cross-connect system services, self-healing fiber ring topologies, or any combination thereof).
9-9-0568	Critical	Network Operators, Service Providers and Public Safety should establish a routing plan so that in the case of lost connectivity or disaster impact affecting a Public Safety Answering Point (PSAP), 9-1-1 calls are routed to an alternate PSAP answering point.
9-9-0571	Critical	Network Operators and Public Safety should consider deploying dual active 9-1-1 selective routing architectures to enable circuits from the serving end office to be split between two selective routers or Emergency Service Routing Proxies (ESRP) in order to eliminate single points of failure (SPOF) taking diversity between Selective Routers (SR) or ESRP and PSAP into consideration.
9-9-0574	Critical	Network Operators, Service Providers, and Public Safety should actively monitor and manage the 9-1-1 network components using network management controls, where available, to quickly restore 9-1-1 service and provide priority repair during network failure events. When multiple interconnecting providers and vendors are involved, they will need to cooperate to provide end-to-end analysis of complex call-handling problems.
9-9-0577	Critical	Network Operators, Service Providers and Public Safety responsible for Public Safety Answering Point (PSAP) operations should jointly and periodically test and verify that critical components (e.g., automatic re-routes, PSAP Make Busy keys) included in contingency plans work as designed.

[2] *Ibid.*

Number	Priority	Description
9-9-0579	Critical	Network Operators, Service Providers and Public Safety should routinely team to develop, implement, test, evaluate and update, as needed, plans for managing 9-1-1 disruptions (e.g., share information about network and system security and reliability where appropriate).
9-9-0580	Critical	Network Operators and Public Safety Authorities should apply redundancy and diversity where feasible, to all network links considered vital to a community's ability to respond to emergencies.
9-9-0644	Critical	Network Operators, Service Providers, Property Managers and Public Safety should use over-current protection devices and fusing.
9-9-0655	Critical	Network Operators, Service Providers, Property Managers and Public Safety should coordinate hurricane and other disaster restoration work with electrical and other utilities as appropriate.
9-9-0657	Critical	Network Operators, Service Providers, Property Managers and Public Safety should design standby generator systems for fully automatic operation and for ease of manual operation, when required.
9-9-0658	Critical	Network Operators, Service Providers, Property Managers and Public Safety should ensure generator life support systems (e.g., radiator fan, oil cooler fan, water transfer pumps, fuel pumps, engine start battery chargers) are on the essential Alternating Current (AC) buss of the generator they serve.
9-9-0662	Critical	Network Operators, Service Providers, Property Managers and Public Safety should exercise power generators on a routine schedule in accordance with manufacturer's specifications. For example, a monthly 1 hour engine run on load, and a 5 hour annual run.
9-9-0758	Critical	Network Operators, Service Providers and Public Safety should, upon restoration of service in the case of an outage where 9-1-1 call completion is affected, make/request multiple test calls to the affected PSAP(s) to ensure proper completion.
9-9-0780	Critical	Network Operators, Service Providers, and Public Safety should consider including coordination information of each other when developing disaster restoration and prioritization plans.
9-9-0786	Critical	Network Operators, Service Providers, and Public Safety should consider allowing Equipment Suppliers or third party Service Providers remote secured access to vital hardware components.
9-9-1001	Critical	Network Operators, Service Providers, Equipment Suppliers, Property Managers, and Public Safety should formally document their business continuity processes in a business continuity plan covering critical business functions and business partnerships. Key areas for consideration include: Plan Scope, Responsibility, Risk Assessment, Business Impact Analysis, Plan Testing, Training and Plan Maintenance.
9-9-1005	Critical	Network Operators, Service Providers, Equipment Suppliers, and Public Safety should perform a Business Impact Analysis (BIA) to assess the impact of the loss of critical operations, support systems and applications.
9-9-1010	Critical	Network Operators, Service Providers, Equipment Suppliers, and Public Safety should designate personnel responsible for maintaining Business Continuity and Disaster Recovery Plans.
9-9-1011	Critical	Network Operators, Service Providers, Equipment Suppliers, and Public Safety should establish alternative methods of communication for critical personnel.
9-9-1017	Critical	Network Operators, Service Providers, and Public Safety should have documented plans or processes to assess damage to network elements, outside plant, facility infrastructure, etc. for implementation immediately following a disaster.

Number	Priority	Description
9-9-1022	Critical	Network Operators, Service Providers, Public Safety, and Equipment Suppliers should consider the development of a vital records program to protect vital records that may be critical to restoration efforts.
9-9-1023	Critical	Network Operators, Service Providers, Public Safety and Equipment Suppliers should identify essential staff within their organizations that are critical to disaster recovery efforts. Planning should address the availability of these individuals and provide for backup staff.
9-9-1028	Critical	Network Operators, Service Providers, Public Safety and Property Managers should engage in preventative maintenance programs for network site support systems including emergency power generators, UPS, DC plant (including batteries), HVAC units, and fire suppression systems.
9-9-1034	Critical	Network Operators and Public Safety should ensure that the emergency mobile assets are maintained at a hardware and software level compatible with the existing network infrastructure so that the emergency mobile assets will be immediately available for deployment.
9-9-1063	Critical	Network Operators, Public Safety and Service Providers should set Initial Address Messages (IAMs) to congestion priority in accordance with applicable ANSI standards. This will ensure government emergency calls (e.g., 9-1-1, GETS) receive proper priority during national emergency situations. Implementation in all networks should be in accordance with ANSI T1.111.
9-9-3226	Critical	Network Operators, Public Safety and Service Providers operating Mobile Positioning Centers (MPC) should provide 24x7 network operations support.
9-9-3234	Critical	Network Operators, Service Providers, and Public Safety should establish mechanisms in Next Generation 9-1-1 (NG9-1-1) applications to handle call congestion and outages through diversion of calls to alternate Public Safety Answering Points (PSAP) that have the capabilities to effectively answer and provide assistance during periods of extreme overload or network failure scenarios.
9-9-3235	Critical	Network Operators, Service Providers, and Public Safety should design Emergency Services IP Networks (ESInets) with redundant interconnectivity to Online Service Providers (OSPs) and Public Safety Answering Points (PSAP) to maintain connectivity in the face of extensive disaster damage using the characteristics of IP routing to provide assistance in ensuring 9-1-1 calls will reach a PSAP if there is any path possible.
9-9-5113	Critical	Network Operators, Service Providers, Public Safety and Property Managers, when feasible, should provide multiple cable entry points at critical facilities (e.g., copper or fiber conduit) avoiding single points of failure (SPOF).
9-9-5127	Critical	Network Operators, Service Providers, Equipment Suppliers and Public Safety should provide a Government Emergency Telecommunications Service (GETS) card to essential staff critical to disaster recovery efforts and should consider utilizing Wireless Priority Service (WPS) for essential staff. Appropriate training and testing in the use of GETS & WPS should occur on a regular basis (i.e. in conjunction with testing of the corporate disaster recovery plan).
9-9-5128	Critical	Network Operators, Service Providers, Equipment Suppliers and Public Safety should maintain accurate records for Government Emergency Telecommunications Service (GETS) cards and Wireless Priority Service (WPS) phone assignments as staff changes occur.
9-9-5162	Critical	Network Operators, Service Providers, Public Safety and Equipment Suppliers should ensure adequate physical protection for facilities/areas that are used to house certificates and/or encryption key management systems, information or operations.

Number	Priority	Description
9-9-5196	Critical	Network Operators, Public Safety and Service Providers should ensure that contractors and Equipment Supplier personnel working in critical network facilities follow the current applicable MOP (Method of Procedures), which should document the level of oversight necessary.
9-9-5204	Critical	Service Providers, Network Operators, Public Safety and Property Managers should ensure availability of emergency/backup power (e.g., batteries, generators, fuel cells) to maintain critical communications services during times of commercial power failures, including natural and manmade occurrences (e.g., earthquakes, floods, fires, power brown/black outs, terrorism). The emergency/backup power generators should be located onsite, when appropriate.
9-9-5206	Critical	Network Operators, Service Providers, Public Safety and Property Managers should maintain sufficient fuel supplies for emergency/backup power generators running at full load and ensure contracted refueling is in place.
9-9-5207	Critical	Network Operators, Service Providers, Public Safety and Property Managers should take appropriate precautions to ensure that fuel supplies and alternate sources of power are available for critical installations in the event of major disruptions in a geographic area (e.g., hurricane, earthquake, pipeline disruption). Consider contingency contracts in advance with clear terms and conditions (e.g., Delivery time commitments, T&Cs).
9-9-5232	Critical	Network Operators, Service Providers, Pubic Safety and Property Managers should test fuel reserves used for standby or backup power for contamination at least once a year or after any event (e.g., earth tremor, flood) that could compromise the integrity of the tank housing, fill pipe or supply pipe.
9-9-8008	Critical	Network Operators, Service Providers, and Public Safety should implement architectures that partition or segment networks and applications using means such as firewalls, demilitarized zones (DMZ), or virtual private networks (VPN) so that contamination or damage to one asset does not disrupt or destroy other assets. In particular, where feasible, it is suggested user traffic networks, network management infrastructure networks, customer transaction system networks, and enterprise communication/business operations networks be separated and partitioned from one another.
9-9-8039	Critical	Service Providers, Network Operators, and Public Safety should perform a verification process to ensure that patches/fixes are actually applied as directed throughout the organization. Exceptions should be reviewed and the proper patches/fixes actually applied.
9-9-8061	Critical	Service Providers, Network Operators, and Public Safety should establish a set of standards and procedures for dealing with computer security events that should be part of the overall business continuity/disaster recovery plan, exercised periodically and revised as needed, and cover likely threats to those elements of the infrastructure which are critical to service delivery/business continuity. See Appendix X and Y of the NRIC VII, Focus Group 2B Report Appendices.
9-9-8064	Critical	Service Providers, Network Operators, and Public Safety should generate and collect security-related event data for critical systems (i.e., syslogs, firewall logs, IDS alerts, remote access logs, etc.). Where practical, this data should be transmitted to secure collectors for storage and should be retained in accordance with a data retention policy. A mechanism should be enabled on these systems to ensure accurate timestamps of this data (e.g., Network Time Protocol).
9-9-8065	Critical	Network Operators, Service Providers, Public Safety and Equipment Suppliers should establish a process for releasing information to members of the law enforcement and intelligence communities and identify a single Point of Contact (POC) for coordination/referral activities.

Number	Priority	Description
9-9-8068	Critical	Service Providers, Network Operators, Public Safety, and Equipment Suppliers should develop and practice a communications plan as part of the broader Incident response plan identifying key players to include as many of the following items as appropriate: contact names, business telephone numbers, home telephone numbers, pager numbers, fax numbers, cell phone numbers, home addresses, internet addresses, permanent bridge numbers, etc. Notification plans should be developed prior to an event/incident happening where necessary. The plan should also include alternate communications channels (e.g., alpha pagers, internet, satellite phones, VOIP, private lines, smart phones) balancing the value of any alternate method against the security and information loss risks introduced.
9-9-8073	Critical	Service Providers, Network Operators, and Public Safety should deploy Intrusion Detection/Prevention Tools (IDS/IPS) with an initial policy that reflects the universe of devices and services known to exist on the monitored network. Due to the ever evolving nature of threats, IDS/IPS tools should be tested regularly and tuned to deliver optimum performance and reduce 0 positives.
9-9-8086	Critical	Network Operators, Service Providers, Public Safety, and Equipment Suppliers based on the principles of least privilege (the minimum access needed to perform the job) and separation of duties (certain users perform certain tasks) should develop capabilities and processes to determine which users require access to a specific device or application.
9-9-8103	Critical	Service Providers, Network Operators, and Public Safety should deploy malware protection tools where feasible, establish processes to keep signatures current, and establish procedures for reacting to an infection.
9-9-8502	Critical	When a compromise occurs, or new exploits are discovered, Service Providers, Network Operators and Public Safety should perform an audit of available network services to reassess any vulnerability to attack and re-evaluate the business need to provide that service, or explore alternate means of providing the same capability.
9-9-8554	Critical	Insomuch as is possible without disrupting operational recovery, Service Providers, Network Operators and Public Safety should handle and collect information as part of a computer security investigation in accordance with a set of generally accepted evidence-handling procedures.
9-9-8564	Critical	After responding to a security incident or service outage, Service Providers, Network Operators and Public Safety should follow processes similar to those outlined in Appendix X of the NRIC VII, Focus Group 2B Report Appendices to capture lessons learned and prevent future events.
9-9-8748	Critical	Service providers, Network Operators, Equipment Vendors and Public Safety should test new devices to identify unnecessary services, outdated software versions, missing patches, and misconfigurations, and validate compliance with or deviations from an organization security policy prior to being placed on a network.
9-9-8756	Critical	Network Operators and Public Safety should establish and implement procedures to ensure that all security patches and updates relevant to the device or installed applications are promptly applied. The patching process should be automated whenever possible. The system should be rebooted immediately after patching if required for the patch to take effect.
9-9-8772	Critical	Service Providers, Network Operators, Equipment Suppliers and Public Safety should establish a process for releasing information to members of the law enforcement and intelligence communities and identify a single Point of Contact (POC) for coordination/referral activities.