

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Investigation into the
State of Competition Among
Telecommunications Providers in
California, and to Consider and Resolve
Questions raised in the Limited
Rehearing of Decision 08-09-042.

Investigation 15-11-007
(Filed November 5, 2015)

OPENING BRIEF OF THE OFFICE OF RATEPAYER ADVOCATES

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Pursuant to schedule set forth in the “Scoping Memo And Ruling Of Assigned Commissioner and Administrative Law Judge” dated July 1, 2016, the Office of Ratepayer Advocates (ORA) files this Opening Brief, addressing the main categories in the “Issue and Briefing Outline” (Briefing Outline) attached to the Scoping Memo.¹

I. INTRODUCTION

In 2006, the California Public Utilities Commission (Commission) came to the unsupported conclusion that a competitive telecommunications market existed in California, which would (it was believed) replace price regulation in producing just and reasonable rates.² As a result, the Commission granted carriers “broad pricing freedoms concerning almost all telecommunications services” with the exception of basic residential landline service.³ In 2008, the Commission ordered the last vestiges of rate regulation over basic residential landline service to be removed beginning January 1, 2011, finding that the purported existence of a competitive market would prevent carriers

¹ I.e., the Briefing Outline category of “Defining the Market” is addressed in Section IV herein, “Measuring the Market(s)” in Section V, and “Analyzing the Market(s)” in Section VI.

² D.06-08-030 at 2, *Rulemaking on the Commission’s Own Motion to Assess and Revise the Regulation of Telecommunications Utilities* (R.05-04-005, often referred to as the “the Uniform Regulatory Framework (URF) proceeding” or “URF I”).

³ *Ibid.*

from being “able to sustain rate increases for basic service above affordable levels.”⁴ These decisions never actually promised that prices would remain low, but it was strongly implied. What was actually delivered, however, was that prices for telecommunications services would be determined by the carriers, because the Commission believed an allegedly competitive market would keep prices affordable.⁵

Despite the Commission’s statutory obligation to ensure just and reasonable rates, the Commission found, without good cause, that the “market will, over the long term, yield a system of rates that approximates the costs of providing goods or service.”⁶ Put simply, the Commission ended price regulations because it firmly believed that market forces would supplant price regulations in ensuring compliance with Public Utilities Code Section 451,⁷ which obligates carriers to provide safe and reliable service at just and reasonable rates.

ORA, however, disagreed with this approach, and in the years since those decisions has brought evidence of a failing marketplace to the Commission’s attention.⁸ ORA’s statutory mandate has always been “to obtain the lowest possible rate for service consistent with reliable and safe service levels.”⁹ In this proceeding, and in the companion Commission decision, “Order Granting Limited Rehearing Of Decision (D.) 08-09-042” (D.15-11-023), the Commission recognizes that the telecommunications market has changed dramatically since 2008, and thus it would not be productive to

⁴ D.08-09-042 at 51, *Rulemaking into the Review of the California High Cost Fund B Program* (R.06-06-028, often referred to as “URF II”).

⁵ D.08-09-042 stated “all four ILECs will acquire full pricing flexibility for stand-alone basic rates as of January 1, 2011.”

⁶ D.06-08-030 at 262.

⁷ All statutory references herein are to the Public Utilities Code unless otherwise noted.

⁸ In 2008, ORA and TURN sought rehearing of D.08-09-042, on the grounds that the Commission failed to “conduct a thorough economic analysis to ‘assess the economic effects or consequences of its decisions’”. In 2010, ORA filed a Petition for Modification of URF II (D.08-09-042) Relating to Price Controls on Basic Residential Rates (Petition to Modify URF II), alleging that D.08-09-042 was based on an inadequate record, and on the incorrect “assumption that ‘intermodal’ competition would work to keep prices for basic service affordable.”

⁹ Section 309.5.

re-examine past decisions, or to re-examine competition, without obtaining the most current and up-to-date “information about the state of the telecommunications marketplace in California.”¹⁰ Although it grants rehearing of D.08-09-042, it does not turn the clock back to 2008 to re-evaluate the state of the market then, but instead seeks to address the rehearing issues “as they relate to the telecommunications market today.”¹¹

The effort to obtain the most recent and complete data is entirely consistent, as the Order Instituting Investigation (OII) notes, with the Commission’s obligation pursuant to Section 451 “to ensure just and reasonable rates, terms and conditions of service.”¹² This proceeding is also completely consistent with the URF I and URF II decisions, where the Commission sought to provide consumers with the benefits of a competitive marketplace for telecommunications services that would create good outcomes in terms of price, choice, coverage, quality and reliability. Those decisions noted that there was an “ongoing need and statutory mandate for vigilant Commission oversight of the competitive marketplace to ensure that the market serves consumers well.”¹³

After obtaining and reviewing a wealth of current data from the carriers in the preceding months, ORA’s expert witnesses present data pointing to a highly concentrated marketplace. Consumer choices for telecommunication providers, including broadband, have not increased. The market is more concentrated in the hands of just a few major carriers than at any time since the 1990s, and the number of carriers in the market has dwindled. As a result, prices for telecommunications services have increased, and service quality has decreased. In the absence of competition, carriers possess market power sufficient to set prices for telecommunications services above just and reasonable rates, to the detriment of consumers.

¹⁰ I.15-11-007 at 1 (OII).

¹¹ D.15-11-023 at 1.

¹² OII at 2.

¹³ OII at 1.

Evidence of a competitive marketplace was non-existent in 2006-2008, and it has only gotten worse. The Commission thus correctly granted limited rehearing with regard to ORA's demonstration that the record in URF I and URF II did "not support the Decision's determinations on issues of competition and affordability."¹⁴ The Commission also correctly opened this Investigation to obtain data and make findings of fact regarding the state of the telecommunications marketplace today.

ORA's testimony (described in detail below) shows that the telecommunications market is not competitive. The market does not include "all" technologies, because not all technologies are substitutable, whether due to different functionalities and capabilities or markets that lack necessary competition. Intermodal competition is not constraining prices for these traditional wireline services or broadband. Specifically, wireless service is not applying pricing constraints on wireline voice service, and mobile broadband service is not constraining wireline broadband prices.

A. Key Factual Findings

The findings below focus on ORA's proposed findings of fact, which are well-documented in the record. This Investigation's stated purpose is to examine "whether competition is delivering the dependable, high-quality telecommunications services that are vital to California's people and economy."¹⁵ In furtherance of this examination, the OII contains a list of "Information Requests" (IRs) that seek the data necessary to evaluate the market. The requests seek data on both the voice market and the broadband market, requesting a wide assortment of categories of data, including "Basic Service," "Voice and Broadband, Fixed, Mobile," "Price," "Market Definition," "Wholesale Inputs," and "Metrics." ORA's testimony focused on these issues, and provided an analysis of the telecommunications marketplace from the data provided in response to the IRs.

¹⁴ I.15-11-023 at 12.

¹⁵ OII at 1.

In addition, IR #23 seeks recommendations regarding possible initiatives to enhance competition in California.¹⁶ IR #23 is predicated on a finding that there are “market failures.”¹⁷ In subsequent hearings and rulings in this proceeding, it became apparent that the Commission is focusing its efforts more on the collection of data and an examination of the marketplace, rather than what to do about it.¹⁸ In Section IX of this Opening Brief, ORA broadly sets forth its recommendations for consideration in a new phase of the proceeding in response to IR #23. ORA’s testimony primarily focused on the structure, conduct, and performance of the marketplace. Recommendations to remedy rising prices and falling service can be further discussed and assessed in a subsequent phase to this proceeding. Below are the key factual findings that ORA recommends be adopted in this phase of the proceeding:

1. The Wireline Voice Market Is Not An Effectively Competitive Market.

Just a few carriers continue to maintain dominance of traditional circuit-switched voice connections (also referred to as “wireline” or “landline”), controlling 88.6% of the nationwide voice market. Pricing and service quality reflect this dominance. Basic wireline prices have increased by more than 40% since 2008, during a period when wireless prices have been cut in half. Wireline “bundles” of unlimited local and long distance calling and service features are nearly double the price for similar wireless bundles, and do not include other standard wireless features such as texting and Internet access. Dominant wireline carriers AT&T and Verizon (now Frontier) have failed to meet service quality standards for the last 5 years.

¹⁶ OII at Appendix B.

¹⁷ IR #23 begins, “If you have identified any market failures...”

¹⁸ The July 1, 2016, Scoping Ruling states, “We have repeatedly clarified that this docket is a data gathering and data analysis exercise. We have designed it to obtain a snapshot of telecommunications in California today, not to set (or repeal) rules.”

2. The Broadband Market Is Not An Effectively Competitive Market.

The Federal Communications Commission (FCC) defines advanced telecommunication capability as having a broadband connection at speeds of at least 25 Megabits per second (Mbps) download and 3 Mbps upload.¹⁹ At those speeds, in California, close to 70% of households in California have only one broadband provider; and only 24% have a choice of two providers.²⁰ Even in cities, 69% of households have only one broadband provider, and only about 25% have a choice of two or more providers. Using United States (U.S.) Department of Justice anti-trust guidelines, ORA performed market share and market concentration analyses based on broadband availability and also broadband subscriptions, which demonstrate that the market in every county in California is “highly concentrated.” As a result of high concentration, broadband prices have steadily increased while service quality and customer satisfaction have decreased.

3. The Lack of a Competitive Market Violates Public Utilities Code Section 451’s Requirement that Rates are Just and Reasonable.

In URF I, the Commission specifically stated its goal was to “address whether we can rely on market forces...to ensure that rates are ‘just and reasonable.’”²¹ This reliance was based on whether “the California market for telecommunications services is sufficiently competitive to enable California to replace current ILEC price regulations with a reliance on competitive market forces.”²²

ORA’s analysis shows that market forces have not constrained prices or enhanced services in the telecommunications marketplace. The data shows that competitive market

¹⁹ *Open Internet Order*, FCC 15-24, 30 FCCR 5601 (March 12, 2015), at ¶¶ 29, 47.

²⁰ Internet service provided by mobile devices such as cellphones is not considered “broadband” and thus not analyzed as part of the broadband market. Mobile broadband’s substitutability is discussed in more detail below.

²¹ D.06-08-030 at 52.

²² *Id.* at

forces are not sufficient to ensure just and reasonable rates. Thus, the Commission's current policy violates Section 451.

II. JURISDICTION AND PROCEDURAL BACKGROUND

In the Commission's Rulemaking "to Assess and Revise the Regulation of Telecommunications Utilities", R.05-04-005, the Commission undertook to consider whether "we may rely more heavily on competitive forces to produce 'just and reasonable' rates for California's telephone consumers." In performing this undertaking, the Commission did not first seek data about the marketplace, but began by considering two major policy alternatives: first, granting pricing flexibility for wireline service (ending price regulation); and second, maintaining the status quo.²³ It appears that the only alternative actually considered from the start was ending price regulation, because evidence of competition (or lack thereof) was never really examined (which is why the Commission is justified in granting rehearing in the companion decision, D.15-11-023, to this OII). Instead, the Commission based much of its decision on arguments made by the carriers, rather than data about the marketplace. Specifically, the carriers argued strenuously that the relevant market included "cross-platform technologies" that were allegedly "real substitutes for circuit-switched wireline services."²⁴ For example, Verizon argued that the relevant questions are "Which services compete with each other?" and "Are those services available in the marketplace?"²⁵ The Commission agreed with the carriers, finding that "it is clear that the relevant market encompasses telecommunications broadly." The Commission concluded that the telecommunication market includes Competitive Local Exchange Carriers (CLECs), cable companies, Voice over Internet Protocol (VoIP), and wireless service providers. This is often referred to as "intermodal" competition; that is, if the same service can be provided by a different "mode" of technology, those products can be analyzed as existing in the same market. If

²³ D.06-08-030 at 42.

²⁴ *Id.* at 53.

²⁵ *Id.* at 55.

the market for wireline service had been limited to the wireline providers, it is unlikely that the Commission could have made a finding that a competitive market existed.

In 2008, the Commission considered an Application for Rehearing of D.07-09-018 by The Utility Reform Network (TURN), which alleged *inter alia* that that the Commission had committed legal error by prohibiting protests by consumers or consumer groups that challenged whether a carrier's rate was just and reasonable.²⁶ The Commission denied the Application, finding that in URF I the Commission had already determined that the carriers "lack market power in their service territories and therefore that price regulation was no longer needed to ensure that prices are just and reasonable. [citations omitted.]" The Commission continued, "(a)s a result, we determined that it was reasonable to eliminate all price regulations for business services and, except as expressly ordered otherwise in the Phase I Decision regarding residential basic service, all residential services." However, the Commission denied that it had abdicated its responsibility for maintaining just and reasonable rates, stating "consumers are still permitted to file complaints regarding the just and reasonableness of rates and we may institute an investigation or rulemaking regarding the just and reasonableness of rates. [citation omitted.] Parties may also file a petition for modification or petition for rulemaking as well."²⁷ (Emphasis added.)

For reasons not germane to this proceeding (relating to the LifeLine program), the Commission did not completely deregulate basic residential service pricing in URF I. In a LifeLine proceeding related to URF, the Commission modified the URF final decision by adopting phased-in transitional prices increases for basic residential service, which extended the rate freeze from January 1, 2009 until January 1, 2011.²⁸ However, in URF I price regulations on ancillary telephone services had already been removed, as of 2006.

²⁶ D.08-04-063 at 3. The decision addressed implementation of URF I, including filing of protests to rate tariffs.

²⁷ *Id.* at 6.

²⁸ D.08-09-042, or URF II.

In 2010, ORA filed a Petition for Modification of URF II (D.08-09-042) Relating to Price Controls on Basic Residential Rates (Petition to Modify URF II). ORA's Petition cited to the July 16, 2010 report of the California Senate Office of Oversight and Outcomes (see Appendix A to this OII), at Findings 1 and 2, which found that deregulated rates were not being sufficiently scrutinized. ORA included with its Petition a Staff Report that showed that prices on uncapped services had "skyrocketed" since URF I, arguing that when price caps on basic residential service were removed in 2011, the same thing would happen because "market forces were not sufficient to produce stable or reduced prices."

On December 21, 2010, Commissioner Bohn, in an assigned Commissioner's Ruling (ACR) Dismissing Petition for Modification and Granting Motion to Dismiss in R.06-06-028, dismissed ORA's Petition on largely procedural grounds. The ACR did not address the substantive merits of ORA's arguments. On December 31, 2010 Assigned Commissioner Bohn issued another ACR ordering that the substantive issues raised in ORA's Petition for Modification were to be addressed in the new phase of R.09-06-019. The December 31, 2010 ACR stated "Examining the level of competition in the telecommunications industry is critical in the Commission's discharging of its duty to ensure the telecommunications service prices remain just and reasonable." However, for reasons that are unclear, a new phase of R.09-06-019 on marketplace competition, as contemplated in the December 31, 2010 ACR, was never opened and R.09-06-019 was closed.²⁹

From the outset of this proceeding, the carriers have repeatedly attacked the Commission's jurisdiction to undertake this examination of the current state of the telecommunication marketplace. What is clear from the jurisdictional and procedural history, however, is that this proceeding is entirely consistent with the Commission's past proceedings and decisions on this topic. The carriers have argued here that an examination of the marketplace must be focused on the wireline voice market only.

²⁹ OII at 10.

However, it would make no sense to limit the Commission's current examination of the marketplace to only wireline voice service, after basing its past URF decisions on all forms of telecommunication services and products.

As the above-described history makes abundantly obvious, the California Legislature has given the Commission multiple sources of authority to investigate the California telecommunications market as a whole, including the activities of VoIP carriers with certificated affiliates, wireless carriers, broadband providers, and of course the traditional Incumbent Local Exchange Carriers (ILECs). The Commission has never wavered from its view that it has jurisdiction to obtain any necessary information from carriers, and the above-cited cases illustrate how the Commission has investigated the marketplace in the past. The decisions in URF I and URF II are examples of the exercise of that jurisdiction.

The sources of jurisdiction to investigate are multiple, beginning with Section 701 which empowers the Commission to “do all things, whether specifically designated in this part or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction.”

Section 314(a) provides specific authority to inspect the documents of any public utility at any time; and Section 314(b) specifically extends the Commission's data gathering authority to utility subsidiaries and affiliates, stating that the Commission's powers extend to “any business that is a subsidiary or affiliate of” a public utility.

In Resolution ALJ-195, the Commission affirmed that the provisions of Section 314 “reflect the longstanding, broad, and settled authority granted by the People and the Legislature of California to obtain information from public utilities, and those who deal with them, in furtherance of informed public utility regulation.”

Section 582³⁰ provides additional authority:

³⁰ See also, Sections 581 and 1794.

[w]henever required by the commission, every public utility shall deliver to the commission copies of any or all maps, profiles, contracts, agreements, franchises, reports, books, accounts, papers and records in its possession or in any way relating to its property or affecting its business, and also a complete inventory of all its property in such form as the commission may direct.

Section 710(f) specifically reserves the “commission’s ability to continue to monitor and discuss VoIP services.” And Section 710 (c)(4) preserves the “commission’s authority to require data and other information pursuant to Section 716.”

Some carriers have argued that the Commission’s jurisdiction does not extend to broadband, because the FCC (allegedly) stated that broadband is jurisdictionally “interstate.”³¹ However, the FCC’s *Open Internet Order* recognized that broadband is a telecommunications service under 47 U.S.C. 153(50) and (53), and reclassified it as such:

The term “telecommunications service” means 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.

The term “telecommunications” means 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.*³² (Emphasis added.)

Thus, Broadband Internet Access Service (BIAS) providers provide a regulated telecommunication service, and are covered under Public Utilities Code Section 216(b) which provides that “a telephone corporation... is a public utility subject to the jurisdiction, control and regulation of the commission and the provisions of this part.” While California courts have not specifically addressed this issue, cases from other states hold that Voice over Internet Protocol (VoIP) providers operate “telephone lines” or should be treated as telephone or telecommunications companies for taxation purposes,

³¹ Carriers typically cite to *In re Protecting and Promoting an Open Internet*, FCC 15-24, Report and Order on Remand, Declaratory Ruling, and Order, in GN 14-28 (Adopted February 26, 2015, Released March 10, 2015) (*Open Internet Order*), at ¶ 431.

even if their service is provided through a broadband network.³³ For example, in an Iowa case involving Cable One, the court reasoned that VoIP calls are transmitted over physical lines just like traditional landline calls. The statute at issue, which applied to “every telephone company operating a line”, did not require a specific type of line or use of any particular type of technology. Giving these words their ordinary and commonly understood meaning, the court reasoned that a cable or wire used for telephone service is, indeed, a telephone line.

In addition, this proceeding carries out the Commission’s legislative mandate in Section 709 to encourage affordable and high-quality telecommunications services to all Californians. Section 709 provides that the Commission’s policies should be, in relevant part:

- (a) To continue our universal service commitment by assuring the continued affordability and widespread availability of high-quality telecommunications services to all Californians.
- (c) To encourage the development and deployment of new technologies and the equitable provision of services in a way that efficiently meets consumer need and encourages the ubiquitous availability of a wide choice of state-of-the-art services.
- (f) To promote lower prices, broader consumer choice, and avoidance of anticompetitive conduct.
- (g) To remove the barriers to open and competitive markets and promote fair product and price competition in a way that encourages greater efficiency, lower prices, and more consumer choice.

(continued from previous page)

³² *Open Internet Order* at ¶ 331 and fn. 865.

³³ *Kay-Decker v. Iowa State Board of Tax Review and Cable One, Inc.* (Iowa Sup. 2014) 857 N.W. 2d 216; *Cable One, Inc. v. Ariz. Dep’t of Revenue* (Ariz. Ct. App. 2013) 304 P.3d 1098; *Vonage Am., Inc. v. City of Seattle* (Wash. Ct. App. 2009) 216 P.3d 1029; *Bresnan Communs. LLC v. State* (Mont. 2013) 315 P.3d 921.

Finally, some carriers have argued that the states are preempted by federal law from obtaining data about broadband, because such data gathering could lead to regulating broadband in some way. However, Section 706(a) of the Telecommunications Act of 1996³⁴ echoes Section 709’s mandate to promote competition, and provides independent federal authority for state commissions to encourage the deployment of advanced telecommunications capability, stating in relevant part:

The Commission and each State commission with regulatory jurisdiction over telecommunications services 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 regulating methods that *remove barriers to infrastructure investment*.³⁵

An opinion by the D.C. Circuit Court of Appeal affirmed that this language constitutes a grant of authority to the FCC *and to* state commissions to utilize price cap regulation, regulatory forbearance, or other measures, to promote competition in the telecommunications market.³⁶ Gathering data is a necessary prerequisite first step to setting the policies that seek to carry out these goals.

III. DESCRIPTION OF ORA TESTIMONY

A. Lee Selwyn

ORA’s primary witness is Dr. Lee L. Selwyn, one of the preeminent scholars in the telecommunications field. For more than forty years, he has been an internationally recognized authority on telecommunications regulation, economics and public policy.

³⁴ Section 706 of the Telecommunications Act of 1996 is codified as 47 U.S.C. § 1302; the FCC and the Federal Courts reviewing the FCC’s various orders consistently refer to this statutory provision as “section 706”, and we do here as well.

³⁵ 47 U.S. C. § 1302(a), *et seq.* (Emphasis added.)

³⁶ *Verizon v. FCC* (D.C. Cir. 2014) 740 F. 3d 623, 638.

Dr. Selwyn founded the firm of Economics and Technology, Inc. in 1972, and has served as its President since that date.

In his March 15, 2016 testimony, Dr. Selwyn provided citations to hundreds of publications, papers, and testimony that he has provided in state proceedings throughout the country. He has appeared in dozens of proceedings here at the CPUC. His SOQ contains *62 pages* of references to his prior expert testimony and publications.

Dr. Selwyn provided 3 reports on behalf of ORA in this proceeding. On March 15, 2016, ORA submitted the “Direct Testimony of Lee L. Selwyn,” which includes his responses to IRs #20 (Identify the metrics and sources of data that you believe would be most useful and useable by the Commission to measure competition); IR #21 (How should the Commission determine whether the prices of telephone services are just and reasonable); and IR #22 (What information does the Commission need to collect going forward). This testimony was entered into the record as Exhibit 15 on the July 28, 2016, “Exhibit List” for this proceeding.

On June 1, ORA submitted his second report, also entitled “Direct Testimony of Lee L. Selwyn,” which includes his responses to IRs #9 (describe the extent to which wireless and wireline services are substitutes), #10 (how and to what extent do competition and consumer choices vary by geographic market in California); #11 (how and to what extent is competition in the business market different from that in the residential market); #12 (how much competition is there for advanced telecommunications services at the new national standard of 25 Mbps down (and 3 Mbps up); and #23 (suggest rules, regulations or policies that would ameliorate those market problems). This testimony was entered into the record as Exhibit 16.

On July 15, ORA submitted the “Rebuttal Testimony of Dr. Lee L. Selwyn,” which addressed and responded to several Respondent witnesses’ contentions, as set out in their June 1 submissions, regarding the effectiveness of competition in disciplining prices and protecting consumers of voice and broadband services. This testimony was entered into the record as Exhibit 21.

Dr. Selwyn presents a framework for defining tests of companies to determine if they are dominant firms, or more generally, tests of the “workability” or “effectiveness” of competition in a given market. He analyzes competition using a concept that is commonly referred to in the economics literature as the structure-conduct-performance (SCP) paradigm. Dr. Selwyn applied this analysis to a substantial body of data provided by the carriers that, along with various other data sources, compels the conclusion that competition among telecommunications providers in California has been minimal and that it has not resulted in improved customer service or in prices that are just and reasonable.

B. Adam Clark

ORA also presents the testimony of Adam Clark. On June 1, 2016, Mr. Clark submitted Direct Testimony for ORA in response to IR #9 assessing the extent to which mobile broadband service is (or is not) a substitute for wireline broadband service. This testimony was entered into the record as Exhibit 17. Mr. Clark’s testimony notes the FCC’s recent declaration that mobile and wireline broadband services are complementary services, and not functional substitutes. His testimony cites the findings of the CPUC’s Communication Division’s CalSPEED test results and reports.³⁷ Mr. Clark compared the availability, speeds, technical specifications, functional capabilities, prices, service restrictions, and consumer choices for mobile and wireline broadband services. He concludes that mobile data services is a complement to, rather than a substitute for, wireline broadband service for the following reasons:

- Mobile broadband services cannot accommodate many important applications that require a fast, high quality connection.
- Wireline broadband far outperforms mobile broadband in terms of maximum, minimum and average data transfer speeds. Wireline broadband frequently exceed speeds of 25 Mbps

³⁷ Biba, Ken, *CalSPEED: California Mobile Broadband – An Assessment – Fall 2014* (June 2015) (hereinafter, “2014 CalSPEED Report”); Biba, Ken, *CalSPEED: California Mobile Broadband – An Assessment – Spring 2015* (December 2015) (hereinafter, “2015 CalSPEED Report”).

download and 3 Mbps upload, whereas mobile broadband service with speeds of at least 25 Mbps download and 3 Mbps upload is available in only 2% to 4% of the service areas of the four main providers.

- Mobile broadband does not match wireline broadband as it relates to various technical measures, including: latency, packet loss rates, consistency, and TCP failure rates.
- Providers of mobile broadband services frequently impose “data caps” that limit the amount of data end-users consume each month; wireline broadband service providers usually do not impose such restrictions, or – if they do – the limits are far more lenient.
- Consumers use mobile broadband and wireline broadband for different purposes, suggesting the services are complementary.
- After accounting for differences in data allowances or download speeds, mobile broadband is significantly more expensive than wireline broadband.
- Approximately 83% of mobile broadband subscribers also have wireline broadband service at home. Given the financial means, consumers choose to concurrently purchase both mobile and wireline broadband services.

Mr. Clark also submitted Reply Testimony on July 15 in response to the Direct Testimony of several parties. This testimony was entered into the record as Exhibit 20. Mr. Clark explains that several industry witnesses offered inaccurate assessments of broadband consumer choice and, as a result, overstate the levels of competition in California’s broadband market. Mr. Clark demonstrates that the claims of AT&T and Frontier, in particular, are misguided due to the incorrect assumption that mobile and wireline broadband services are close substitutes. Mobile broadband is not a substitute for wireline broadband, as the services offer different functional capabilities. As a result, mobile broadband providers do not compete with wireline broadband providers. Mr. Clark’s Reply Testimony concludes: an accurate assessment of consumer choice and

market competition must therefore analyze the wireline broadband market apart from the mobile broadband market.

Mr. Clark's Reply Testimony also states that AT&T errs in its assessment of consumer choice and market competition because its analysis includes extremely slow broadband services that cannot support advanced communication capabilities. Services that offer a maximum download speed of 1.5 Mbps cannot support many important applications, like telehealth or remote education, and therefore those slow services are not close substitutes for broadband services that support advanced communications capabilities. Including services with maximum download speeds of 1.5 Mbps in an assessment of broadband consumer choice and competition produces inaccurate results. Mr. Clark asserts the CPUC should continue to define the pertinent broadband market as wireline services that can provide speeds of at least 25/3 Mbps.

Finally, Mr. Clark's Reply Testimony offers statements of concurrence with several parties' testimonies that accurately highlight the numerous limitations of mobile broadband service and demonstrate that mobile service is not a substitute for wireline broadband service. For example, Sprint notes that wireless broadband service is often less reliable indoors, has data capacity limitations, and is less reliable in many rural areas. Mr. Clark also agrees with Cox Communications that many devices require high quality, reliable connections, which can preclude a household from substituting wireless for wireline service.

C. Tony Tully

ORA also submitted the testimony of Tony Tully, a Senior Regulatory Analyst in ORA's Communication and Water Policy Branch. On June 1, 2016, Mr. Tully provided testimony for ORA in response to IR #9 in regards to fixed wireless broadband service. This testimony was entered into the record as Exhibit 18. The OII asks to "Please describe the extent to which wireless and wireline services are substitutes for one another, or separate markets, based on your experience and on such evidence and documentation

that you can supply.” In addition, IR #9 asks, “Are there barriers to such substitution, and what are the limits of such substitution?”³⁸

Mr. Tully’s report presents research comparing fixed wireless broadband to fixed wireline broadband. Fixed wireless service consists of a radio receiver which is installed on a home or business that connects, point-to-point, to a radio antenna/tower at a different location.³⁹ Mr. Tully’s research pointed out four significant limitations of fixed wireless broadband.

First, the most significant limitation is availability. In an FCC report, it was found that fixed wireless broadband accounts for less than 1% (0.1299%) of the total service connections specifically in California.⁴⁰ Second, for those that live in areas that do provide fixed wireless broadband service, many customers are unable to receive the service because of geographical constraints. The radio receiver at the consumer's premises must have a direct line of sight with the radio antenna at the broadband access point. This is problematic as a signal can be blocked by mountains, hills, trees, buildings and electrical interference. The third limitation to fixed wireless broadband is low speeds. Of the 47 known fixed wireless broadband service providers located throughout California, only 8 companies advertise download speeds of 25 Mbps. Most companies only offer speeds that are far inferior to the maximum download speeds offered by fixed wireline broadband providers and fail to meet broadband speeds of 25 Mbps download and 3 Mbps upload.⁴¹ Only three known residential fixed wireless broadband providers go beyond 25 Mbps download. The fourth limitation to fixed-wireless broadband service is price. For customers with fixed or low income, fixed wireless may not be an option. A comparison of broadband service prices between fixed wireless and fixed wireline shows

³⁸ I.15-11-007, Order Instituting Investigation to Assess the State of Competition Among Telecommunications Providers in California, and to Consider and Resolve Limited Rehearing of Decision (D.) 08-09-042, November 5, 2015, Attachment B, page B-4.

³⁹ <http://www.smarterbroadband.com/FAQ.htm>.

⁴⁰ FCC, *Internet Access Services: Status as of December 31, 2014*, dated March 2016, page 34.

⁴¹ https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-10A1.pdf, page 3. Also, FCC’s 2016 Broadband Progress Report, adopted January 28, 2016, pages 23-24.

customers with fixed wireless pay a significantly higher price for service and that price gap increases with higher speeds.⁴² On the lower end of speeds, customers must pay an average of \$61 a month for 1 Mbps. Upgrading service to 7 Mbps costs an average of \$100 per month. For customers that can afford higher speeds, value is not an option. As an example, the monthly residential service cost of the three California fixed wireless companies who offer download speeds greater than 25 Mbps are between \$200 to \$500 dollars per month.⁴³ These prices far exceed the price of fixed wireline broadband services for the same speeds, which start at an average of \$58.⁴⁴

Mr. Tully's report concluded that fixed wireless broadband cannot be considered a substitute for fixed wireline broadband services due to its limited availability, geographical constraints, lower speeds and substantially higher price.

D. Enrique Gallardo

ORA submitted testimony from Enrique Gallardo for ORA on June 1, 2016. This testimony was entered into the record as Exhibit 19. He notes that persistent problems in service quality and customer services are symptoms of lack of effective competition.⁴⁵ Mr. Gallardo's testimony documents the sub-standard state of voice service quality and reliability in California in recent years for wireline voice services (both traditional circuit-switched telephone service and Voice over Internet Protocol (VoIP)), as well as customer satisfaction of wireline voice, wireless voice and Internet service.

Nationwide customer satisfaction surveys show that wireline voice and wireless voice service have had consistently poor customer satisfaction in recent years. Moreover,

⁴² The data used in Figures 1 and 2 is from the 36 of 47 fixed wireless service providers who advertised data on their websites and are listed in Attachment D. This list is a compilation of California service providers that have provided data used in the broadband service map at www.broadbandmap.ca.gov, 477 data and have been found in web searches. Fixed wireline broadband service providers include AT&T, Comcast and Time Warner Cable.

⁴³ <https://www.softcom.net/services/highspeed.html>
<http://ethericnetworks.com/rural-high-speed-internet/>.

⁴⁴ This average includes AT&T, Comcast and Time Warner Cable.

⁴⁵ Exhibit 15 at 81.

both Internet Service and multichannel video program distribution (MVPD) service had even lower customer satisfaction ratings than wireline and wireless voice.

Service quality reports mandated by the Commission also demonstrate poor service quality, especially concerning the time it takes to repair service outages. The largest carriers subject to the Commission's service quality metrics – who served the vast majority of traditional wireline voice customers – consistently violated the minimum standard related to repair of service outages. For example, AT&T and Verizon violated this standard every single month between 2010 and 2015. There is also widespread violation of the Commission service quality standard related to Answer Times.

Mr. Gallardo also analyzed major service outages data from the FCC's Network Outage Reporting System (NORS) reports. NORS reports are available only from those carriers who have recently been included in change of control transaction applications before the CPUC. The NORS reports demonstrate many carriers have an excessive quantity of major service outages, or whose major service outages take an excessive amount of time to repair. Verizon in particular had an excessive quantity of major service outages and long repair times.

IV. DEFINING THE MARKET

There is no one "telecommunications" market in California. Instead, there are multiple telecommunications markets. Markets are generally defined with respect to the nature of the products involved, known as the product market, and the geographic area where the products are being offered, known as the geographic market.

In the current proceeding, there are two relevant product markets in California's telecommunications market: 1) the wireline voice telephone service market, and 2) the residential broadband Internet access market at speeds of 25 Mbps download and 3 Mbps upload, which is the FCC definition of advanced telecommunications service and which is the specific subject of IR#12 of this OI.⁴⁶

⁴⁶ *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section*
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With regard to the geographic market, in the case of the fixed telecommunications services represented by the wireline voice market and the broadband market, the extent of competition analysis is limited to the service providers available at the consumer's specific location. Because wireline services are not portable, both availability and subscription data is analyzed at the most granular geographic levels available such as census blocks or, if census block data is not attainable, census tracts. For convenience, broadband market data can be summarized over larger geographic areas, such as counties or Metropolitan Statistical Areas (MSAs), to assess the extent of broadband availability and the extent that consumers have a choice of service provider.

A. Substitutability of Mobile Services and Wireline Services

1. Voice

For most households in California, mobile voice service is not a substitute for wireline voice service. Nearly two-thirds of California households that have wireless phones have chosen to retain their wireline service for various reasons, such as reliable access to 911, residential alarm service, medical monitoring, and other specific needs that cannot be met by wireless service.⁴⁷ Whereas many households may view wireless voice as offering greater functionality, such as greater mobility, the fact that two-thirds of households have chosen to retain wireline service despite also having one or more wireless phones leads to the conclusion that consumers choose to retain both.

Further differences between wireless and wireline voice can be seen when comparing prices and services offered for both products. As it relates to voice service, one of the questions before the Commission is whether or not wireless service constrains the price of wireline service. ORA's testimony demonstrates that wireless prices are clearly *not* constraining wireline prices. If wireless were truly a competitive substitute

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706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, FCC GN Docket No. 14-126; 2015 Broadband Progress Report and Notice of Inquiry of Immediate Action to Accelerate Deployment, FCC 15-10, Released February 4, 2015 at ¶ 3.

⁴⁷ Exhibit 16 at 24.

for wireline, a drop in the price of mobile voice service would result in a concomitant drop in the price for wireline voice service as carriers react to the actions of their competitive rivals. But this has not happened. In California, wireless prices have been decreasing while wireline prices have seen few, if any, reductions.⁴⁸ Mobile voice offerings, for example, have seen unlimited nationwide calling plans replace measured-use voice and text block-of-time pricing. Wireless carriers have also shifted away from term contracts and early termination penalties, adopting pricing plans that unbundle handsets from the wireless service.⁴⁹ In contrast, basic wireline voice services continue to offer restrictive local calling areas, additional charges for voice mail, customer calling features (such as call waiting), and usage-based charges for non-local calls.⁵⁰ Wireline carriers have introduced higher-priced bundles that include a package of custom calling features, and unlimited nationwide calling. However, the prices for these bundles have either remained constant or have increased, while mobile voice prices for these same services have dropped. Please see Section VI.A. of this brief for a detailed discussion supporting the conclusion that wireless voice services are not constraining wireline voice prices.

2. Broadband

Broadband is a telecommunications service.⁵¹ To assess the relevant broadband market, the FCC's benchmark broadband of speeds of 25/3 must be used. Mobile broadband service is not considered in the analysis of the relevant market, because it is not a suitable substitute for wireline broadband service for purposes of analyzing competition in the California telecommunications market. ORA's analysis of wireless mobile data services compared to wireline broadband services demonstrate that mobile

⁴⁸ Exhibit 16, Table 7 at 26.

⁴⁹ See, e.g., "Sprint to Abandon Two-Year Contracts," *Wall Street Journal*, August 18, 2015 <http://www.wsj.com/articles/sprinttoabandonwoyearcontracts1439837235> (accessed 05/26/2016).

⁵⁰ ORA DR 1-3, responses of AT&T, Verizon/Frontier, and Consolidated Communications.

⁵¹ See, 2015 *FCC Broadband Progress Report*, FCC 15-10, Released February 4, 2015 at 3, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-10A1.pdf; See also, 2016 *FCC Broadband*

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data service is a complement to, rather than a substitute for, wireline broadband service.⁵² Further, as presented by the testimony of ORA’s expert witness Tony Tully, there are limitations to fixed wireless broadband that make it unsuitable for consideration as a substitute to fixed wireline broadband.⁵³ The limitations of mobile and fixed wireless broadband include low speeds, substantially higher prices, insufficient reliability, and limited availability.

a) CPUC and FCC Agree That Wireless Data and Wireline Broadband are not Substitutes

In addition to ORA’s analysis of the differences between wireless broadband and wireline broadband, discussed in detail below, both the Commission and the FCC have stated that wireless broadband and wireline broadband are not functional substitutes. Not only did the current OII correctly recognize that mobile data services are likely not a substitute to wireline broadband services, but in September 2015 the Commission submitted comments to the FCC that included detailed, technical data indicating that mobile data service is not a sufficient substitute to wireline broadband service.⁵⁴ The Commission partly based its recommendation to the FCC on the findings and analysis of CalSPEED data, data gathered from a Commission mobile phone application that provides wireless broadband data, such as speed and latency, from different geographic areas of the State. Ultimately, the Commission recommended that, “[T]he FCC defer its decision on including mobile data services in its definition of advanced

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Progress Report, FCC 16-6, Released January 29, 2016 at 12.

⁵² Exhibit 17.

⁵³ Exhibit 18.

⁵⁴ Competition OII at 13-14, fn 42; Comments of the California Public Utilities Commission, *In the Matter of In Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 15-191, filed on September 15, 2015 (Commission September 2015 Comments) at 3.

telecommunications capability until the FCC confirms that it has reliable mobile data, and has first set mobile performance benchmarks.”⁵⁵

In its 2016 *Broadband Progress Report*, the FCC also concluded that mobile data services are not functional equivalents to wireline broadband services.⁵⁶ Specifically, the FCC stated that they based their finding “on the capabilities both services offer to consumers, the manner in which these services are marketed to and used by consumers, and evidence suggesting that consumers overwhelmingly purchase both services when they have the financial means.”⁵⁷ Importantly, the FCC stated, “We find that fixed and mobile data services each provide essential components of advanced telecommunications capability, and that, as such, *advanced telecommunications capability should be deemed deployed only in areas where consumers have access to both services as defined herein.*”⁵⁸

b) Capabilities of Wireless Mobile Data and Wireline Broadband Services

Mobile data and wireline broadband are not substitutes due to the unique capabilities of each service. As a result, dissimilar yet overlapping capabilities between wireline broadband and wireless data services means that each acts as a complement to the other rather than as a functional substitute. The differences in service availability, speeds, and functional capabilities between wireless data and wireline broadband service in California compel this conclusion.

An analysis of service availability, which is the most important characteristic of any broadband or data service, provides evidence of the lack of substitutability between mobile data and wireline broadband services. ORA supports the OII’s finding that broadband and data services should be at speeds of at least 25 Mbps download and

⁵⁵ Exhibit 17 at II-1; Commission September 2015 Comments.

⁵⁶ 2016 FCC *Broadband Progress Report*, FCC 16-6, Released January 29, 2016 at 12.

⁵⁷ *Id.*

⁵⁸ *Id.* (Emphasis added).

3 Mbps upload, which is the FCC definition of advanced telecommunications service.⁵⁹ Based on data gathered from the Commission's CalSPEED application, mobile data service at speeds of 25/3 are available in only 4% of Verizon Wireless' coverage area and in less than 2% of Sprint's, T-Mobile's, and AT&T's coverage area.⁶⁰ And usually only one carrier in a specific service area provides speeds at or above 25/3.⁶¹ In contrast, wireline broadband is available in 94% of California households.⁶² Considering the more modest speed of 6 Mbps download and 1.5 Mbps upload, only 16% of urban households and 15% of rural households are found to be served by mobile data services at 6/1.5.⁶³ In contrast, nearly 98% of urban households and 43% of rural households are served by wireline broadband at speeds of at least 6 Mbps download and 1.5 Mbps upload.⁶⁴ Thus, the availability of wireline broadband far exceeds that of mobile data services.

When measuring data transfer speeds, we see further evidence of the differences between wireline broadband and wireless data services, with wireline broadband far outperforming mobile data. The average speeds for mobile data services in California generally do not exceed 13 Mbps download and 3.5 Mbps upload.⁶⁵ In spite of technological advancement, mobile speeds have actually decreased in recent years primarily due to throttling by carriers.⁶⁶ This speed disparity means that services possible with wireline broadband such as telemedicine, remote education and high definition

⁵⁹ Competition OII at 13; Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, FCC GN Docket No. 14-126; 2015 Broadband Progress Report and Notice of Inquiry of Immediate Action to Accelerate Deployment, FCC 15-10, Released February 4, 2015 at ¶ 3.

⁶⁰ 2015 CalSPEED Report at 7.

⁶¹ *Id.*

⁶² Exhibit 16, Table 8 at 46.

⁶³ California Advanced Services Fund 2015 Annual Report, Communications Division, California Public Utilities Commission (April 1, 2016) at 3

⁶⁴ *Id.*

⁶⁵ Exhibit 17 at II-5.

⁶⁶ 2015 CalSPEED Report at 3.

streaming cannot be provided by mobile data services and it does not appear that we will see any change in the foreseeable future.

In addition to data transfer speeds, the functional capabilities of broadband and data services are affected by latency, packet loss rate, consistency, and reliability. Latency measures the amount of time it takes for a packet of data to travel across a network from one designated point to another while packet loss rate measures the rate at which data packets fail to arrive at their destination. For both latency and packet loss rate, a lower measurement indicates a higher quality of service. Highly interactive or real time applications, like video and voice communications, require low latency and packet loss rates to function properly. For example, high latency or packet loss can result in the interruption (buffering) of video streams or the loss of audio during phone calls. According to the 2015 FCC Report on Fixed Broadband Performance, wireline broadband connections have low latency and low packet loss rates, even during times of peak usage.⁶⁷ In contrast, wireless data services frequently operate with much higher latency and packet loss rates than wireline services, resulting in lower quality service.⁶⁸ Data from the Commission's CalSPEED application confirms this finding.

Following a review of CalSPEED data, the Commission found that the four major mobile data service providers – AT&T, Verizon Wireless, Sprint, and T-Mobile – failed to achieve latency and packet loss rates suitable for VoIP communications in 5 to 25% of tested locations throughout California.⁶⁹ The CalSPEED data also demonstrates that mobile data service is not suitable for VoIP communications in a significant percentage of rural and tribal areas.⁷⁰ The third and fourth largest mobile data service providers perform worse than AT&T and Verizon, who are the dominant mobile data service

⁶⁷ FCC, *2015 Measuring Broadband America Fixed Broadband Report: A Report on Consumer Fixed Broadband Performance in the United States* (2015 Measuring Broadband Report) at 1719, available at <https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuringbroadband-america-2015>.

⁶⁸ *Id.*

⁶⁹ 2015 CalSPEED Report at 11.

⁷⁰ *Id.*

providers in California. T-Mobile's service is not suitable for VoIP communications in nearly 35% of rural locations where service is available due to high latency and high packet loss rates while the comparable figure for Sprint is 20%.⁷¹

Consistency is the measure of a data or broadband connection's actual data transfer speeds expressed as a percentage of the maximum data transfer speed. A lower consistency score indicates that a connection's speed fluctuated, while a higher consistency score indicates that a connection's data transfer speed is steady. According to the FCC, wireline broadband connections offer high rates of consistency. In a 2015 report, the FCC found that customers of Cablevision, Comcast, and Verizon Fiber experienced very consistent service, where "over 80% of customers experienced actual download speeds at or above advertised download speeds during at least 80% of the peak usage period."⁷² In contrast, mobile data services do not offer the same high level of consistency. The Commission's 2014 CalSPEED Report concludes that a variance of 25% and 50% can be considered typical for mobile data services.⁷³ This problem is even more pronounced in rural areas, where speeds at a particular location can vary by more than 200% within a 30 minute timeframe.⁷⁴ These conclusions were reaffirmed in the 2015 CalSPEED Report.⁷⁵ Therefore, the functional capabilities of mobile data services are potentially impaired by poor consistency, especially for speed sensitive applications, as compared to wireline broadband services.

The reliability of broadband connections is a measure of functional availability, as measured by a Transfer Control Protocol (TCP) failure rate.⁷⁶ TCP is the fundamental connection protocol for the Internet. TCP provides reliable delivery of an ordered stream of bytes and is the foundation service for web browsing, most streaming media services,

⁷¹ Exhibit 17 at II-7.

⁷² 2015 Measuring Broadband Report at 16.

⁷³ 2014 CalSPEED Report at 3.

⁷⁴ *Id.*

⁷⁵ 2015 CalSPEED Report at 9-10.

⁷⁶ 2015 CalSPEED Report at 9.

email, Instant Messaging, and most other Internet services. A TCP failure rate measures the rate at which a TCP connection failure occurs when a user is attempting to access a website from a mobile browser. CalSPEED data demonstrates that all four of the leading mobile data services providers experience TCP failure rates in excess of 10% (statewide), and above 15% in rural areas which indicates that consumers cannot always rely on mobile data services to sufficiently replace wireline broadband services.

Based on the above analysis, the dissimilar yet overlapping capabilities between wireline broadband and wireless data services mean that they act as complements to each other rather than functional substitutes. Most consumers subscribe to both fixed and mobile broadband, and use the latter only when it is impractical to use the former – e.g. when they are not at home. Therefore, mobile data and wireline broadband cannot be considered substitutes for purposes of assessing the California telecommunications market.

3. Manner Sold and Used

The manner in which mobile data and wireline broadband services are sold to and used by consumers also indicates that the services are not substitutes for each other. The use and effects of data caps and differential pricing are two examples of different ways that carriers sell wireless data and wireline broadband services to consumers and the way consumers use those services.

While mobile data services restrict the total data consumption per month through data caps, wireline broadband services frequently do not have any data caps or have significantly higher data caps.⁷⁷ Data caps directly affect how consumers utilize broadband services, as evidenced by the stark differences in the average amount of data consumed on mobile versus wireline broadband services. For example, while wireline broadband consumers use an average of 57.4 gigabytes (GB) of data per month per household, mobile data consumers use an average of 1.9 GBs of data per month. This disparity in data consumption proves that consumers use mobile and wireline broadband

services for different purposes. A recent survey of 2,149 Americans found that, “people have clear views about which applications are better suited to different means for going online... [and] those with both a home broadband connection and a smartphone prefer to use the former for looking for information, watching video, or shopping, while the latter is used more for staying in touch with others.”⁷⁸ In addition, the FCC’s 2015 *Mobile Competition Report* also found that consumers tended to use mobile data services and wireline broadband services for different purposes.⁷⁹ In general, the FCC Report found that consumers use mobile data services for applications that are not data intensive while consumers use wireline broadband services for applications that are very data intensive like video streaming, video conferencing, remote education and telehealth. This is additional evidence that mobile data services are not a sufficient substitute for wireline broadband services.

Accounting for differences in service capabilities and pricing conventions, the price of wireless data service is significantly higher than the price of wireline broadband service. The median price of mobile data services per 1 Mbps of download speed, for example, is over 13 times higher than the price of Fiber-To-The-Home (FTTH), over six times higher than cable broadband services, and over double that of Digital Subscriber Line (DSL) services.⁸⁰ Normalizing the prices of mobile data services and wireline broadband services to account for the significant differences in data caps provides additional evidence that a mobile data service is not a sufficient substitute for wireline broadband. Mobile data plans that offer unlimited monthly data allowance are far more

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⁷⁷ 2016 FCC *Broadband Progress Report* at 15.

⁷⁸ John Horrigan, PhD, *Smartphones and Broadband: Tech Users See Them as Complements and Very Few Would Give Up Their Home Broadband Subscription in Favor of Their Smartphone* (November 2014) at 6.

⁷⁹ FCC 2015 *Mobile Competition Report* at 94.

⁸⁰ Cable, FTTH and DSL speeds and prices reflect the service plans of 11 major providers, as reported in the FCC’s 2016 *Urban Rate Survey for Fixed Voice and Broadband Services*, April 5, 2016, available at <https://www.fcc.gov/general/urban-rate-survey-data-resources>.

expensive than wireline equivalent broadband services. For those unlimited data plans, the median cost of mobile data services are over 26 times more expensive than DSL and Cable broadband services. For plans with data caps, the median price of mobile data services is 1.5 to 2.5 times more expensive than FTTH, DSL and Cable broadband services. Therefore, the difference in service prices between mobile data and wireline broadband services, when normalized for capabilities and data allowance, is further evidence that mobile data service is not a sufficient substitute for wireline broadband service.

4. Consumers Use Both Mobile and Wireline

Consumers with financial means tend to purchase both mobile data service subscriptions and wireline broadband subscriptions. For example, approximately 83% of residential consumers with mobile data service connections also have broadband at home.⁸¹ Also, in 2015, ILECs and Multiple System Operators (MSOs – also referred to as cable providers) added more than 3.1 million customers and smartphones increased their share of the mobile phones market from 50% to 77%.⁸² The fact that both mobile data service subscriptions and wireline broadband subscriptions are increasing year-over-year is also consistent with the idea that they are complementary rather than substitutable services. If mobile data service was a sufficient substitute for wireline service and also afforded users the additional benefit of mobility, many consumers would forgo wireline subscriptions to avoid the cost of purchasing a redundant service. Consumers' behavior and purchasing patterns, however, demonstrate that this is not the case as consumers generally choose to purchase both when possible.

⁸¹ John Horrigan, PhD, *Broadband Adoption and Usage: What Has Four Years Taught Us?* (2013) at 3-4, available at http://moody.utexas.edu/sites/communication.utexas.edu/files/images/content/tipi/Horrigan.FCC_.Summit.02.06.pdf

⁸² Leichtman Research Group, Inc. *Press Release: 3.1 Million Added Broadband from Top Providers in 2015*, March 11, 2016, available at <http://www.leichtmanresearch.com/press/031116release.html>; Ericsson Mobility Report: On the Pulse of the Networked Society, November 2015 at 2, available at <http://www.ericsson.com/res/docs/2015/mobility-report/ericsson-mobility-report-nov-2015.pdf>.

a) Limitations of Fixed Wireless Broadband

As mentioned above, fixed wireless broadband, much like mobile wireless broadband, cannot be considered a close substitute to wireline broadband. ORA’s analysis proves that that limited availability, low speeds, and substantially higher prices make fixed wireless broadband unsuitable for consideration as a substitute for wireline broadband. In addition to ORA’s analysis, described in more detail below, the FCC also found that fixed wireless broadband accounts for less than 1% of the total service connections in California.⁸³

b) Limited Availability

The Commission’s California Broadband Availability map provides evidence of fixed wireless broadband’s limited availability.⁸⁴ The map reveals that fixed wireless broadband generally serves rural, less populated areas to account for a lack of service from wireline broadband. The main reason for the limited availability of fixed wireless broadband comes from technological and geographical constraints.

Fixed wireless consists of a radio receiver that is installed on a home or business. The radio receiver is generally placed somewhere outside and near the top of the home or business, generally mounted on a roof. Inside wiring is then run from the radio receiver outside the house or business to a customer’s computer inside. In order for a customer to access the Internet, the home radio receiver connects the computer to the internet by communicating with an access point located a significant distance away. This access point then connects to the Internet through a high-speed backbone.⁸⁵

The significant technological limitation of fixed wireless broadband is that the radio receiver at the customer’s premises and the access point must have a direct line of sight. This can be problematic in rural areas with mountains, hills, trees, and buildings

⁸³ FCC, Internet Access Services: Status as of December 31, 2014, March 2016 at 34; FCC, 2016 Broadband Progress Report, January 29, 2016 at 18.

⁸⁴ See Exhibit 18, Attachments B and C.

⁸⁵ Smart Broadband website, available at <http://www.smarterbroadband.com/FAQ.htm>

that block a direct line of sight. In urban areas of California, most customers are left with wireline broadband as their only option due to a lack of service by fixed wireless broadband providers. For urban areas where fixed wireless service is available, there are still line of site obstructions due to buildings and other city infrastructure that can prove difficult to circumnavigate. As a consequence of these obstructions, customer service areas are never fully served and situations exist where a customer with access to fixed wireless broadband service may have a neighbor next door who may not have any access.

Therefore, the limited availability in either rural or urban parts of California means fixed wireless broadband cannot be considered a substitute to fixed wireline broadband.

c) Low Speeds

The most significant technological limitation of fixed wireless broadband service is speed. In California only 8 fixed wireless broadband companies advertise download speeds of 25 Mbps.⁸⁶ Only 3 known fixed wireless broadband providers go beyond 25 Mbps download speeds.⁸⁷ In general, most fixed wireless broadband companies offer speeds that are far inferior to the maximum download speeds offered by fixed wireline broadband providers and fail to meet the FCC definition of 25 Mbps upload and 3 Mbps download broadband. The low speeds of fixed wireless broadband compels the conclusion that it is not a substitute for fixed wireline broadband.

d) Higher Prices

Customers with fixed wireless broadband service pay a significantly higher price than customers of fixed wireline broadband. On the lower end, customers pay an average of \$61 per month for fixed wireless service at 1 Mbps download. Upgrading service to 7 Mbps costs an average of \$100 per month.⁸⁸ As an example, the monthly residential service cost of the three fixed wireless companies who offer download speeds greater

⁸⁶ Exhibit 18 at II-3, Attachment D.

⁸⁷ Softcom Internet Communications, available at <https://www.softcom.net/services/highspeed.html> ; Etheric Network, available at <http://ethericnetworks.com/rural-high-speed-internet/>; AeroSurf, available at <http://www.aerosurf.net/plans.asp>.

⁸⁸ Exhibit 18 at II-3, Attachment D.

than 25 Mbps are between \$200 to \$500 per month.⁸⁹ These prices far exceed the price of fixed wireline broadband services for the same speeds, which start at an average of \$58 a month for companies that offer fixed wireline broadband service such as AT&T, Comcast and Time Warner Cable.

B. The Impact of Bundles on Market Definition

Bundles play an important role in defining the telecommunications market. The carriers that provide bundles of voice, broadband and video do so over a common facilities network and utilize common organizational resources, while enjoying substantial economies of scope and scale. Together with first mover incumbency advantages, the ability to bundle voice, broadband and video services can operate to foreclose entry to standalone voice service providers and affect the market for telecommunications services. Therefore, bundles play a substantial role in limiting the telecommunications market to facilities based services due to the ability of facilities based bundled service providers to manage and limit competition from carriers who only provide non-bundled voice, video or broadband.

C. Facilities Based Services and Over The Top Voice

An analysis of California's telecommunications market must be confined to facilities based providers and not those providers, such as Competitive Local Exchange Carriers (CLECs), who are dependent upon an upstream provider for any major network facility input. Carriers that rely on capacity leased from facilities based providers, particularly where the lessor is itself a competitor in the same geographic and product market, offer no additional source of competition beyond that offered by the facilities based upstream provider. However, where there are independent local loop facilities in residential customer premises, then there exists full facilities based competition that should be included in an evaluation of a competitive market for telecommunications

⁸⁹ Softcom Internet Communications, available at <https://www.softcom.net/services/highspeed.html> ; Etheric Network, available at <http://ethericnetworks.com/rural-high-speed-internet/>; AeroSurf, available at <http://www.aerosurf.net/plans.asp>.

service in California. The FCC addressed this point in its May 2, 2016 *Business Data Services Order*, where the FCC stated the following:

As part of our data collection, carriers reported their aggregate Business Data Services revenues. These provide an approximate indication of the revenue shares of different provider types supplying sophisticated services to end users, that is, of revenue shares in the supply of Business Data Services and more complex managed services. ... [I]ndependent competitive LECs, that is, competitive LECs not affiliated with incumbent LECs, only capture 18% of Business Data Services revenues. However, this estimate is subject to three biases, which in aggregate overstate the shares of independent LECs. First, a greater proportion of incumbent LECs' sales of Business Data Services and managed services are Business Data Services as compared with competitive LECs, a bias that likely overstates incumbent LEC revenue shares. Second, *because a valid measure of concentration would measure facilities-based revenues, rather than resale revenues, and because a substantial proportion of incumbent LEC Business Data Services sales are to competitive LECs who then resell those services*, the preceding bias is likely to be more than offset (managed service revenues earned on the resale of incumbent LEC Business Data Services will be greater than the LEC Business Data Services sales to the resellers). Third, there is the bias identified immediately above from measuring national shares.²⁰

In the same Order, the FCC went on to state that, “[W]e do not consider competition over resold lines as a material competitive restraint on any facility-based supplier with market power.”²¹ Similarly, in order to evaluate the telecommunications market in California, ORA excludes from market share and competition analysis any competition that requires a competitor’s use of or access to service provided by a facilities based carrier.

For similar reasons, Over The Top (OTT) voice service is also not considered a valid part of the voice market in California as OTT relies on an underlying broadband infrastructure. Because the geographic availability of OTT is governed by the

²⁰ *Business Data Services Order*, FCC 16-54, April 28, 2016 at ¶ 217.

²¹ *Id.*, at ¶ 230.

availability and pricing of broadband, it is unable to compete directly with services offered by a facilities based provider of the underlying broadband service. The facilities based provider is in a position to manage and limit the demand for the competing dependent OTT service. For example, an OTT voice provider can be undercut by a facilities based provider that shifts revenues away from voice and onto the less competitive broadband service, so limiting the ability of the OTT provider to compete on an even playing field.

V. MEASURING THE MARKET

ORA provides sound metrics, unlike the carriers, to measure the telecommunications market in California using the Structure-Conduct-Performance framework, with market share and market concentration in the broadband market measured by the Herfindahl-Hirschman Index (HHI) and the Market Dominance Index (MDI). All three are described in more detail below.

ORA assesses competition in California based on a SCP framework, which is the industry standard in the field of Industrial Organization Economics used to assess market competition. To measure market concentration, ORA uses the HHI and a newly developed MDI, which provides a more granular analysis of market concentration. The MDI is a methodology that provides a detailed analysis of markets that are dominated by only one principal firm, even where more than one provider nominally offers broadband service in a particular census block.

In addition, ORA uses subscription data at the census block and/or census tract level, in addition to availability data, to provide a more detailed market power analysis. Previously, the Commission's Communications Division compiled and maintained broadband availability data at a census block level that assumed all households in a given census block had broadband availability. However, using subscription data, ORA has

been able to measure actual counts of household connections by each telecommunications carrier in California.⁹²

Using both the HHI and the MDI, ORA provides a granular analysis of the high market concentration in California and the monopolistic nature of the firms that operate in this market.

A. Structure-Conduct-Performance (SCP) Framework

The SCP paradigm is a concept that is fundamental to the field of industrial organization and, since the 1980s, has been used to study industries on a case-by-case basis. The SCP paradigm provides a useful framework to assess competition in the telecommunications market in California and identify specific instances of market failure. Once identified, targeted measures can be aimed at correcting the specific problem while minimally interfering with management prerogatives, innovation and investment. The SCP framework can be applied to monitor whether the telecommunications market in California is operating efficiently and if rates for services are just and reasonable.⁹³ The fundamental concept underlying the SCP paradigm is that there is an empirical relationship between observations about the structure and conduct of an industry and measures of performance. Ultimately, one should be able to predict market performance from observations of conduct, which in turn reflect the underlying structure of the relevant market. As a market becomes less competitive the workings of that market result in less desirable performance.

The three elements of structure, conduct and performance that are described in more detail below provide the framework for ORA's analysis of competition in the California telecommunications market.

⁹² See generally, Exhibit 16.

⁹³ See Exhibit 15 at pages 9-18 for a thorough overview of the SCP framework applied by ORA in this proceeding.

1. Structure

Structure refers to the intrinsic features of a market, such as the number and size distribution of buyers and sellers, product differentiation, the presence or absence of barriers to entry and the underlying cost characteristics of a market. Generally, while not dispositive, the prospect for an effective and robust competitive market is greater when a relatively large number of viable firms exist in that market rather than a single or very small number of participants. Listed below are a number of specific structural indicia that are most relevant to the SCP analysis conducted by ORA to assess competition in the California telecommunications market.²⁴

- Market share, concentration, and market power of infrastructure-based markets must be assessed only with respect to the specific geographic areas being served by each incumbent.
- The number and the relative size and strength of competing firms must be sufficient to engender actual price competition.
- Putatively competing services may not offer fully equivalent functionality in all respects.

2. Conduct

The actual conduct of carriers in the telecommunications market characterized by high levels of market share and market concentration can offer an indication of the presence or absence of market failure. The conduct element of the SCP framework, therefore, provides additional analysis to assess competition.

The following list provides conduct related principles that are examined, in general, by ORA and applied to the examination of California's telecommunications market in this proceeding.²⁵

- Persistently excessive earnings levels and pricing of the dominant firm or firms are an indication of a lack of effective competition.

²⁴ See Exhibit 15 at pages 22-49 for a more detailed description of structure related principles.

²⁵ See Exhibit 15 at pages 50-80 for a more detailed description of conduct related principles.

- Competitor dependence upon “essential” inputs from an upstream provider with substantial market power can undermine the effectiveness of competition, especially if the upstream provider is itself involved in the same downstream market.
- Persistent refusal on the part of a facilities-based service provider to deal with downstream entities is itself compelling evidence of that provider’s market power.

3. Performance

The power of the SCP paradigm lies in the recognition that market structure has a causal relationship to conduct and performance by carriers in the telecommunications market. Therefore, by measuring certain substandard performance metrics such as service quality, one can deduce that a market failure may exist. Performance, as part of the SCP paradigm, concerns such elements as allocative and technical efficiency, progressiveness, full employment, inflation, quality of the product or service and equity. Below is a list of the most important analysis principles relating to performance analyzed by ORA.²⁶

- Persistent service quality and customer service issues may suggest a lack of effective competition.
- A key factor in evaluating the performance of a deregulated telecommunications market is the extent to which effective and sustainable competition has been achieved.

B. Herfindahl–Hirschman Index

The Herfindahl–Hirschman Index (HHI) is a widely accepted measure of market concentration. The U.S. Department of Justice, the Federal Trade Commission, and state attorneys general have used the HHI since 1982 to measure market concentration. The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers.²⁷ For example, for a market consisting of four

²⁶ See Exhibit 15 at pages 81-89 for a more detailed description of conduct related principles.

²⁷ See, *Horizontal Merger Guidelines*, United States Department of Justice and the Federal Trade Commission, §5, available at: <http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf>

firms with market shares of 30%, 30%, 20%, and 20%, the HHI is 2,600 ($30^2 + 30^2 + 20^2 + 20^2 = 900 + 900 + 400 + 400 = 2,600$).

The HHI approaches zero when a market is occupied by a large number of firms of relatively equal size and reaches its maximum of 10,000 points when a market is controlled by a single firm. The HHI increases both as the number of firms in the market decreases and as the disparity in the market share of those firms increases.

Antitrust authorities in the United States generally classify markets into three types:

- Unconcentrated markets, where the HHI is below 1,500 points.
- Moderately concentrated markets, where the HHI is between 1,500 and 2,500 points; and
- Highly concentrated, where the HHI is in excess of 2,500 points.²⁸

To assess the broadband market, subscription and availability data is used at the census block and census tract level to provide a detailed and granular HHI calculation to measure telecommunications market share and market concentration in California. ORA performed separate calculations of market shares and market concentrations based on both subscription data and availability data. The HHI calculations based on availability are calculated on an individual census block basis while subscription based HHIs are calculated on a census tract basis as a number of carriers provided their subscriber counts only at the census tract level.²⁹ For the carriers that provided information at a census block level, the data was aggregated into a corresponding census tract so that comparable data could be analyzed. A census block is the smallest geographic unit used by the United States Census Bureau for tabulation of 100% data, i.e., data collected from all houses rather than a sample of houses. A census tract is a geographic region defined for the purpose of taking a census and is composed of groups of census blocks.

²⁸ *Id.*

²⁹ Exhibit 16.

For the analysis that relied on service availability data, market shares were estimated in a conservative way. That is, equal market shares were assigned to all firms that reported offering service in a particular census block. Thus, in census blocks served by two providers, the methodology assumes that each carrier provides service to 50% of the customers, which results in the HHI score of 5,000 ($50^2 + 50^2 = 5,000$). However, the actual subscription data might reveal that one carrier provides 70% of service to the census block, and the other carrier provides 30%. This results in an HHI of 5,800 ($70^2 + 30^2 = 4900 + 900 = 5800$). Using availability data is a more conservative approach that slightly underestimates market concentration and overestimates competition. Nonetheless, the HHI analysis based on availability data is important because it examines the market on a geographically-granular level: the census block. If the availability-based HHI indicates a highly concentrated market, a subscription-based HHI would almost always have an even higher HHI value.

C. Market Dominance Index

Market Dominance Index (MDI)¹⁰⁰ is a separate measurement of the extent to which one or two firms in a geographic market with at least two service providers dominate a given geographic area. The MDI discloses the relative size and strength of each provider in a specific area by measuring the deviation of actual market shares, based on subscription data, from the equal shares assumption underlying the availability based HHIs. As a result, an area that has a higher MDI will show a greater degree of market dominance by a single carrier while an area with a lower MDI will indicate that carriers are competing aggressively to the point where their respective market shares are equal. Therefore, a higher MDI indicates a greater relative dominance of one carrier.

Generally, where the MDI is significantly greater than 1.0, one can conclude that the market is dominated by one or by a very small number of firms, and that the competitive fringe is not successful in either gaining market share or in constraining the

¹⁰⁰ See Exhibit 15 at pages 58-63 for a more detailed overview of the Market Dominant Index.

market power of the dominant firm.¹⁰¹ By calculating an MDI, the Commission can gain an indication of the extent to which the presence of more than one firm in a given market is likely to make the market effectively competitive.

Because not all carriers were able to provide data at the census block level, MDI calculations were based on the most granular data available, the census tract level. For data that was provided at the census block level, it was rolled up into the corresponding census tracts to analyze broadly comparable data between the various carriers.

VI. ANALYZING THE MARKET

As discussed above, markets are generally defined with respect to the product market and the geographic market. Here, ORA's testimony examines two relevant product markets to determine whether competition exists in California's telecommunications market: 1) the wireline voice telephone service market, and 2) the residential broadband Internet access market at speeds of at least 25 Mbps download and 3 Mbps upload.

Analysis of the broadband market is specifically sought by the OII.¹⁰² Moreover, the broadband market represents the future of the telecommunications industry. Broadband enables consumers to participate in today's economy, and it is critical for education, health, innovation, safety, and other vital applications.

A. The "Voice" Market

The marketplace for voice services in California is effectively a duopoly between the incumbent dominant carriers and the cable companies. Nationwide, the dominant carriers provided 88.6% of the total switched access lines (wirelines) to residential customers.¹⁰³ In California, roughly half of all households obtain wireline service (either

¹⁰¹ Any census tract containing only a single provider is excluded from the MDI calculation since the provider would be a monopolist in that area and the HHI for such a tract would be 10,000, resulting in an MDI of 1.0.

¹⁰² See, e.g., IR #12.

¹⁰³ Exhibit 16 at Table 4, p. 15.

switched access or VOIP) from the ILECs (6,056,000 out of 12,501,000).¹⁰⁴ Roughly 25% of all other households (3,071,000 out of 12,501,000) obtain wireline voice service from the cable companies (VoIP).¹⁰⁵

Approximately a third of California consumers obtain wireline service through their broadband connection.¹⁰⁶ However, 87.4% of VOIP in California is provided by the same dominant ILECs and cable companies.¹⁰⁷

Nationwide, 94.2 % of voice services as a whole – switched access and VoIP – are being provided by either the dominant ILEC or the cable company. Clearly, there are an insufficient number of competitors to ensure that the voice market is an effectively competitive market.

**1. Market Conduct – Monopolistic Voice Providers
Make Excessive Earnings, Offer Poor Service
Quality, And Refuse To Deal With Competitors**

The market “conduct” element of Dr. Selwyn’s SCP analysis includes several factors: earnings, pricing, and refusal to deal. Carriers’ conduct in the marketplace offers compelling indicia of the lack of competition.

a) Earnings

Companies in a competitive market are generally unable to achieve and to sustain earnings levels that are materially in excess of economic cost.¹⁰⁸ If they do, competitors will reduce their prices so as to capture additional market share, and/or new firms will enter the market, thereby bidding prices down toward cost.

Unfortunately, due to the Commission’s policy of discontinuing requirements for financial reporting, we no longer have the detailed revenue, cost and earnings data for the

¹⁰⁴ Exhibit 16 at Table 2, p. 13.

¹⁰⁵ *Ibid.*

¹⁰⁶ Exhibit 16 at 13.

¹⁰⁷ Exhibit 16 at 17.

¹⁰⁸ Exhibit 16 at 74.

principal telecommunications service providers that had been available in the past.¹⁰⁹ As discussed below, for the next phase of this proceeding ORA recommends a proposal for the Commission to reinstate financial reporting requirements, including requiring segment-specific reports for areas where the Commission maintains regulatory authority, in order to support the ongoing monitoring that should be pursued.

However, even without detailed data on company earnings, there have been indicia of over-earnings. For example, since URF, Verizon has steadily increased its monthly rates for the formerly-price-regulated services without having to provide any specific cost justification for such increases.¹¹⁰ Last year, Verizon was able to monetize the increase in the value of its assets when it agreed to sell its local telephone business in California, Texas and Florida to Frontier for a price that was well in excess of the book value of its assets.¹¹¹ Under traditional regulation, prices and earnings levels would have been driven by the Company's net book value, resulting in a market value of the business that would have been close to the firm's net book value. Under deregulation, the market value of the firm is driven by the net present value of the stream of future earnings. To the extent that such earnings include supracompetitive profits, their net present value will exceed the net book value of the firm.

An escalating gap between book and market value is consistent with the ongoing exercise of market power and the imposition of excessive prices in those segments of the firm's business where minimal or no actual competition is present.¹¹² Ongoing monitoring of dominant firms' financial results will be useful in helping to identify specific situations where regulatory intervention may be appropriate.

¹⁰⁹ Exhibit 16 at 76.

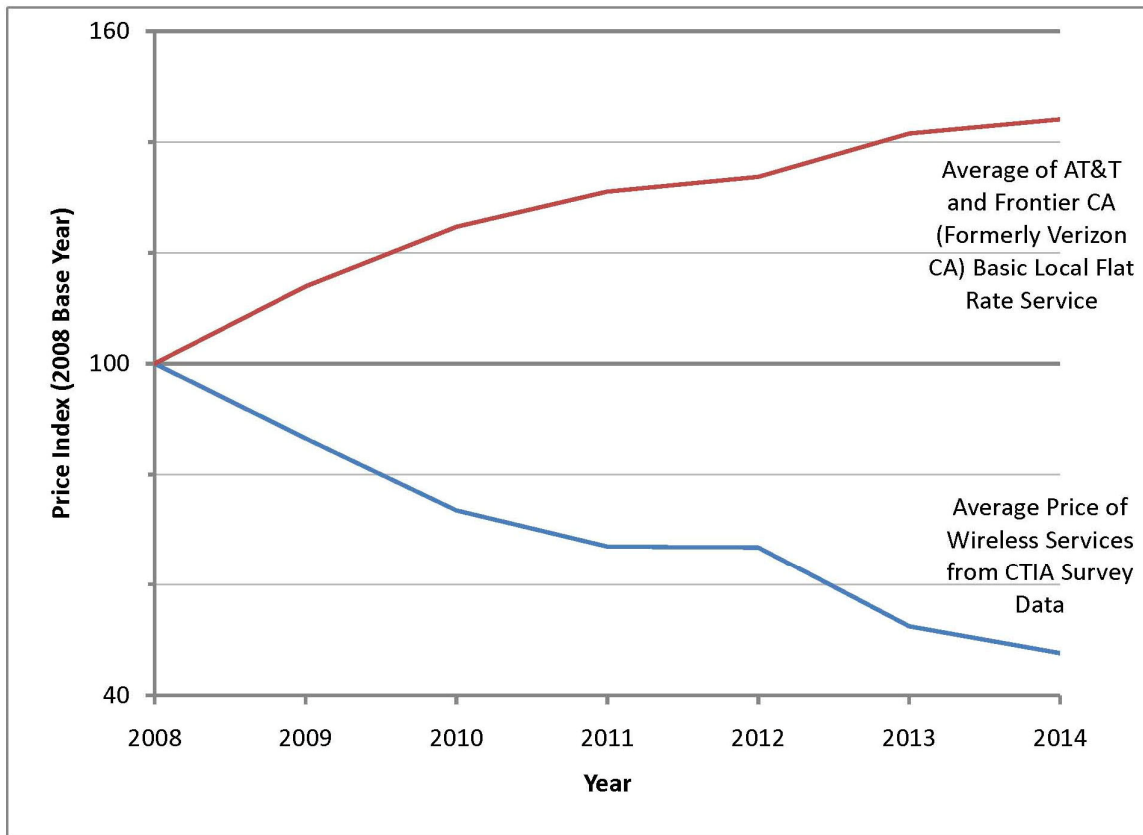
¹¹⁰ Exhibit 16 at 75.

¹¹¹ *Ibid.*

¹¹² *Ibid.*

b) Pricing

Residential wireline price levels have remained stagnant or have increased over the past decade.¹¹³ In contrast, wireless price levels, particularly when adjusted for changes in the nature and quantity of services that are included within the basic monthly recurring charge for wireless service, have been dropping steadily. The figure¹¹⁴ below illustrates the divergence of comparable wireline to wireless services.



The price data confirms the presence of distinct product markets.¹¹⁵ In its *Business Data Services Order*, the FCC observed that “[i]f two readily available services have substantially different prices, then they are likely dissimilar (otherwise buyers

¹¹³ Exhibit 16 at 76.

¹¹⁴ Exhibit 16, Figure 2 at 78.

¹¹⁵ Exhibit 16 at 76.

would prefer the cheaper service which would constrain the price of the other service).”¹¹⁶ If wireline and wireless voice services were in the same product market, over time the relationship between their prices would remain relatively stable; that is, price movements in both categories should be similar.¹¹⁷ The graph above demonstrates that this is not happening.

Not only have the prices for wireline voice services remained stagnant or increased, but wireless plans have evolved in a number of increased or additional ways.¹¹⁸ For example, wireless plans typically include increased or unlimited minutes, free calling between subscribers of the same carrier, unlimited text messaging, and wireless internet access, for a steadily decreasing price.¹¹⁹ Wireline, which is not competitive, has had little or no increase in the quality of the services provided. In a non-competitive market, one would expect the prices to steadily increase, and that is what the data shows has been occurring.¹²⁰

Wireless prices are clearly *not* constraining wireline prices. In the decade since the adoption of URF, wireline prices in California have risen by roughly 40%, while wireless prices have fallen by approximately 50%.¹²¹

c) Refusal to deal

Since initial adoption of the 1996 Telecommunications Act, ILECs have been actively seeking to limit the scope of their unbundling and wholesale services obligations.¹²² ILECs and cable companies have steadfastly resisted offering wholesale access to competitors for resale, and have engaged in protracted litigation and in

¹¹⁶ FCC, *Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143 *et al*, *Tariff Investigation Order and Further Notice of Proposed Rulemaking*, rel. May 2, 2016, FCC 16-54 (“*Business Data Services Order*”), at para. 192.

¹¹⁷ *Ibid.*

¹¹⁸ Exhibit 16 at 77.

¹¹⁹ *Ibid.*

¹²⁰ Exhibit 16 at 78. See Table 14 of Exhibit 16, at p. 81.

¹²¹ Exhibit 16 at 78, Figure 2.

¹²² Exhibit 16 at 86.

regulatory/legislative efforts to forestall any requirement that they do so.¹²³ In 2004, these efforts resulted in the *USTA II* ruling by the D.C. Circuit that eliminated the requirement to provide so-called Unbundled Network Element Platform (UNE-P) services to competing carriers at rates based upon incremental cost.¹²⁴ Moreover, UNEs rely on copper facilities, which are rapidly being retired, and ILECs are not required to provide CLECs with access to any fiber loops that may have been deployed.¹²⁵

By contrast, wireless carriers voluntarily offer wholesale services to competing retail service providers, including the facilitation of extended area coverage for regional carriers and “private label” coverage for competing providers.¹²⁶ Willingness to offer wholesale services is consistent with a more competitive market condition, since it enables each of the facilities-based incumbents to leverage their overall retail market reach by utilizing the retail distribution resources of other providers.¹²⁷

d) Service Quality

As described in Dr. Selwyn’s testimony, many consumers in California lack an alternative to obtain telecommunications services and have no choice but to accept persistent poor service quality from their service provider.¹²⁸ Without choices, customers cannot choose the carrier that offers better quality. Thus, persistent service quality problems are indicative of the lack of effective competition in California.¹²⁹ The Commission has reasoned that if a carrier “prices its services too high or if its service

¹²³ Exhibit 15 at 69-70; See *Inquiry Concerning High-Speed Access to the Internet over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking*, 17 F.C.C.R. 4798 (2002) (*Cable Modem Declaratory Ruling*), *aff’d sub nom. Nat’l Cable & Telecomm. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967 (2005); *Appropriate Framework for Broadband Access to the Internet over Wireline Facils., Report and Order and Notice of Proposed Rulemaking*, 20 F.C.C.R. 14853 (2005) (*BWIA Order*); *Verizon v. FCC*, DC Circuit No. 11-1355 (2014).

¹²⁴ *United States Telecom Association v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) (*USTA II*).

¹²⁵ Exhibit 24 at 22.

¹²⁶ Exhibit 16 at 86.

¹²⁷ *Ibid.*

¹²⁸ Exhibit 19 at 6.

¹²⁹ Exhibit 19 at 5.

quality deteriorates, customers will have the incentive to switch to a lower-priced or better-quality carrier.”¹³⁰ Persistently poor service is both an indication of – and a result of – a lack of competitive choice.

Poor service quality and reliability in California’s wireline voice market is widespread, as discussed below. Poor service quality is also present in the market for wireless telephone service and for Internet service providers, which the URF decisions cite as competitive alternatives to traditional voice service, which is discussed in Section VI.B.4, below.

(1) Poor Customer Satisfaction Ratings

Wireline telephone service receives among the lowest customer satisfaction ratings compared to other industries.¹³¹ The only industries that consistently receive customer satisfaction ratings below those of wireline service are Internet access and cable television service.¹³² ORA’s testimony looked at two well-regarded indexes of customer satisfaction, the American Customer Satisfaction Index for wireline, and the Temkin Group Ratings Index, which measures Internet access service quality of service (discussed in VI.B.4, below).

(a) American Customer Satisfaction Index Ratings

The American Customer Satisfaction Index (ACSI) conducts highly regarded national studies of customer satisfaction among hundreds of companies.¹³³ The ACSI captures customer opinions about critical elements of the customer experience, including reliability, speeds, outages, video steaming, variety of plans, data security, billing and customer service.

¹³⁰ D.06-08-030.

¹³¹ Exhibit 19 at 5.

¹³² *Ibid.*

¹³³ Exhibit 19 at 6.

The ACSI developed a benchmark score for each industry to serve as a standard for assessing each industry's customer satisfaction over time.¹³⁴ Beginning in the 1990s, wireline services has seen the largest downward trend in customer satisfaction. Wireline service has demonstrated the largest decrease in customer satisfaction out of the 43 industries rated by ACSI, dropping by 14.8% compared to its individual industry benchmark (while the 8 cross-industry National ACSI score was stable, dropping only by only 0.1%).¹³⁵ Since the 2000s, wireline service's ACSI score has remained in the bottom 20% of the industries rated.

(2) CPUC Service Quality Standards

Wireline telephone carriers that utilize traditional telephone circuit-switched technology (not VoIP) must report metrics to the Commission and meet minimum standards of service quality subject to General Order (GO) 133-C.

GO 133-C measures telephone service installation intervals, installation commitments, customer trouble reports, out of service repair intervals, and answer time to speak to a live agent.¹³⁶ Failure to meet the minimum standards of service reflects sub-standard, poor service quality.

The Commission's Out of Service (OOS) Repair Interval measures the time it takes to restore service after an outage.¹³⁷ Companies must repair within 24 hours at least 90% of all OOS reports every month.¹³⁸ AT&T and Verizon, which operate approximately 88% of the lines covered by G.O. 133-C, failed to meet the minimum OOS standard for every single month from 2010 through 2015.¹³⁹ As little as 50% of AT&T's OOS reports were repaired within 24 hours in 2010.¹⁴⁰

¹³⁴ Exhibit 19 at 7.

¹³⁵ Exhibit 19 at 7.

¹³⁶ GO 133-C at Sections 1.1.a. and 2.1.

¹³⁷ Exhibit 19 at 13.

¹³⁸ Exhibit 19 at 13.

¹³⁹ Exhibit 19 at 13.

¹⁴⁰ See Table 3 of Exhibit 19, at 14.

GO 133-C also measures the duration of the outages. AT&T and Verizon had outages that averaged well over 24 hours in duration for many years.¹⁴¹

“Answer Time” is another metric measured by GO 133-C.¹⁴² The Answer Time metric measure the time to reach a live agent. The Commission’s minimum standard for service quality is that at least 80% of calls every month should reach a live agent within 60 seconds.¹⁴³ Verizon failed to reach the minimum standard for every month between 2010 and 2015.¹⁴⁴ AT&T and Frontier had consistently poor results as well.¹⁴⁵

(3) FCC Network Outage Reporting System

The FCC established the Network Outage Reporting System (NORS), regarding the most significant major service outages affecting large numbers of people.¹⁴⁶ NORS reports include the duration of the outage, the number of affected users, the geographic area affected and the causes of the outage. The FCC collects outage data from wireline telephone providers as well as VoIP providers.¹⁴⁷ The majority of NORS reports involve outages that are reportable because they involve at least 900,000 user minutes, a 911 facility, or a DS3 network line.

ORA looked at NORS data from January 2010 and December 2014, from the carriers that recently participated in change of control applications here at the Commission. Because of these proceedings, ORA was able to obtain data. However, AT&T was not involved in a recent merger and therefore ORA does not have NORS data for it.

For this period, Verizon California had an extremely large number of NORS-reportable outages, and these outages affected a significant amount of users (both

¹⁴¹ See Table 4 of Exhibit 19, at 15.

¹⁴² Exhibit 19 at 16.

¹⁴³ *Ibid.*

¹⁴⁴ See Table 6 of Exhibit 19, at 17.

¹⁴⁵ *Ibid.*

¹⁴⁶ Exhibit 19 at 17.

¹⁴⁷ *Ibid.*

wireline or VoIP users). As discussed above, Verizon was continuously out of compliance with the CPUC's standard for timely repair of service outages. Verizon's outages reported under the criteria of 900,000 user minutes affected – which signify the most widespread outages – lasted significantly longer.¹⁴⁸ Frontier, a smaller carrier that has recently acquired Verizon California's wireline telephone business, had a smaller number of outages than Verizon, but nevertheless substantial.¹⁴⁹ Frontier's NORS reports show excessive outage duration times.¹⁵⁰

B. The Market for Broadband Services

The OII solicits the parties' positions on competition for “advanced telecommunications services at the national standard of 25 Mbps down (and 3 Mbps up).”¹⁵¹ ORA provides the testimony of Dr. Selwyn on this issue, which addresses several aspects of broadband competition at such speeds.

The extensive data obtained and reviewed by ORA demonstrates that the broadband market at speeds of 25/3 is not an effectively competitive market. Consumer choice for broadband services at these speeds in California is severely limited. Almost 70% of households in California have a choice of only one broadband provider.¹⁵² About 24% have only two choices. Approximately 5% of households have no broadband option at all. Even in densely populated areas in California, the lack of choice is roughly the same – 69% have only one choice, and 25% have two choices.¹⁵³

Using availability and/or subscription data from the carriers, ORA has calculated the level of market concentration. The results are alarming – in every county in California, the market is highly concentrated, with an HHI number based on either availability or subscription data, far above 2,500, which is the level deemed by the U.S.

¹⁴⁸ Exhibit 19 at 21.

¹⁴⁹ Exhibit 19 at 25.

¹⁵⁰ See Table 12 of Exhibit 19, at 26.

¹⁵¹ OII at Appendix B, IR #12.

¹⁵² Exhibit 16, Executive Summary at viii. See also Table 8 of Exhibit 16, at 46.

Department of Justice to be highly concentrated. In fact, most California counties have HHI numbers 3 to 4 times the minimum level – ranging from 7,000 to 10,000, which indicates the very highest levels of concentration.

The Market Dominance Index described above, reaffirms the HHI analyses performed. It also shows a clear pattern of extreme dominance by a single provider in virtually every county in California.

Continuously rising prices corroborates the HHI and MDI indexes. Residential broadband prices have increased 28.6% on average since 2006.¹⁵⁴ ORA’s analysis is further corroborated and supported by the latest FCC report on Internet access, which shows that nationally 78% of census blocks have access to zero or 1 broadband provider, and 19% have access to 2 broadband providers.¹⁵⁵ It should be noted that the FCC’s report utilizes “deployment” data for its analysis, which is a measure of the availability of broadband access in each census block. As explained above, using availability of broadband access, rather than actual subscription number data, tends to lower the concentration indexes.¹⁵⁶

1. Data Analyzed

In response to IR #6, ORA obtained a wealth of data from respondents to the OII. IR #6 requested information regarding the availability of broadband services to customers, as well as the number of customer subscribers for each carrier, broken down by: 1) number of households passed; 2) number of households subscribed (by census block); 3) number of businesses passed; 4) number of business subscribers; and 5) distribution of customers by speed tier. The data permitted ORA to conduct an

(continued from previous page)

¹⁵³ *Ibid.*

¹⁵⁴ Exhibit 19, Executive Summary at page ix.

¹⁵⁵ See Figure 5 at page 8, “Percentages of Developed Census Blocks in which Providers Reported the Deployment of Residential Fixed Broadband as of June 30, 2015”, FCC report on “Internet Access Services: Status as of June 30, 2015” issued August 2016.

¹⁵⁶ Using availability data, two carriers in one census block results in an HHI score of 5,000. However, if one carrier provides 70% of service to the census block, and the other carrier provides 30%, the HHI is 5,800 ($70^2 + 30^2 = 4900 + 900 = 5800$).

analysis of availability (households passed), as well as the number of actual subscribers for each carrier for each census block. The availability of data for households passed as well as subscribership permits a more detailed market power analysis.

As discussed in Dr. Selwyn’s testimony, he applies the “Structure-Conduct-Performance” paradigm for his analysis.

2. Market Structure – California Is Highly Concentrated Market

All areas of the state, from the most urban to the most rural, have HHIs (for both availability and for subscriptions) that fall in the “highly concentrated” range.¹⁵⁷ The MDIs for each county indicate significant and in some cases near total market dominance by a single firm, with very few exceptions.

Table 11A of Exhibit 16 shows astronomically high HHIs and MDIs for each county. Notable counties in California include:

County	Household Passed	Broadband Availability	Subs HH1	Avail. HH1	MDI
Alameda	554,954	541,512	8,346	7,925	1.229
Contra Costa	382,883	373,647	8,456	8,085	1.235
Los Angeles	3,285,160	3,272,840	8,113	8,440	1.179
Orange	1,012,422	985,118	9,097	9,229	1.182
Riverside	706,222	684,157	6,744	7,489	1.122
Sacramento	521,639	497,345	9,051	8,358	1.216
San Bernardino	620,812	585,865	6,741	7,603	1.129
San Diego	1,113,250	,066,010	9,697	9,614	1.091

¹⁵⁷ Exhibit 16 at 63.

San Francisco	364,363	363,488	6,556	5,708	1.524
Santa Clara	625,869	597,657	9,361	9,141	1.155

ORA further analyzed Consolidated Statistical Areas (CSAs), which groups together the largest Metropolitan Statistical Areas (MSAs). The largest CSAs are LA/Long Beach CSA, SF/Oakland/San Jose CSA, and Sacramento CSA. The data shows that these CSAs also have very highly concentrated markets – LA/Long Beach has an HHI of 7,961; SF/Oakland/SJ has an HHI of 8,405; and Sacramento has an HHI of 9,079.¹⁵⁸

At speeds of 25/3, in 87% of California census blocks customers have zero or one choice for broadband provider. Counting by census blocks, the data shows that 312,000 (44%) have zero broadband providers available to them. In 307,699 census blocks (43.4%), consumers have exactly one choice. Only 12% (85,170) have 2 choices, and only 4% have 3 or more (0.6%).¹⁵⁹

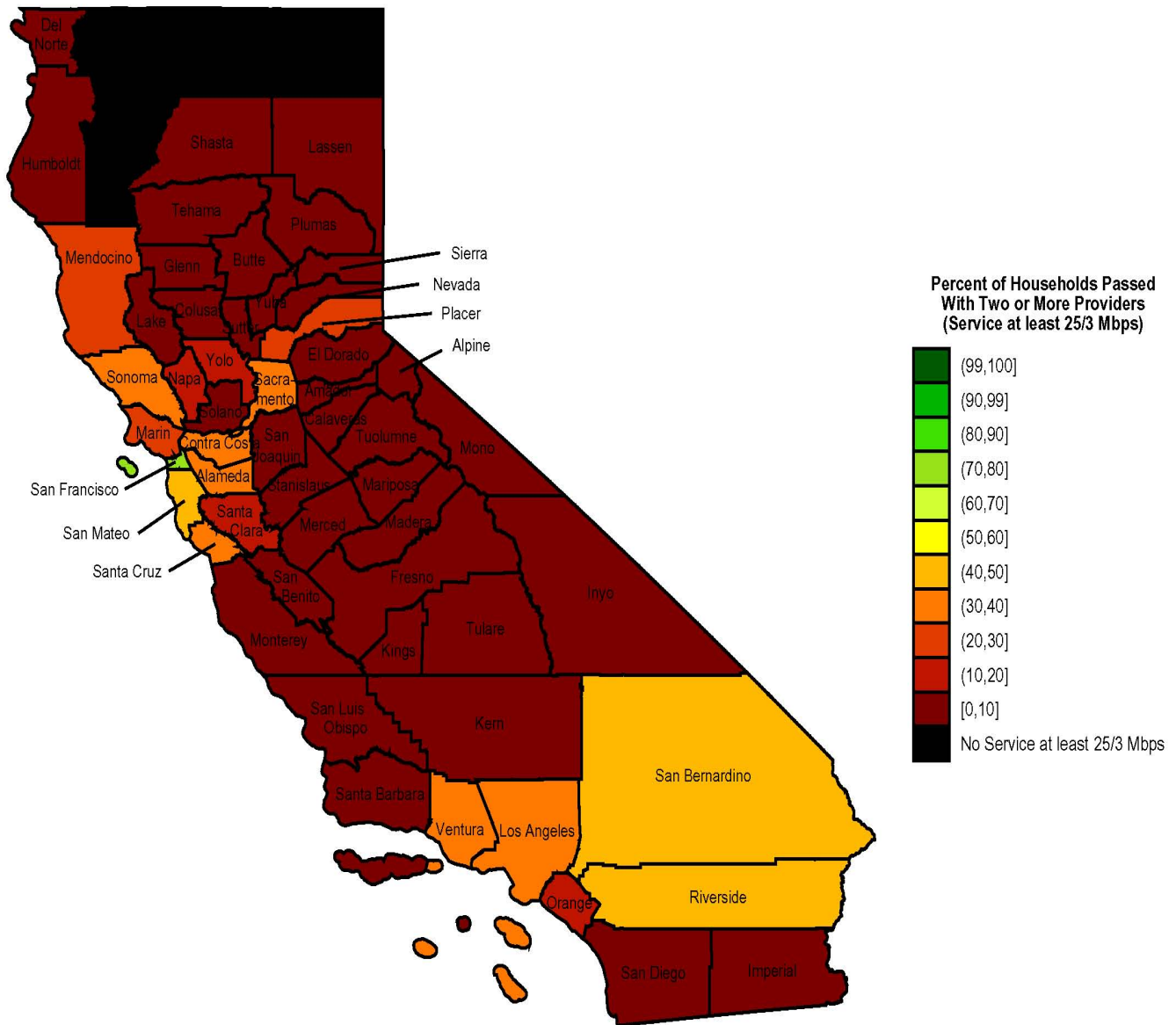
For 75% of California households, customers have zero or one choice of broadband provider at 25/3. There are 12,830,480 households in California.¹⁶⁰ Of those, about 6% (751,555) have no broadband provider available to them. About 69% (8,839,686) have only 1 provider, and only 24% (3,037,259) have 2 providers available. A mere 1.6% of households in California have 3 or more providers. Again, California is a demonstrably concentrated market. The graphic below is a good illustration of these numbers, by county.

¹⁵⁸ Exhibit 16 at Table 12, p.68.

¹⁵⁹ Exhibit 16 at Table 8, p. 46.

¹⁶⁰ Exhibit 16 at Table 8, p. 46.

Percent of Households Passed
 With Two or More Providers: At Least 25/3 Broadband
 CA Counties, 2015



Shapefile: <http://scec.usc.edu/internships/useit/content/california-counties-shapefiles>

a) **Broadband Pricing**

In a non-competitive market, prices increase steadily over time while innovation stagnates.¹⁶¹ A chart presented by ORA illustrates the steady broadband price increases since URF.¹⁶² The data shows steady increases for all of the major wireline broadband providers – ATT, Verizon, Comcast, Cox, Consolidated (Surewest), and TWC.

The computer market is analogous. While technological gains in processor speeds and storage capacities have steadily gained, competition for these items (PCs, laptops, tablets, smartphones) has driven prices downward.¹⁶³

However, in the broadband market, increased speeds have been driven by the FCC, which has on occasion increased the minimum standard speeds for downloads and uploads.¹⁶⁴ But while broadband speeds have increased incrementally, broadband prices have continued to escalate. Clearly, the competitive forces that have brought down the costs and prices of digital hardware have not been operative in the case of broadband service.

3. **Refusal to Deal**

Broadband providers, unlike the ILECs, are under no obligation to provide unbundled network elements for resale to competitors.¹⁶⁵ UNEs rely on copper facilities, which are rapidly being retired, and ILECs that provide broadband are not required to provide CLECs with access to any fiber loops that may have been deployed.¹⁶⁶ In 2015, the FCC's *Open Internet Order*¹⁶⁷ reclassified cable broadband Internet access as a Title

¹⁶¹ Exhibit 16 at 78.

¹⁶² Exhibit 16 at Figure 3, p. 80.

¹⁶³ Exhibit 16 at 79.

¹⁶⁴ Exhibit 16 at 79, citing to FCC, *Connecting America: The National Broadband Plan*, March 17, 2010, at 135.

¹⁶⁵ Exhibit 16 at 84.

¹⁶⁶ Exhibit 24 at 22.

¹⁶⁷ *Protecting and Promoting the Open Internet*, FCC GN Docket No. 14-28, *Report and Order on Remand, Declaratory Ruling, and Order*, Adopted: Feb. 26, 2015; Rel: March 12, 2015, FCC 15-24 (“*Open Internet Order*”).

II telecommunications service and made their providers subject to Title II common carrier status, but expressly forbore from subjecting cable MSOs to most common carrier requirements, including the various unbundling and wholesale services requirements of Sections 251 and 252 of the Telecommunications Act of 1996.¹⁶⁸

ORA obtained data regarding the last-mile facilities provided by cable companies to competitive carriers in California, from Charter and TWC.¹⁶⁹ The data showed that Charter and TWC do not provide any last-mile wholesale voice or broadband access services to competing residential service providers in California. By engaging in such “refusal to deal,” the cable companies are protecting their retail-level market while denying customers the opportunity to shop for potentially lower priced alternatives that utilize the same infrastructure used by the cable companies themselves.¹⁷⁰ Persistent refusals to deal are consistent with high market concentration and market power on the part of the incumbent service providers.¹⁷¹

4. Service Quality

As discussed above, persistent service quality and customer service problems are another indication of insufficient competition.¹⁷² The broadband market shows the same problems with poor service quality as the voice market described above. Because of the lack of competition, Internet access providers have little incentive to increase customer service. Thus, these providers have similarly low customer satisfaction ratings, and poor quality of service, as the non-competitive voice providers described above.

¹⁶⁸ *Id.*, at para. 203.

¹⁶⁹ Exhibit 16 at 85.

¹⁷⁰ Exhibit 16 at 85.

¹⁷¹ *Ibid.*

¹⁷² Exhibit 15 at 81.

(a) ACSI Customer Satisfaction Scores For Internet Access Providers

From 2010 to 2015, Internet access providers had very low customer satisfaction scores, ranking at the very bottom of the industries ranked.¹⁷³ As an industry, Internet access providers ranked 43rd (out of 43 industries ranked) in 2014, and 42nd (out of 43 industries ranked) in 2015. Poor customer satisfaction is not an anomaly with these companies; it is the standard of service.¹⁷⁴

(b) Temkin Group Ratings

The Temkin Group rates the customer satisfaction of more than 100 companies in approximately 19 different industries nationwide.¹⁷⁵ The Temkin Group measures various facets of customer interaction, including customer experience, loyalty, trust in the company, web experience, and customer service.¹⁷⁶ Temkin rates Internet access service providers, but wireline telephone service is not among the industries rated by Temkin.

From 2012 through 2015, Internet access providers received among the worst Temkin Customer Service Ratings of the approximately 19 industries rated.¹⁷⁷ In 2015, Temkin rated 20 industries – and Internet access providers rated last.

(c) CPUC Service Quality Standards

VoIP providers are not currently subject to the data reporting requirements of G.O. 133-C. However, Charter and Time Warner Cable were involved in recent change of control transaction applications, and provided data regarding their residential voice outages to ORA. This data is marked confidential, and is provided to the Commission in the confidential version of ORA's testimony.¹⁷⁸

¹⁷³ Exhibit 19 at 8.

¹⁷⁴ Exhibit 19 at 8.

¹⁷⁵ Exhibit 19 at 9.

¹⁷⁶ *Ibid.*

¹⁷⁷ See Table 2 of Exhibit 19, at 10.

¹⁷⁸ See Table 5 of Exhibit 19, at 16.

(d) FCC Network Outage Reporting System

As discussed above, ORA analyzed NORS data obtained in the merger proceedings, which did not include AT&T. VoIP providers as well as wireline telephone service providers are required to report outage data including the duration of the outage, the number of affected users, the geographic area affected and the causes of the outage.¹⁷⁹

In addition to Frontier and Verizon discussed above, Charter, Time Warner Cable, and Comcast also provided NORS data affecting their voice services (provided through VoIP), showing a large number of outages that affected many, many customers. The data is provided in ORA's confidential testimony.¹⁸⁰ The data was obtained for the years 2011 to August 2015, showing a concerning trend of increasing number and duration of outages. For example, Charter and TWC showed a marked increase in 2015 in outage duration.¹⁸¹ Similarly, Comcast data shows a marked increase in the number of user minutes affected by the outages, as well as the duration of the average outage.¹⁸²

5. Failure of the Deregulation of the Business Broadband Market – FCC *Business Data Services* *Order*

Recent findings and initiatives by the FCC corroborate and support the findings in California regarding the lack of competition, and may be useful in guiding the development of appropriate regulatory treatment of consumer voice and broadband services going forward.¹⁸³

During the 1990s, limited and geographically targeted competition for last-mile special access type Internet services began to develop in the form of dedicated fiber optic loops with connections to specific large commercial buildings and building complexes in

¹⁷⁹ Exhibit 19 at 17.

¹⁸⁰ See Table 8 of Exhibit 19, at 22. It should be noted that TWC failed to file a substantial number of NORS reports, and was fined \$1.1 million by the FCC as a result. *In the Matter of Time Warner, Inc.*, FCC DA 14-1126, Released Aug. 25, 2014, at ¶1.

¹⁸¹ See confidential Figure 4 and Table 10 of Exhibit 19, at 23-25.

¹⁸² See confidential Tables 13-14 of Exhibit 19, at 27.

¹⁸³ Exhibit 19 at 91.

central business districts in major cities.¹⁸⁴ In response, in 1999 the FCC established a process for introducing “pricing flexibility” in the markets where certain conditions – referred to as “triggers” – could be demonstrated to have arisen.¹⁸⁵ However, the FCC has now come to recognize that certain of the metrics it had used to assess the level of competition were overly simplistic, leading to premature and inappropriate removal of price constraints on significant portions of this market.¹⁸⁶

The FCC’s reconsideration began in 2006, when the federal Government Accountability Office (GAO) issued a report critical of the FCC’s “triggers” as the device for assessing the level of competition.¹⁸⁷ As summarized in the FCC’s *Business Data Services Order*: “The GAO found that facilities-based competition was not evenly distributed throughout an MSA, but typically existed in a small subset of buildings in an MSA, and that demand concentration drives competitor deployment. The GAO also found that on average, the prices and revenues of price cap incumbent LECs had increased in areas where the Commission had granted Phase II pricing flexibility.”¹⁸⁸ As a result, in 2012 the FCC’s Wireline Competition Bureau initiated an extensive data collection effort, requiring carrier submissions of a broad range of market data on business-only fiber optic loops. The FCC’s *Business Data Services Order* presents the results of that effort and proposes a set of regulatory measures designed to better protect customers and competitors with respect to specific services for which effective competition is not yet present. The FCC’s Order concluded that the reliance by entrants on underlying wholesale facilities leased from facilities-based carriers (mostly from

¹⁸⁴ Exhibit 19 at 92.

¹⁸⁵ *Access Charge Reform, CC Docket No. 96-262; Price Cap Performance Review for Local Exchange Carriers, CC Docket No. 94-1 et al., Fifth Report and Order and Further Notice of Proposed Rulemaking*, 14 FCC Rcd 14221 (1999) (“*Pricing Flexibility Order*”).

¹⁸⁶ Exhibit 19 at 92.

¹⁸⁷ Exhibit 19 at 95.

¹⁸⁸ *Business Data Services Order*, FCC 16-54, April 28, 2016 at ¶ 23.

ILECs) can be a cost effective means for a CLEC to expand its reach, but such a wholesale purchaser cannot place competitive pressure on supply of the underlying facility that it purchases, but rather can only compete by being more efficient at retailing, thus not providing a material competitive restraint on any facility-based supplier with market power.¹⁸⁹

Although the FCC's *Business Data Services Order* focuses specifically on Business Data Services furnished by facilities-based carriers to other carriers (including CLECs) and wireless providers, the nature of its findings and the scope of the specific remedial measures it both implements and proposes are broadly applicable to all telecommunications services. The relevance to this proceeding is that overly simplistic indicia of the presence of competition, such as the "collocation triggers" that the FCC had used as the basis for designating an entire MSA as "competitive" and thus subject to pricing flexibility, will not and cannot be expected to yield reliably competitive results.¹⁹⁰

The ultimate conclusions and recommendations by the FCC are particularly instructive here. In particular, the FCC noted that it had been ten years since the start of the Business Data Services rulemaking, and therefore the court stated "[w]e believe that Commission action on price caps is over a decade overdue."¹⁹¹

VII. LACK OF A COMPETITIVE MARKETPLACE RESULTS IN RATES THAT ARE NO LONGER "JUST AND REASONABLE," IN VIOLATION OF SECTION 451

In URF I, the Commission recognized the California Legislature's directive to support competitive markets as laid out in Public Utilities Code Sections 709 and 709.5.¹⁹² However, the Commission also noted that reliance on an open and competitive voice communications market would not be beneficial, much less legal, if "elimination of

¹⁸⁹ *Business Data Services Order*, at ¶ 230.

¹⁹⁰ Exhibit 19 at 100.

¹⁹¹ *Business Data Services Order*, at ¶ 345.

¹⁹² D.06-08-030 at 31.

regulation would result in rates being set above “just and reasonable” levels” in violation of Section 451.¹⁹³ Section 451 provides:

All charges demanded or received by any public utility, or by any two or more public utilities, for any product or commodity furnished or to be furnished or any service rendered or to be rendered shall be just and reasonable.

In URF I, the Commission specifically stated its goal to “address whether we can rely on market forces...to ensure that rates are ‘just and reasonable.’”¹⁹⁴ This reliance was based on whether “the California market for telecommunications services is sufficiently competitive to enable California to replace current ILEC price regulations with a reliance on competitive market forces.”¹⁹⁵ The Commission concluded that it was, because the carriers “lack the ability to limit the supply of telecommunications services in [the] voice communications market, and therefore lack the market power needed to sustain prices above the levels that a competitive market would produce.”¹⁹⁶

What is clear is that the carriers do in fact have market power sufficient to raise and sustain prices above what a competitive market would support. ORA’s analysis shows high concentration, minimal opportunities for entry, high prices, high minimum efficient scale, poor service quality, and lack of consumer choice, indicating and pointing to a non-competitive market. Market forces cannot, and probably never could, constrain prices and enhance services in the telecommunications marketplace under its current structure. Thus, the Commission’s current policy has been detrimental for consumers and violates Section 451.

VIII. UNDERLYING CAUSES OF MARKET CONCENTRATION

A decade of experience under the current regulatory regime demonstrates that it is unrealistic to apply the same “uniform” regulatory treatment to dominant incumbent

¹⁹³ *Id.* at 4.

¹⁹⁴ *Id.* at 52.

¹⁹⁵ *Id.* at

¹⁹⁶ *Id.* at 117.

providers and to nascent and fringe competitors.¹⁹⁷ The massive capital investments needed to achieve a ubiquitous telecommunications facilities infrastructure require a Minimum Efficient Scale (MES) of operations that is incapable of supporting more than one or, at most, two providers.¹⁹⁸ Indeed, the recent spate of large telecommunications mergers has been supported by claims of even greater efficiencies expected to result from further increases in the scale of the post-merger entity. The passage of time will not alter this condition, and regulatory policy must finally be modified to recognize this reality.¹⁹⁹

As the recent “change of control” proceedings before this Commission have demonstrated, it is unlikely to have large number of facilities-based providers in most places in California, much less two or three facilities-based providers. Instead, as mergers and acquisitions continue to occur, the market shrinks further. Where construction of a facilities-based distribution infrastructure is involved, there are formidable, and frequently insurmountable, economic barriers to facilities-based entry, and as such it may be unrealistic to expect additional facilities-based entry to occur.²⁰⁰ Moreover, in the handful of markets where an entrant might choose to overbuild an existing distribution network (e.g., Google fiber in a few selected markets – not California), incumbents are not bound by any uniform national – or even statewide – pricing constraints, and are free to target any market where entry, or the threat of entry, occurs, shifting profits generated in monopoly or near-monopoly markets to cover any short-term losses arising from such selective price targeting.²⁰¹ One need look no further than the airline industry, where such market-specific city-pair pricing tactics are rampant.²⁰²

¹⁹⁷ Exhibit 19 at 7.

¹⁹⁸ *Ibid.*

¹⁹⁹ Exhibit 16 at Executive Summary, p. ix.

²⁰⁰ Exhibit 19 at 29.

²⁰¹ *Ibid.*

²⁰² Exhibit 16 at 29.

From the beginning of opening up competition in telecommunications markets, policymakers recognized that entrants would not be able to replicate the core infrastructure of the incumbent local and long distance carriers, and that eliminating legal barriers to entry would not be sufficient by itself to bring about competition in core telecommunications markets.²⁰³ The federal *Telecommunications Act of 1996* expressly required that ILECs offer services at wholesale for resale by retail service providers, and that UNEs be available at incremental cost-based rates to competitive local carriers. As described in more detail in the CALTEL Rebuttal Testimony,²⁰⁴ after the acquisitions of the former AT&T and MCI CLECs, and the D.C. Circuit Court's removal of the UNE platform as an initial entry mechanism, the remaining CLECs determined that they did not have sufficient interest or resources to pursue a cost proceeding to set permanent UNE rates, invest in collocation arrangements, and to develop interfaces to support the necessary ordering, provisioning, maintenance and billing capabilities.²⁰⁵ As a practical matter CLECs do not rely on UNEs in California outside of AT&T's and the former Verizon footprints.²⁰⁶ In addition, UNEs rely on copper facilities, which are rapidly being retired, and ILECs are not required to provide CLECs with access to any fiber loops that may have been deployed.²⁰⁷ ILECs and cable companies have steadfastly resisted offering wholesale access to competitors for resale, and have engaged in protracted litigation and in regulatory/legislative efforts to forestall any requirement that they do so, which corroborates ORA's evidence that carriers persistently refuse to deal.²⁰⁸

²⁰³ Exhibit 19 at 82.

²⁰⁴ Exhibit 24.

²⁰⁵ Exhibit 24 at 14.

²⁰⁶ *Ibid.*

²⁰⁷ Exhibit 24 at 22.

²⁰⁸ Exhibit 15 at 69-70; See *Inquiry Concerning High-Speed Access to the Internet over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking*, 17 F.C.C.R. 4798 (2002) (*Cable Modem Declaratory Ruling*), *aff'd sub nom. Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967 (2005); *Appropriate Framework for Broadband Access to the Internet over Wireline Facils., Report and Order and Notice of Proposed Rulemaking*, 20 F.C.C.R. 14853 (2005) (*BWIA Order*); *Verizon v. FCC*, (D.C. Cir. 2014) 740 F. 3d 623.

There have been significant changes in the telecommunications landscape over the decade since the Commission’s adoption of URF.²⁰⁹ The nation’s cable television providers have been far more successful than the ILECs in adapting their wireline distribution infrastructure to support high-speed broadband. As a result, they have become the dominant “last mile” provider, overtaking the ILECs in serving households that want high-speed broadband access in addition to voice telephone service. At the end of the day, however, the result has been simply to replace one dominant provider – the ILEC – with a new dominant provider – the cable company, or at best to retain both as splitting the market for voice/broadband services. Thus, while the players may have changed, since URF the level of market concentration and market dominance has remained largely intact. While Internet and IP technology have created enormous opportunities for new entrants at the “application” layer (as distinct from the physical, network or transport layers), much of that activity is utterly dependent upon gaining access to fixed broadband subscribers. In opposing “net neutrality” and in seeking to overturn the FCC’s *Open Internet Order*, the incumbent LECs and incumbent cable companies have demonstrated their intent to exploit their market power vis-à-vis residential broadband to the maximum extent possible. The reality that has been revealed by the data and analysis produced in this Investigation is that dominant and non-dominant firms should not be afforded “uniform” regulatory treatment, and that a new and creative approach to constraining the market power of the dominant voice and broadband providers is essential to protect consumers and the continued viability of such competition as can efficiently exist adjacent to the dominant service providers.²¹⁰

IX. ISSUES FOR THE NEXT PHASE

The Commission’s stated purpose here is to examine “whether competition is delivering the dependable, high-quality telecommunications services that are vital to

²⁰⁹ Exhibit 19 at 114.

²¹⁰ Exhibit 16 at 114.

California's people and economy.”²¹¹ In furtherance of this examination, the OII lists “Information Requests” (IRs) that seek the data necessary to evaluate the market.

The Commission also seeks guidance on what data is necessary to collect in the future in order to effectively monitor the marketplace, and also what to do about “market failures, inefficiencies or bottlenecks” identified in the testimony. IR #22 asks “What information does the Commission need to collect going forward, in order to timely monitor whether (a) the telecommunications market is operating efficiently, and (b) the rates for telephone services are just and reasonable?” IR #23 also seeks recommendations regarding the initiatives the Commission could take to enhance competition in California.²¹² In subsequent hearings and rulings, it became apparent that the Commission is focusing its efforts more on the collection of data and an examination of the marketplace, rather than what to do about it. In the last section of his testimony, ORA's witness Dr. Lee Selwyn sets forth his broad recommendations for consideration in a new phase of the proceeding in response to IR #23.

A. IR #22 – Information the Commission Needs to Collect in the Future In Order to Monitor the Marketplace

ORA's testimony provides “additional details as to the types of information that the Commission should collect, on an ongoing basis, to timely monitor whether (a) the telecommunications market is operating efficiently, and (b) the rates for telephone services are just and reasonable.”²¹³

The Commission should be cautious of overly simplistic data suggesting the presence of effective competition, which is an unreliable basis for forming regulatory policy.²¹⁴ The FCC's *Business Data Services Order* notes this problem and cautions against it. It is a problem that is equally applicable across all telecommunications sectors,

²¹¹ OII at 1.

²¹² OII at Appendix B.

²¹³ Exhibit 16 at 103.

²¹⁴ Exhibit 16 at 103.

not just wireline. Overly simplistic tests for the “mere existence” of effective competition have been applied to a broad range of services both in the interstate and intrastate jurisdictions, and are largely responsible for the failures of URF I and URF II. The FCC has now proposed to replace simplistic assumptions regarding competition with more formal, quantitative economic analysis, and the Commission should do the same.

Below are ORA’s recommendations for data to collect on a going forward basis in addition to the necessary IRs requested in this proceeding.

1. Financial reports from carriers

The FCC had been collecting a large body of cost, revenue and other financial data on an ongoing basis through its Automated Reporting Management Information System (ARMIS), but discontinued the ARMIS reports requirement after 2007.²¹⁵ In the past, the Commission also required financial reports, but has discontinued the requirement to provide them on a regular basis.

Thus, ORA recommends regular monitoring by ordering the carriers to provide regular reports on broadband provider investments, operating expenses, revenue sources and earnings. This will permit the Commission to evaluate, at a macro level, the extent to which carrier prices are excessive relative to the underlying cost of providing services.

2. Pricing information and price changes over time

The Commission should also require that the carriers submit detailed pricing data on all of their voice and broadband telecommunications services in a form and at a level of detail that will permit comparability over time, and enable the Commission to monitor pricing trends, in the aggregate and separately for each geographic market.²¹⁶

Pricing data will allow the Commission to consider whether customers in non-competitive areas are paying more for service than those where competitive choices are available. Pricing data of this sort can also be useful in benchmarking individual carrier performance. Carriers that purport to be offering competing services, or large

²¹⁵ Exhibit 16 at 106.

carriers that claim to be subject to effective competition, would be expected to respond to competing price levels of other carriers. The extent to which this does not occur may provide an important indication as to the actual level of competition that is present in the relevant product or geographic market.²¹⁷

3. Detailed data on the availability and purchases of wholesale services

The Commission should monitor, on an ongoing basis, both the availability of wholesale services from facilities-based service providers (including both ILECs and cable MSOs), as well as the extent to which the needs for underlying wholesale services by non-facilities-based competitors and providers of services in adjacent markets are being satisfied. Non facilities-based providers should be encouraged to advise the Commission as to deficiencies in the availability of wholesale inputs due to overpricing and/or refusals to deal on the part of facilities-based providers.

B. IR #23 – Proposed Initiatives to be Considered in the Next Phase

ORA's provides its recommendations for future proposals to be considered in the next phase of this proceeding. As discuss above, ORA recommends 3 key factual findings for this initial phase of the proceeding, which (if adopted) would be incorporated into a preliminary Commission decision.

In addition, the OII included IR #23 which invited parties to offer proposals on "initiatives" this Commission can "take to enhance competition within California."²¹⁸ In the "Issue and Briefing Outline" attached to the Scoping Memo, the Commission repeated this invitation, asking: "How can the Commission, consistent with its jurisdiction and authority, promote competition and reduce barriers to entry?" Thus, policy recommendations are called for in response to the Commission's inquiries.

(continued from previous page)

²¹⁶ Exhibit 16 at 107.

²¹⁷ Exhibit 16 at 107.

²¹⁸ OII at Appendix B.

It should be noted that ORA recommends that, consistent with the Scoping Memo, the decision in this phase should be limited to findings and conclusions of fact with regards to competition in the marketplace, and whether the marketplace is providing consumers with just and reasonable rates, pursuant to Section 451. The Scoping Memo states, “[w]e have repeatedly clarified that this docket is a data gathering and data analysis exercise. We have designed it to obtain a snapshot of telecommunications in California today, not to set (or repeal) rules.”²¹⁹ ORA agrees and therefore recommends that the following initiatives should be considered in a next phase of the proceeding to remedy the market failures and violations of Section 451 described above.

ORA’s proposals are not meant to be definitive and specific – they are only offered as general topics that would be developed with more detail and specificity in the next phase. These proposals would form the starting point, or an outline of, a more in-depth examination of the potential measures that may be considered and adopted to limit the market power of the dominant incumbent voice and broadband service providers so as to bring California’s telecommunications markets closer to the realization of just and reasonable rates.

ORA’s proposals below are not meant to all-inclusive, nor mutually exclusive, nor is ORA waiving its right to put forth additional proposals in the next phase.

1. Market structure - gathering data and considering structural changes

ORA recommends that the Commission consider implementing a requirement for the carriers to provide the subscription and availability data necessary for annual market share tests, HHI, and MDI monitoring, which should be readily available to the Commission on an ongoing basis, especially in light of the fact that most of it is already being reported to the FCC by the principal incumbent service providers and certain others.²²⁰ The notion that dominant and near-monopoly providers should have little or no

²¹⁹ July 1 Scoping Memo at 7.

²²⁰ Exhibit 16 at 112.

regulatory oversight can no longer be squared with market realities, as revealed and confirmed by their own data submitted in this proceeding.

The last decade under the URF regulatory approach shows that it is unrealistic to treat these dominant providers as equals with nascent or fringe competitors.²²¹ Massive capital investments are needed to achieve ubiquitous telecommunications infrastructure, which allows at most one or two providers in the market.²²² The recent spate of large telecommunications mergers has been accompanied by claims of greater efficiencies as a result of greater increases in scale for the post-merger entity. Regulatory policy should be modified to recognize the reality of a small number of companies playing a largely dominant role in the telecommunications marketplace.

Therefore, the Commission should consider whether the “uniform” nature of URF continues to be good regulatory policy. The Commission should consider replacing the URF framework with a separate regulatory treatment for dominant and non-dominant providers on the competitive fringe.

2. Market conduct – gathering data and considering “results of operations” regulations

A key indicator of firms’ conduct is in their pricing and earnings.²²³ Telecommunications rates are no longer subject to any cost-of-service type regulation, and for more than two decades the Commission has had no access to the type of data that would permit it to verify that “rates that approximate the costs of providing goods or services” actually exist.

Therefore, the Commission should consider proposals to reinstate more detailed “results of operations” (RO) type financial reporting requirements, because the typically available corporate parent company financial disclosures are insufficient for the purpose of detecting persistent excess earnings levels from jurisdictional services.

²²¹ Exhibit 16 at Executive Summary, page ix.

²²² *Ibid.*

²²³ Exhibit 16 at 112.

RO reporting requirements are necessary because persistently high levels of earnings is evidence of sustained market power; in fact, the Commission’s past traditional cost-of-service rate-of-return type regulation was expressly aimed at constraining utilities’ earnings to “competitive” levels – i.e., to levels that recover costs including a “reasonable return” on investment, but that would not result in monopoly profits. If rates are set far in excess of cost, it is reasonable to conclude that a “reasonably competitive market” does not exist.

3. Performance targets

The Commission should consider whether to impose and enforce specific performance targets addressing service quality, time to repair, customer service, and related issues, and what monetary penalties for failure to comply should be imposed. The Commission should not duplicate efforts in other proceedings, however. The OII notes that any service quality recommendations should be coordinated with the Service Quality Rulemaking (R.11-12-001) (and TURN Emergency Motion therein regarding Copper Retirement).²²⁴

Performance targets are relevant because in a competitive market, firms can be expected to compete both with respect to their products’ features/attributes as well as quality.²²⁵ Penalties for substandard performance with respect to service outages, time-to-repair, hold times on calls to customer service, etc. can be developed and penalties applied where the standard is not satisfied. It is important, however, that the standards be realistic and, more importantly, that the penalties should be sufficient to have a deterrent effect.

4. Service availability targets

The Commission should consider whether to impose and enforce specific service availability targets, and what monetary penalties to impose for failure to comply.²²⁶

²²⁴ OII at 15.

²²⁵ Exhibit 16 at 116.

²²⁶ Exhibit 16 at 117.

Build-out requirements for coverage of the designated franchise territory should be established and enforced via penalties for failure to meet the targets, and penalties should be sufficient to have a deterrent effect.

5. Price or earnings regulation

Reintroduction of price cap regulation should be considered. Section 706(a) of the 1996 Telecommunications Act directs states to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans . . . 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 regulating methods that remove barriers to infrastructure investment.” (Emphasis added.) Currently, the FCC is looking into price-cap regulation for business data services, due to a lack of competition in that area.²²⁷

Price cap regulation sets ceiling prices that would only apply where there is insufficient competition to produce lower prices. It is a mechanism that is invoked automatically but only when actually needed. Where a market is not competitive and the incumbent provider would have the ability to set prices at supracompetitive levels, price caps become operative and constrain the monopoly firm’s ability to exercise its market power in this manner. Where competition is present, prices should be expected to drop below the historic price levels – i.e., well below the price cap – such that prices will be set by competitive marketplace forces. Short of full reinstatement of price caps, the Commission might also initially consider adoption of a “target price cap index” that can be compared against actual price movements.²²⁸

²²⁷ *Business Data Services Order* at para. 54; Exhibit 16 at 8.

²²⁸ ORA’s testimony provides more detail regarding its price cap recommendation at pages 118-122 of Exhibit 16.

6. Wholesale/retail structural approach

The Commission should consider adopting specific structural remedies, such as separation of wholesale and retail services along the lines adopted by Ofcom in the United Kingdom (UK).²²⁹ Separation of the company into a “wholesale” and a separate “retail” entity wholesale was adopted, on a large scale, in the UK. There, British Telecom was split into two separate (although still affiliated) entities, the wholesale entity known as Openreach and the BT retail entity. The establishment of this structural approach created the ability for competing retail providers to compete for end-user business without having to overbuild the incumbent’s network, far more quickly than what Section 251 and 252 of the Telecommunications Act of 1996 was attempting to accomplish.²³⁰ The Commission should further consider structural remedies such as unbundling and interconnection requirements, which are necessary steps to remove barriers to competition.

7. Public wholesale broadband network

The Commission should consider proposals that would encourage the development of a public wholesale broadband network.²³¹ It is important to compare the deregulatory approach to broadband deployment that has been adopted in other developed countries to the approach taken in California, which has not advocated for such public networks in the past. California broadband prices are generally higher, and speeds are generally lower, than in many other countries where a more affirmative level of government involvement has been implemented.²³²

For example, in Australia, the dominant fixed-line provider was required to transfer its copper and hybrid fiber coaxial infrastructure and wholesale services to a new government-created entity, the National Broadband Network Company (NBN) that would

²²⁹ Exhibit 16 at 122.

²³⁰ *Ibid.*

²³¹ Exhibit 16 at 123.

²³² *Ibid.*

then be responsible for providing broadband services on a wholesale basis. The NBN's goal is ultimately to connect nearly every home and business in Australia to a network of more than 100 broadband hubs. These hubs are open-access, and any retail service provider can use the network to offer broadband services without having to first build or operate its own fiber network. The retail providers are responsible for adding data packaging, encryption, and error correction, and for billing customers directly.⁹² This approach captures the efficiencies of a single network while permitting competition at the retail level. The NBN extends services to rural areas and areas with low-population densities that would not be profitable for private sector telephone investment. Similar wholesale/retail structures have been adopted in several other countries, including Sweden, the UK, and New Zealand.²³³

X. CONCLUSION

Unlike past Commission decisions in URF I and URF II, this proceeding sought data regarding the actual level of competition in California. The wealth of data obtained from carriers, and extensively analyzed by ORA, compels a finding that the telecommunications markets in California are overly concentrated and not competitive.

The data shows that there is more than one telecommunications market, and that the wireline voice market (landline and VoIP) and broadband market are separate markets and should be analyzed separately. Most consumers do not view wireless as a substitutable service for traditional landline service, reflected by the fact that the majority of consumers have both services, and the pricing and bundles for each are different. The data further shows that mobile broadband service is not a substitute for fixed broadband service, reflected by the vast differences in speed, price, and quality. ORA's analysis of these two markets demonstrates that neither market is effectively competitive. As a result of this lack of competition, prices for traditional wireline service and broadband have increased and service quality has decreased. The Commission can no longer continue to rely on competitive market forces to ensure compliance with Public Utilities Code

²³³ *Ibid.*

Section 451, which mandates that rates be just and reasonable, and that service be safe and reliable.

This phase of the proceeding is focused on gathering and analyzing data, not setting rules. The evidence shows that the wireline voice market and the broadband market are not competitive, and violate Section 451. In addition, ORA sets forth a variety of broad policy and rules proposals for consideration once the Commission establishes that competition is not effective. Specific recommendations to remedy rising prices and falling service should be further discussed and assessed in a subsequent phase to this proceeding.

Respectfully submitted,

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