

Notes 1 - CPUC outline

1) Defining affordability and essential service

- Has the Commission or any public utility operating in California defined affordability of service and/or essential service?
- What are the factors that determine affordability of service and/or essential service?
- What socioeconomic groups are most vulnerable to the factors affecting the affordability of essential service?
- Are there levels of service that must be made affordable for all customers or only specific socioeconomic groups as seems to be the current effort?
- What decisions are customers that cannot afford utility services forced to make?

2) Identifying metrics and data source to measure affordability and determine essential service

- What metrics can be used to measure the factors affecting affordability? What are the possible challenges with assessing and measuring affordability using these metrics? Is there any affordability concern that is inherently unquantifiable, and how should the framework address those concerns?
- What data is readily available to determine affordability and/or set essential service levels? What information do we need that may not be readily available and how can we collect it?
- What are the processes for collecting, measuring, reporting, and regularly updating data to monitor affordability? How should these processes be incorporated into Commission proceedings?

3) Usefulness/Application of the affordability framework

- Once affordability metrics and essential service levels are developed how can they be applied to the proceedings of the Commission affecting the rates and services of public utilities operating in California?
- Do any public utilities operating in California currently evaluate affordability of their rates and if so how?
- Which proceedings or recurring practices have traditionally included affordability discussions and how was the topic addressed?

Notes 2

In this initial workshop for Order Instituting Rulemaking to Develop Methods to Assess the Affordability Impacts of Utility Rate Requests and Commission Proceedings (OIR R.18-07-006)

Purpose: *To develop methods to assess affordability impacts across Commission proceedings and utility rate requests. The OIR is only for residential class and pertains to all Commission-regulated energy, water, and telecommunications utilities.*

Service Definition

1. What are the elements of good service?
2. What are the cost drivers
3. What we pay: promo rate, below-the-line charges
4. What is delivered: real vs. advertised, peak vs. off-peak, quality of the product (jitter, latency)

CPUC Affordability Workshop
OIR R.18-07-006
Jan 22, 2019

****DRAFT****

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The judgements and conclusions are solely those of the author, and are not necessarily endorsed by the Goldman School of Public Policy, by the University of California or any other agency.

Fixed Broadband is the Issue

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Despite competitiveness of mobile service, affordability must be viewed through the lens of fixed broadband service.

- Fixed broadband delivers 94% of California traffic, mobile just 6%¹
- Mobile bandwidth (bits/sec) costs 4x more than fixed²
- Mobile data (bytes) costs 40x more than fixed²
- Video and voice services now largely delivered over IP-based broadband networks rather than single-use networks
 - Netflix, Hulu, Amazon, etc. vs. dedicated TV over cable systems
 - VoIP and VoLTE vs. POTS voice over copper networks

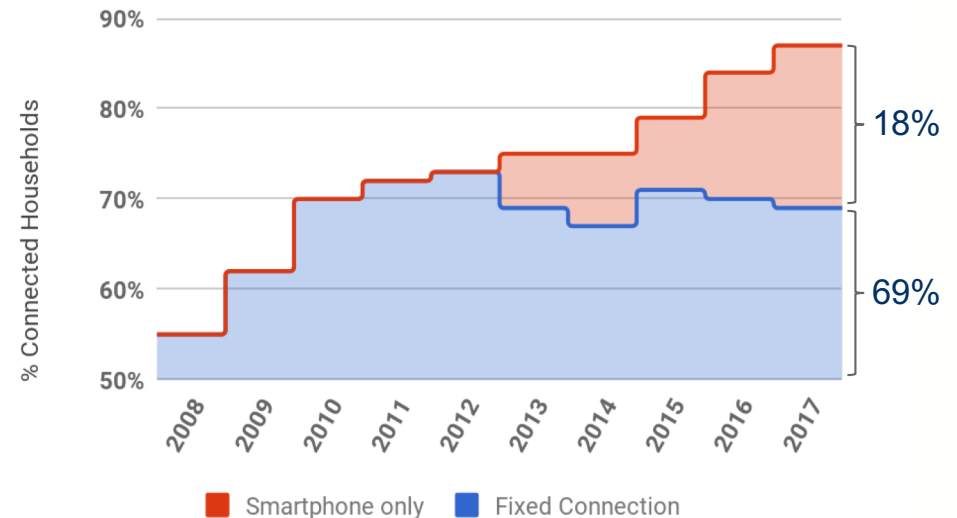
Source: ¹ Akamai, State of the Internet, 2017; ² Author's market research

Residential Broadband Access

CETF survey of California homes

- Measuring digital divide since 2008
- Home access has grown from 55% in 2008 to 70% in 2010
- Smartphone-only grows to 18%
- Fixed broadband access *flat* between 2010 and 2017

California Households with Internet Connectivity, 2008-2017 (src: CETF)



Source: California Emerging Technology Fund, 2017 survey results, [July 2018](#)

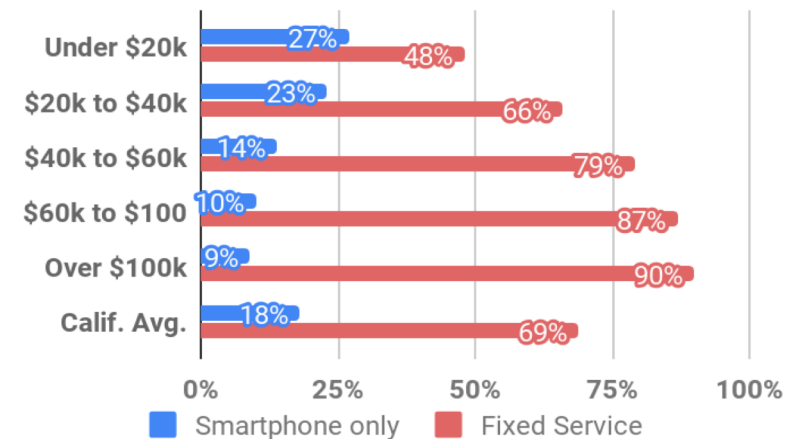
Broadband Access by Income

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Prepaid smartphone plans offer affordability

- CETF 2017¹
 - 27% of <\$20k HHI homes are smartphone-only: 1/3 of connected low-income homes
 - 9% of >\$100k homes are smartphone-only: 1/10 of of connected high-income homes
- Smartphone-only, Pew 2018²
 - Nationally, 20% US adults are smartphone-only
 - 31% adults with <\$30k income
 - 14% White, 24% Black, 35% Hispanic

California Home Broadband Access by Household Income and Service



Source: ¹ California Emerging Technology Fund, 2017 survey results; ² [Pew Research Center](#), 2018

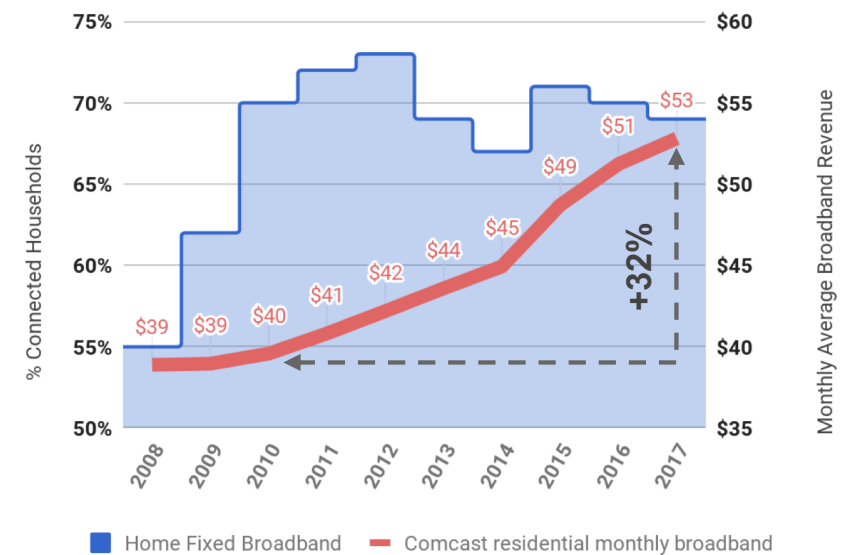
Access and Profitability

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Subscriptions flat but profits up

- Cablecos have surpassed Telcos to become biggest ISPs
- In California, ~70% of home connections are cable, likely to pass 75% by 2020
- With market concentration comes market power, driving Cableco broadband profits up significantly

Cableco Revenues Rose 32% 2010-2017 while California Household Connectivity Was Flat

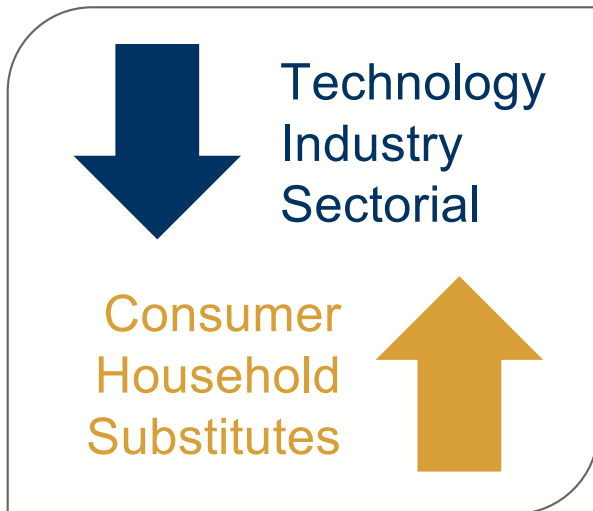


Source: New Street Research, Cable company financial reports

Assessing Broadband Affordability

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Tops-down and Bottoms-up



- Pt 1
- Pt 2
- Pt 3

Top-down

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Broadband is a 'global homogenous good' - same standards, infrastructure and equipment worldwide

- Evaluate competitive markets and publicly-owned providers
- Overbuilders: Google Fiber & RCN
- New Zealand and Sweden have competitive retail providers
- Estimated marginal cost of \$47 for 100Mbps service

	2 year avg 100Mbps
EPB (Chattanooga) ¹	\$58
Google Fiber ²	\$54
RCN (Wash, DC)	\$47
Sweden Jan'19 avg ³	\$32
New Zealand Jan'19 avg ³	\$47
Average 100Mbps service	\$47

Assumes no contract, no data caps. Notes: ¹symmetric service, ² symmetric with \$100 install charge, ³ based on sample of retail providers.

Bottom-up

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Comparison of retail Internet-only plans in Fresno, Santa Ana and San Jose

- \$99/month weighted average
- Assumes no contract, no data caps and professional installation
- Zip codes with 40%+ of homes under \$50k HHI
- If agree to 1 year contract and credit check:
 - Comcast \$128/m avg.
 - AT&T \$86/m avg.

	Comcast 150Mbps	AT&T 100Mbps	Spectrum 100Mbps
Activation fee	-	\$35	-
Professional installation fee	\$89	\$99	-
Promotional rate (months 1-12)	\$65	\$70	\$65
Standard rate (months 13-24)	\$82	\$70	\$65
Modem rental/month	\$11	-	-
Unlimited data/month	\$50	\$30	-
Avg Rate over 24 months	\$138	\$106	\$65

Source: company price plans, service contracts, interviews with sales and support

Affordability Framework

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- Evaluate service end-to-end
 - Long hold times represent an additional cost on users
- Lots of regulation of IOUs call and support of LIC
- Management of disconnections - follow Lifeline standards

	Electricity	Water	Broadband
Marginal cost	~\$0.15/kWh		\$47.60 for 100Mbps
Avg HH Burden	\$104.79/m ¹ \$61.12/m (CARE)	\$63.22/m ¹	\$99.20
Quality	Voltage and freq. tolerances	Healthy, clear, no boiled water notice	Jittery, latency, real vs. advertised speeds, data caps
Reliability	Outage instances and duration, mean time-to-repair (MTTR)		
Peak Capacity	No reduction in system perform.	Storage reservoirs to meet demand	No slow-down during peak hour
Support	Hold times, resolution rates		Last in customer sat.

Source: 'Delivery, Consumption & Prices for Utility Service in California', CPUC, Jan 18, 2018

Conclusion

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Oligopolistic behavior among Big 5 broadband providers is pushing broadband service out of reach

- Sunset SB1161
- Goal: 100Mbps service to 95% of California HH
- Near-term: Demand merger concession like Spectrum
- Recommend 4
- Recommend 5