

Internet Service Competition in California

And the Capital Region:

Is the Internet Service Market Competitive?

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This policy brief presents an analysis on the internet service market and providers choices (number of ISPs) serving residential customers in California and the Connected Capital Area Broadband Consortium (CCABC) Region. This analysis is based on broadband availability data from the California Public Utilities Commission from 2020 (as of December 2019). Findings of our analysis are that in California, the vast majority of the population (**near 87%**), households, and housing units, have access to two or less choices of ISPs, which indicates a concentrated and non-competitive market. Furthermore, analyzing the number of internet choices, in areas served at different speed standards, nearly all population (high nineties percent) have access to two or less choices of ISPs. The findings are summarized as follows:

- In California:
 - **86.8%** of the **population** has access to **two or less ISPs** (all internet speeds)
 - In areas **served** at the **CA standard (6/1 Mbps)**, and **not served** at the **FCC standard (25/3 Mbps)**, **98.5%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **FCC standard (25/3 Mbps)**, and **not served** at the **CA Broadband Action Plan Goal standard (100/20² Mbps)**, **94.7%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **CA Broadband Action Plan Goal standard (100/20 Mbps)**, and **not served** at the **FCC Gigabit standard (1000/500 Mbps)**, **98.9%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **FCC Gigabit standard (1000/500 Mbps)**, **99.8%** of the **population** has access to **two or less ISPs**

¹ Valley Vision (<https://www.valleyvision.org/>) is a civic leadership organization that serves the six-county Sacramento Region: Sacramento, Sutter, Yolo, Yuba, Placer and El Dorado. Valley Vision has been the center of strategic efforts to improve broadband access and digital inclusion in the Greater Sacramento Region, and has been the manager of the Connected Capital Area Broadband Consortium (funded by the California Public Utilities Commission-California Advanced Services Fund) since 2012. The Consortium works collaboratively with broadband stakeholders across a four-county region (Sacramento, Sutter, Yolo and Yuba). Consortium partners include local governments (counties, cities, and towns), internet service providers (ISPs), business chambers, community anchor institutions, farm bureaus, community-based organizations, nonprofits, among others.

² The California Action Plan defines the broadband speed goal of 100 Mbps downstream. It does not define an upstream speed. For purposes of this analysis, a 20Mbps upstream speed is used.

- In the CCABC Region:
 - **74.5%** of the **population** has access to **two or less ISPs** (all internet speeds)
 - In areas **served** at the **CA standard (6/1 Mbps)**, and **not served** at the **FCC standard (25/3 Mbps)**, **99.6%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **FCC standard (25/3 Mbps)**, and **not served** at the **CA Broadband Action Plan Goal standard (100/20 Mbps)**, **93.5%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **CA Broadband Action Plan Goal standard (100/20 Mbps)**, and **not served** at the **FCC Gigabit standard (1000/500 Mbps)**, **95.2%** of the **population** has access to **two or less ISPs**
 - In areas **served** at the **FCC Gigabit standard (1000/500 Mbps)**, **100%** of the **population** has access to **two or less ISPs**

It is then imperative that broadband stakeholders in California and the CCABC Region, support and promote more competition in the internet service market, including:

- **Last-Mile Networks:** Expanding the footprint of **existing ISPs** providing high-speed service at the CA Action Plan Goal Standard (100 Mbps downstream) or gigabit service. These speed standards should be made available in areas currently only served at 6/1 Mbps and 25/3 Mbps. Additionally, in areas with two or less ISPs available (offering these legacy technologies and speeds), **new ISP entrants** will help to bring more choices, which will lead to offering better (faster and more reliable) service and competitive internet service pricing.
- **Middle-Mile Networks:** In many areas, especially in rural geographies, last-mile providers do not offer services due to the lack of middle-mile infrastructure and connectivity. In some cases, there might be available backbones but not affordable for last-mile ISPs to allow operating and maintaining last-mile services in areas with low density of customers, and lower median household incomes in comparison to urban or metro areas. Wherever there is lack of middle-mile due to availability or affordability, **new affordable middle-mile infrastructure** should be deployed in order to reduce barriers for last-mile providers, and resulting in more competition and choices for residential customers.
- **Open Access Networks:** Historically, the internet service market had an infrastructure-based competition. This was based on the existing infrastructure that telecom companies had for offering telephone service (public switched telephone network or PSTN), cable television, microwaves or fixed wireless, and fiber optics. In this model, each telecom/ISP had to build or deploy its own infrastructure to reach customers. As a result, for example, an area served by three ISPs, usually meant that it had available three different networks (infrastructure). Under the more **novel approach of open access networks**, one set of infrastructure or network would be used by multiple ISPs to reach final residential customers. In theory, for the example above, reaching these customers would cost one-third of the traditional infrastructure-based model. The open access model can be deployed and operated by a private ISP, a municipal owner or a public-private-partnership.

I. An Initial View of the Internet Service Market

In California

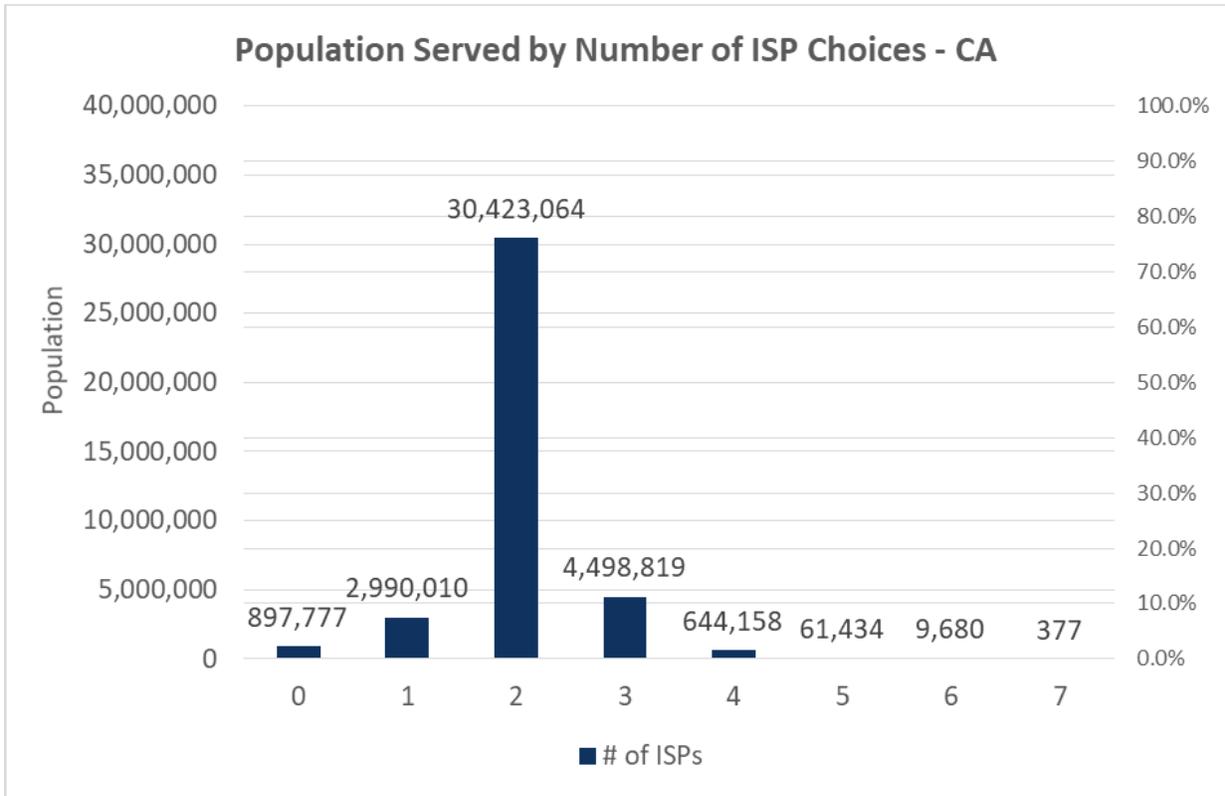
The CPUC broadband availability data³ released in 2020 (as of December 2019), includes internet service coverage reported by internet service providers across state. Using CPUC and census data (2019), this analysis estimates the number of ISPs serving population, households and housing units. The analysis in this first section (Section I) includes all ISPs offering internet services even below the CA standard (6/1 Mbps), which might not be defined as “broadband”. The second part (Section II) of the analysis is conducted on areas served at different Federal and State broadband standards.

The table below presents the number of ISPs serving populations, households and housing units in California. It can be noted that **86.8%** of the **population** (**84.9%** of **households**, and **84.9%** of **housing units**) has access to only **two or less ISPs** (none, one or two).

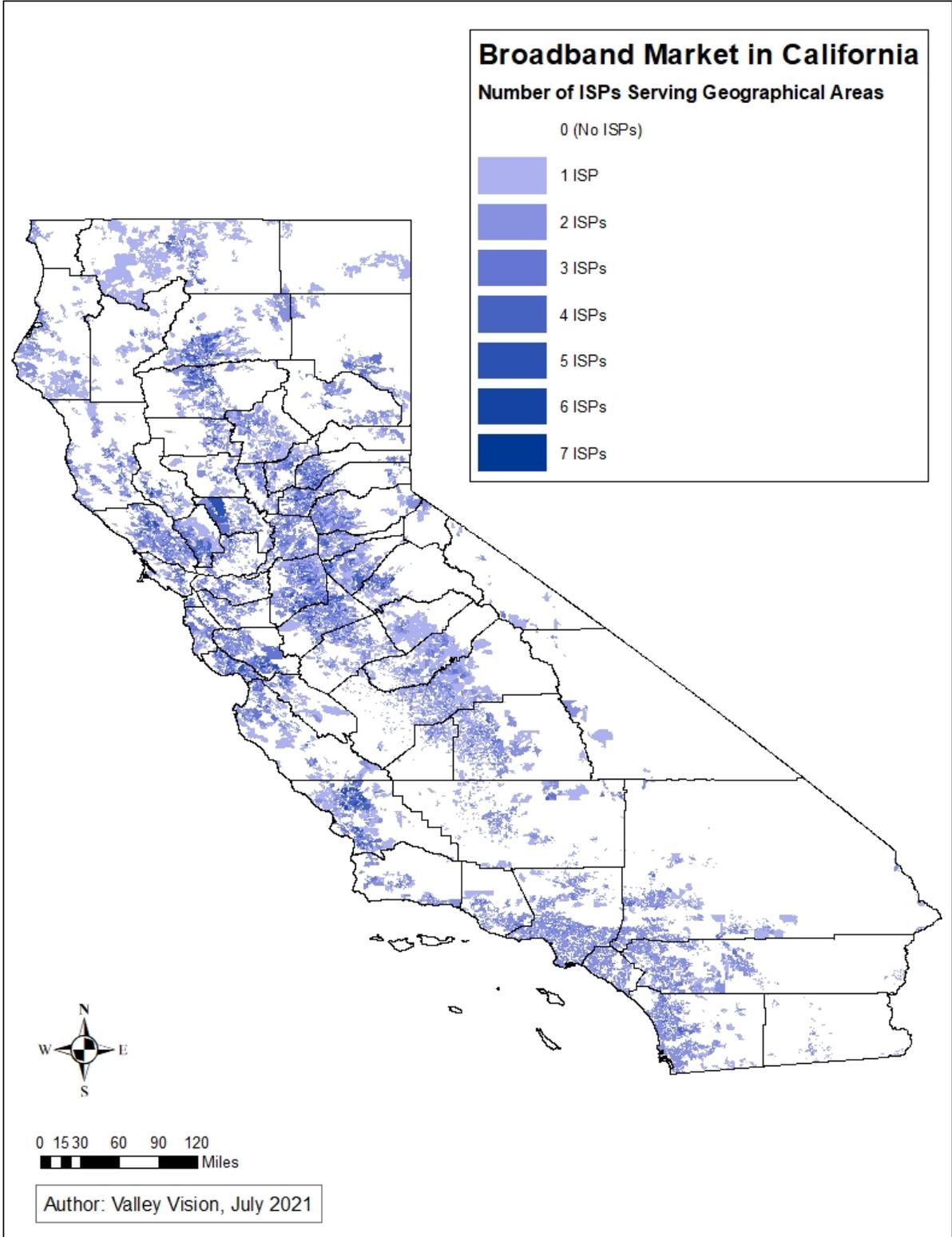
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
0	897,777	2.3%	326,543	2.5%	386,197	2.7%
1	2,990,010	7.6%	1,029,241	7.9%	1,191,233	8.4%
2	30,423,064	77.0%	9,754,895	74.6%	10,496,797	73.9%
3	4,498,819	11.4%	1,683,701	12.9%	1,819,868	12.8%
4	644,158	1.6%	261,569	2.0%	286,069	2.0%
5	61,434	0.155%	25,128	0.192%	27,698	0.195%
6	9,680	0.024%	3,805	0.029%	4,122	0.029%
7	377	0.001%	154	0.001%	162	0.001%
	39,525,318		13,085,036		14,212,147	

The figure below shows the **population** and the number of ISP choices this population is served by. The vast majority (**77%**) has access to **two ISPs**. Followed by **11.4%** having access to **3 ISPs**, and **7.6%** having access to only **one ISP** choice. As noted above, combining the areas (census blocks) served by **two or less ISPs**, there is nearly **87%** of the **population** in a highly concentrated internet service market.

³ The CPUC broadband availability data are collected on an annual basis from a majority of last-mile broadband service providers in the state. These data include fixed broadband service provided by either wireline (i.e., xDSL, cable modem, and fiber optics) or fixed wireless service (i.e., using licensed, lightly and unlicensed spectrum). For residential service, CPUC incorporates validation methods which include both broadband service availability and subscribership at the census block level. It is important to note these data are self-reported from ISPs and telecom companies. Many stakeholders (local governments, communities, residents, and ISPs) have expressed concerns that some of the data does not reflect what is actually available. To improve data accuracy, the CPUC has implemented several public feedback methods and ground truth testing at the address level (e.g., CalSPEED).



The figure below presents the geographical distribution (at census block level) of the number of ISPs serving California. It can be noted (or if you zoom the image enough), that most aggregated areas are served by only **one** or **two ISPs** (light blue areas). Areas with more choices (darker blue areas) are available in large metro and urban areas, including some suburban areas.

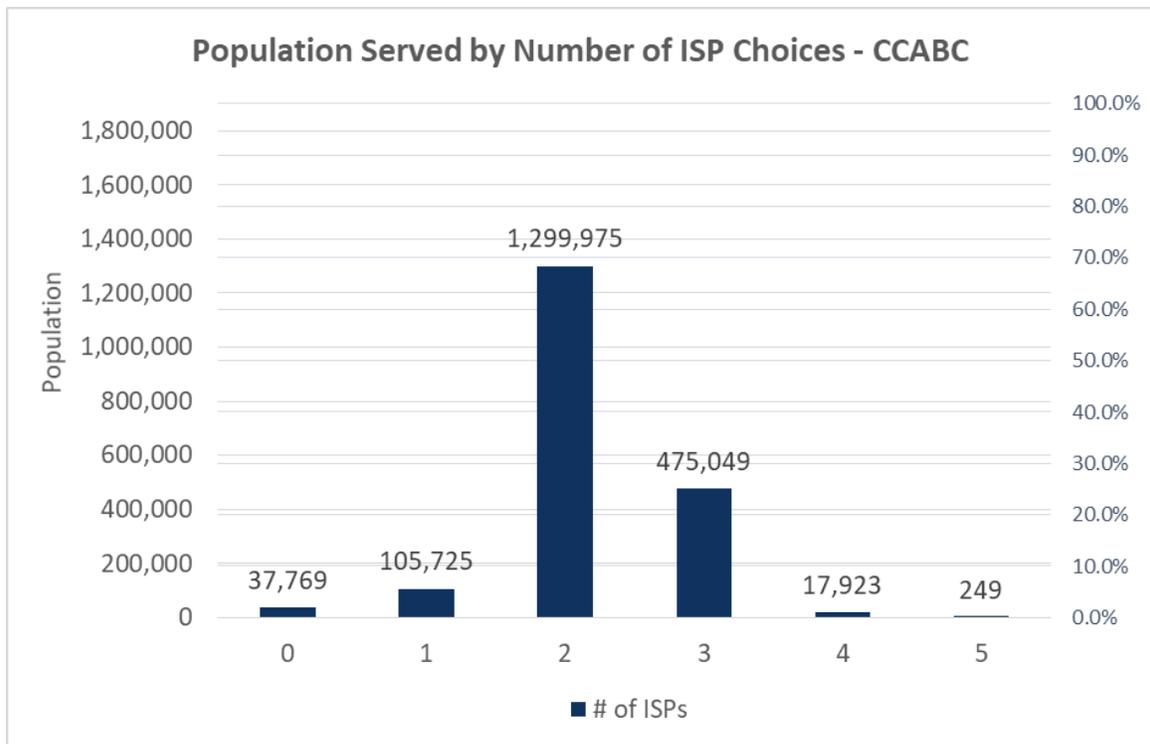


In the Connected Capital Area Broadband Consortium (CCABC) Region

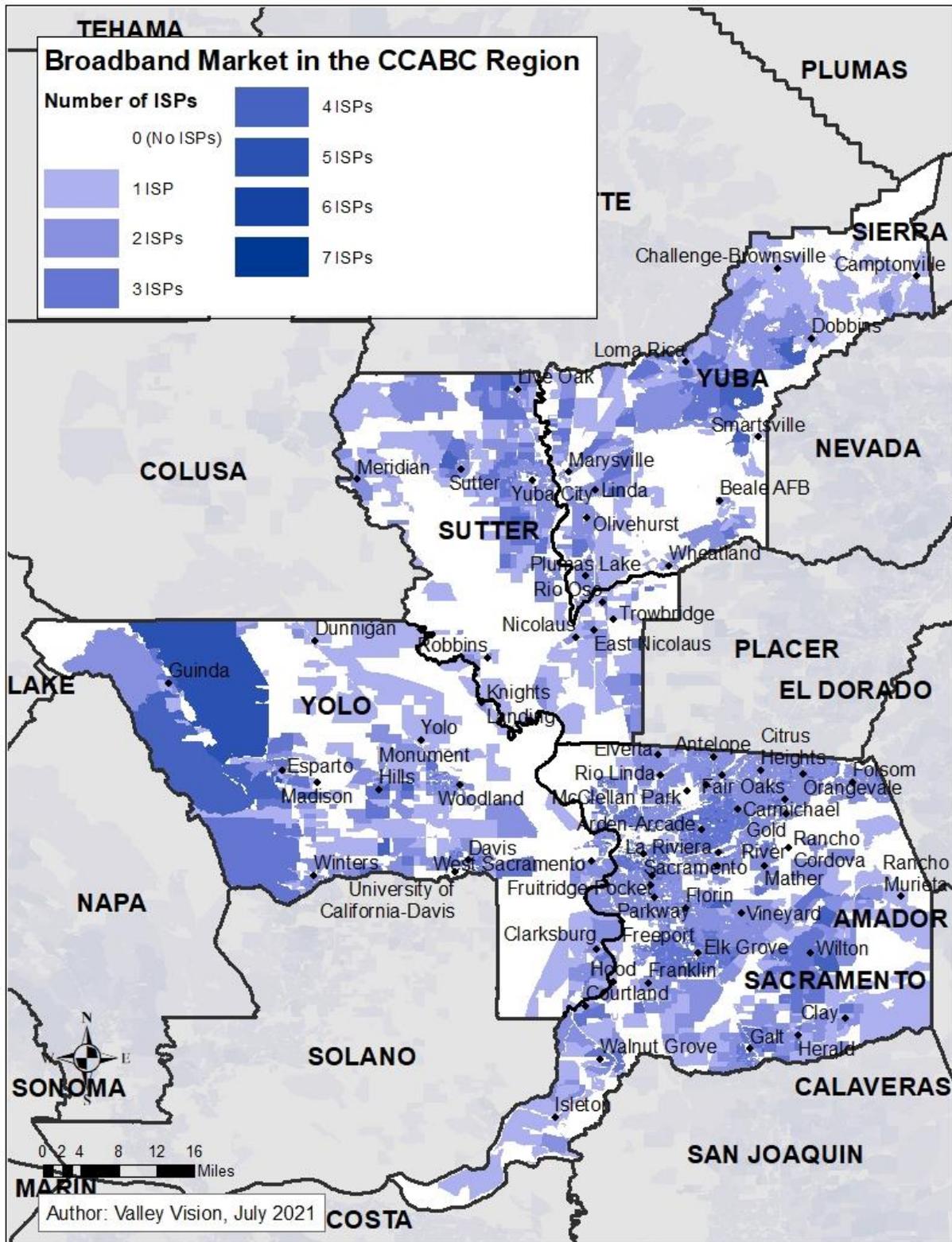
This brief also presents the competition analysis in the Connected Capital Area Broadband Consortium (CCABC) Region, which includes the counties of Sacramento, Sutter, Yolo and Yuba. The table below presents the number of ISPs serving population, households and housing units in the region. A combined **74.5% of the population (73.4% of households, 73.4% of housing units)** has access to only **two or less ISPs** (none, one or two).

# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
0	37,769	2.0%	13,510	2.1%	15,077	2.1%
1	105,725	5.5%	37,225	5.7%	41,352	5.8%
2	1,299,975	67.1%	432,649	65.7%	468,961	65.6%
3	475,049	24.5%	167,898	25.5%	181,696	25.4%
4	17,923	0.9%	6,970	1.1%	7,794	1.1%
5	249	0.013%	77	0.012%	83	0.012%
	1,936,691		658,329		714,963	

The figure below shows the **population** served by number of ISP choices. The vast majority (**67%**) has access to **two ISPs**. Followed by **24.5%** having access to **3 ISPs**, and **5.5%** having access to only **one ISP** choice. As noted above, combining the areas (census blocks) served by **two or less ISPs**, there is nearly **75%** of the population in a highly concentrated internet service market.



The figure below presents the geographical distribution of the number of ISPs in the CCABC Region. It can be noted that most aggregated areas are served by **one, two or three ISPs** (light blue areas).



II. Slicing the Internet Service Market based on Broadband Standards

This part of the policy brief analyzes the number of internet service providers available in geographical areas served at the following California and Federal broadband standards:

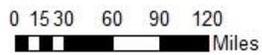
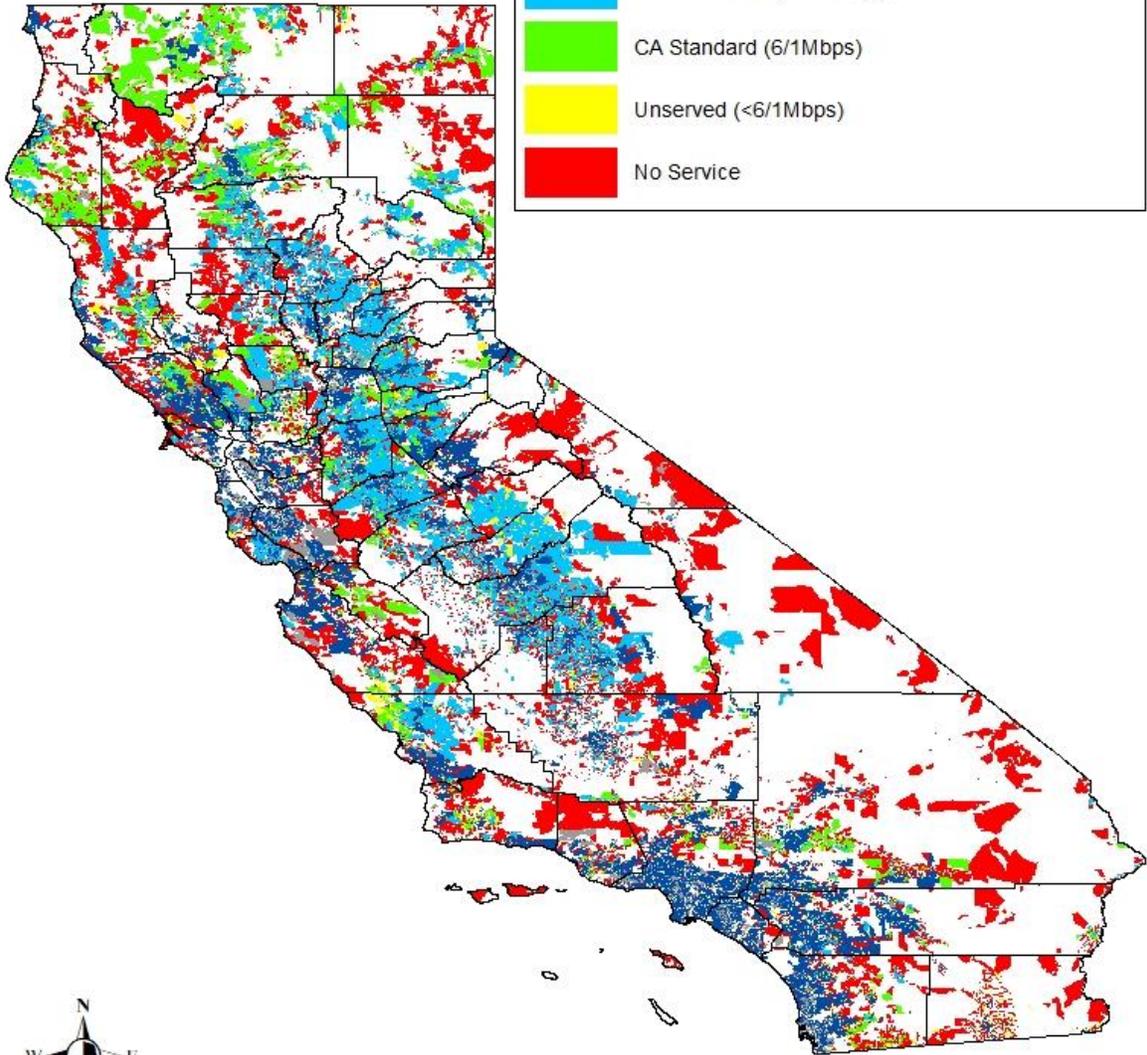
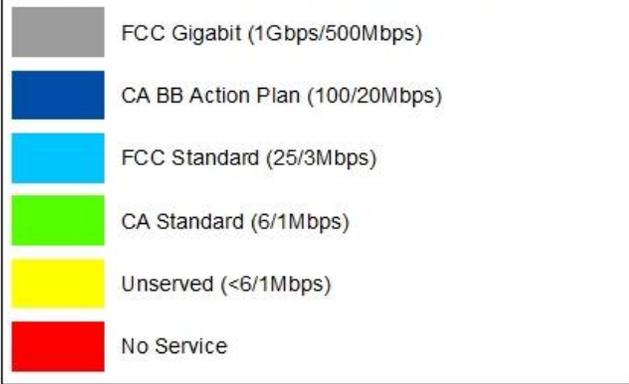
- **6/1 Mbps:** Current California standard (AB1665).
- **25/3 Mbps:** FCC standard. Minimum recommended for households using video conference applications for education or work, and/or having multiple simultaneous users at home.
- **100/20 Mbps:** Goal set in the Governor's Executive Order and the California Broadband 4 All Action Plan. The California Action Plan defines the broadband speed goal of 100 Mbps downstream. It does not define an upstream speed. For purposes of this analysis, a 20Mbps upstream speed is used.
- **1000 (1Gbps)/500Mbps:** FCC Gigabit service definition.

The figure below presents the coverage at these different speed standards in California.

The following internet service competition (number of ISPs) analysis, focused on areas served only at one standard and not at the next higher standard. This means for example, that it analyzes the number of ISPs in areas served at **6/1 Mbps** but not served at **25/3 Mbps**. In the map below, these geographical areas are the green areas (**6/1 Mbps**) without any light blue area (**25/3 Mbps**). The same approach applies for areas served at **25/3 Mbps** but not served at **100/20 Mbps**, and all the way up to the FCC gigabit definition.

Based on this approach, this analysis does not count the ISPs offering lower speeds than the speed standard analyzed. This means that when assessing the number of choices available in areas served at **25/3 Mbps**, it did not include ISPs serving any speeds below **25/3 Mbps**. This approach intends to reflect specific user needs and available choices. For example, a family of three needing to conduct telework and distance education require using videoconference applications which will need at least **25/3 Mbps**. Actually, **50** or **75 Mbps** would be recommended. In this case, the choice of having ISPs serving **6/1 Mbps** or similar speeds is not an option. An analogy can be that for an Uber driver who needs a car to transport riders, using a bicycle or a motorcycle is not an option. There are cases when users have minimum requirements (i.e., capacity, speed, scheduling, availability, reliability, affordability, etc.) for the tools needed to conduct our lives or jobs. Broadband is not different.

CA Residential Broadband Coverage

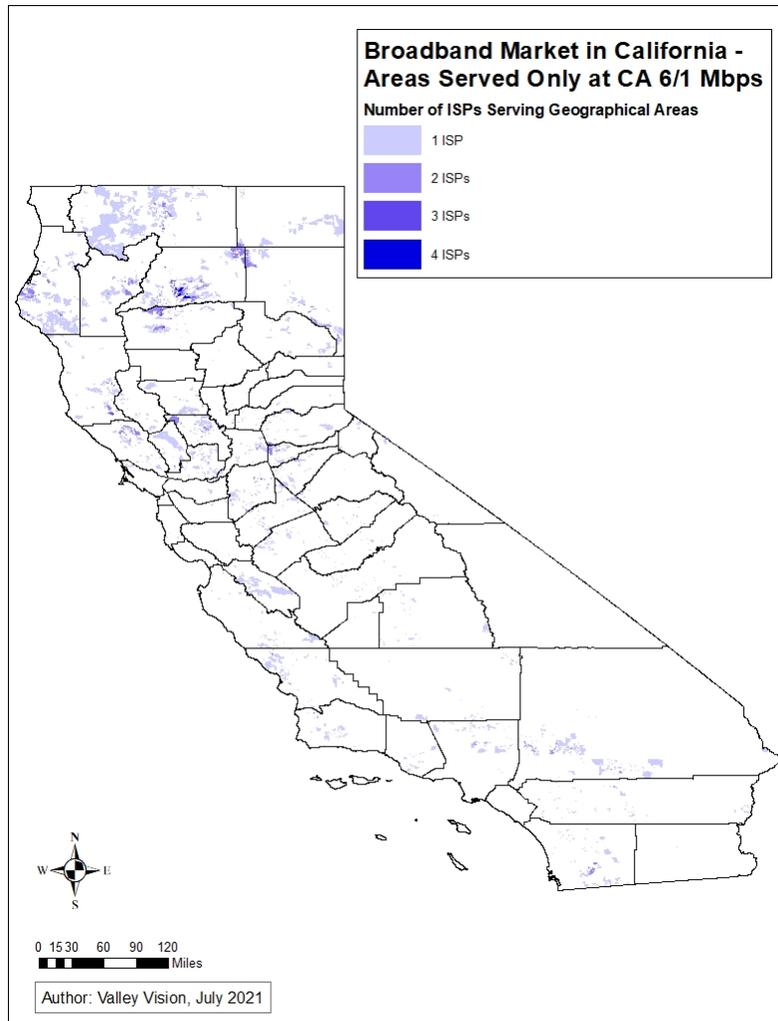


Author: Valley Vision, July 2021

In California: Areas Served at the CA Standard (6/1 Mbps)

This includes only the green areas in the coverage map and does not include areas served at higher speed standards (6/1 Mbps ≤ speed <25/3 Mbps). In these areas, **87.1%** of the **population (86.4% of households, 87.1% of housing units)** is served by only **one ISP**. Furthermore, **98.5%** of **population (98.4% of households, and 98.6% of housing units)** are served by **two or less ISPs**.

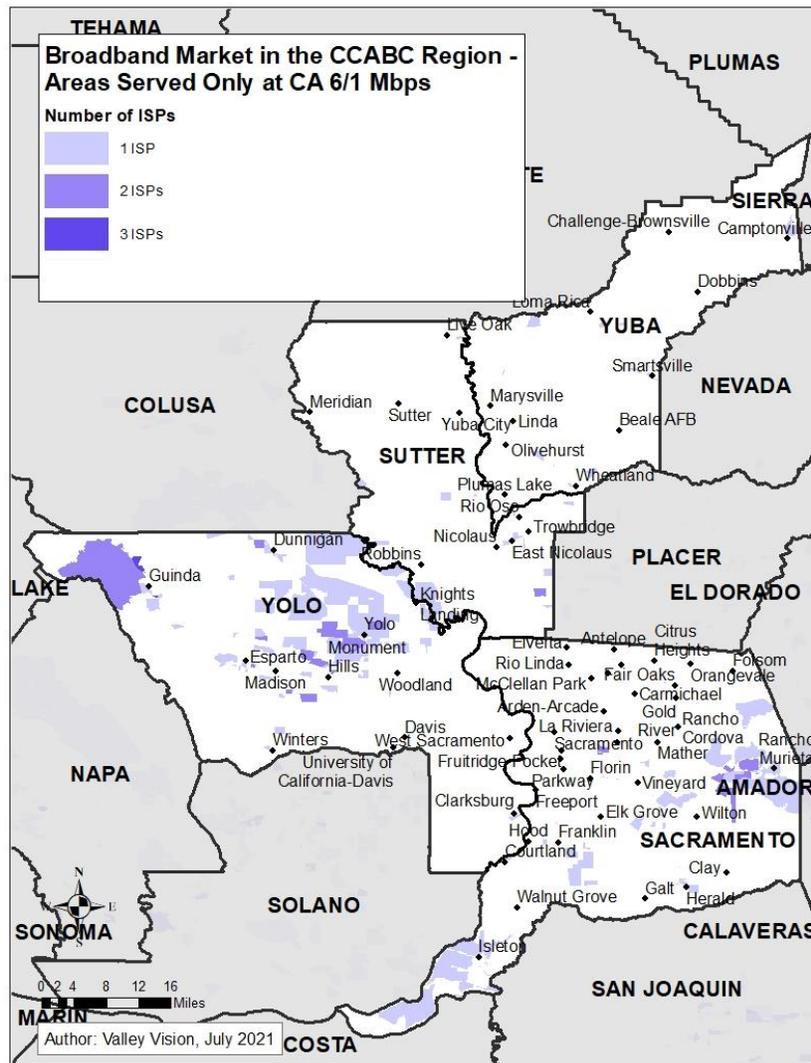
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	222,152	87.1%	78,524	86.4%	95,607	87.1%
2	29,210	11.5%	10,956	12.1%	12,626	11.5%
3	2,568	1.0%	987	1.1%	1,066	1.0%
4	1,021	0.4%	386	0.4%	419	0.4%
	254,951		90,853		109,717	



In the CCABC Region: Areas Served at the CA Standard (6/1 Mbps)

This includes only the green areas in the coverage map and does not include areas served at higher standards (6/1 Mbps ≤ speed <25/3 Mbps). In the CCABC Region, 91.9% of the **population** (91.1% of **households**, 91.1% of **housing units**) are served by only **one** ISP. Furthermore, 99.6% of the **population** (99.5% of **households**, and 99.5% of **housing units**) are served by **two or less** ISPs.

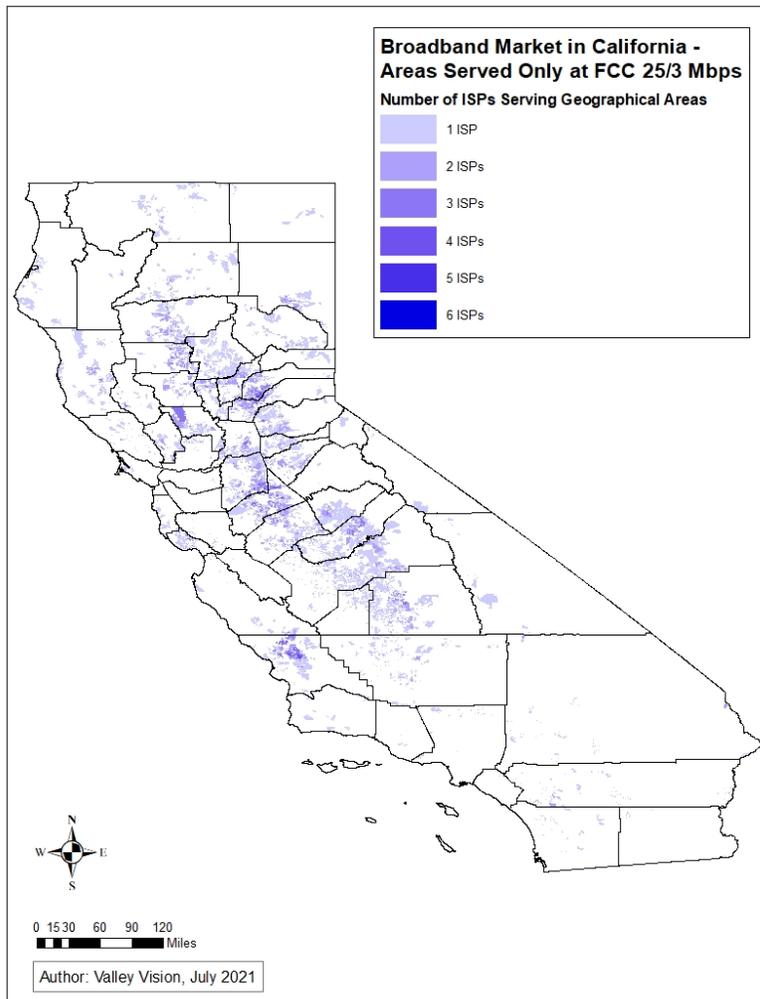
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	11,869	91.9%	3,408	91.1%	3,847	91.1%
2	997	7.7%	318	8.5%	358	8.5%
3	47	0.4%	16	0.4%	20	0.5%
	12,914		3,742		4,224	



In California: Areas Served at the FCC Standard (25/3 Mbps)

This includes only the light blue areas in the coverage map and does not include areas served at higher standards (25/3 Mbps ≤ speed <100/20 Mbps). In these areas, **94.7%** of the **population** (**94.7%** of **households**, and **94.8%** of **housing units**) are served by **two or less ISPs**.

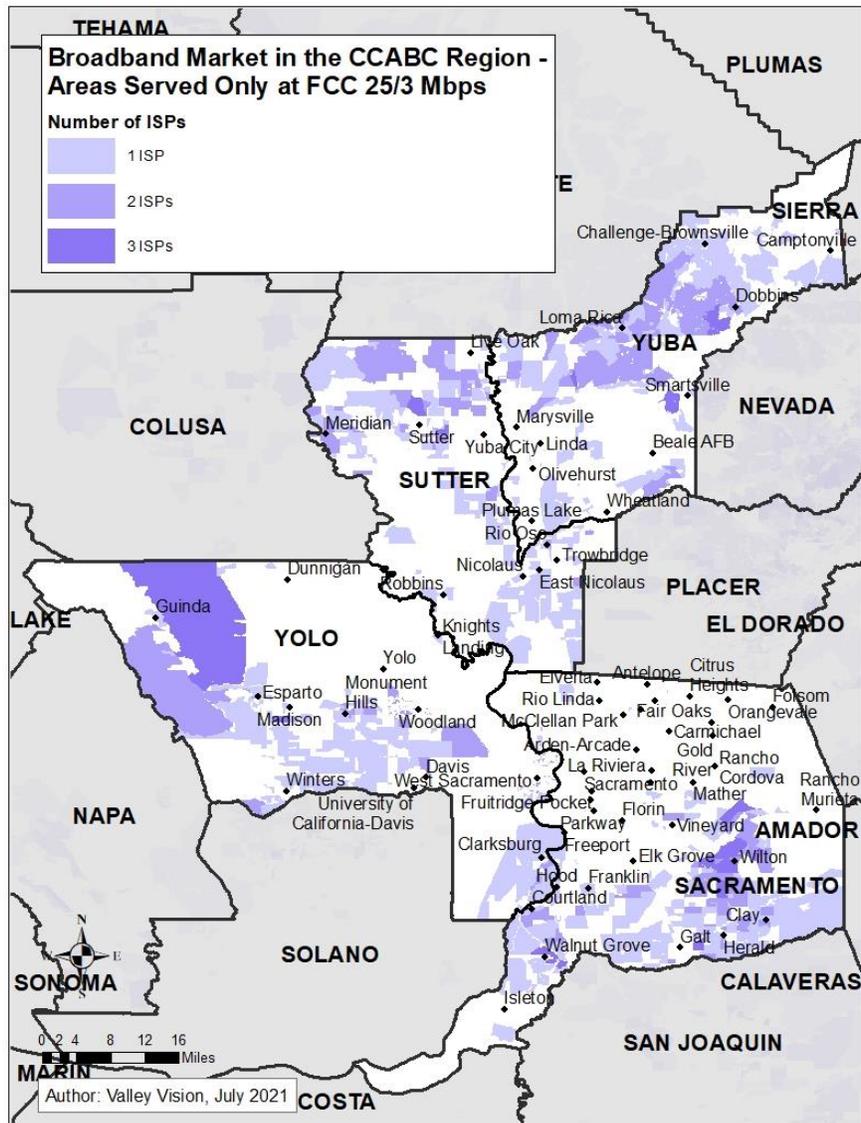
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	826,889	72.5%	303,842	72.7%	357,657	73.7%
2	253,563	22.2%	91,909	22.0%	102,990	21.2%
3	51,322	4.5%	18,621	4.5%	21,098	4.3%
4	6,978	0.6%	2,674	0.6%	2,931	0.6%
5	1,352	0.12%	502	0.12%	563	0.12%
6	391	0.03%	169	0.04%	189	0.04%
	1,140,495		417,718		485,426	



In the CCABC Region: Areas Served at the FCC Standard (25/3 Mbps)

This includes only the light blue areas in the coverage map and does not include areas served at higher standards (25/3 Mbps ≤ speed <100/20 Mbps). In these areas, **93.5%** of the **population** (93.2% of households, and 93% of housing units) are served by **two or less ISPs**.

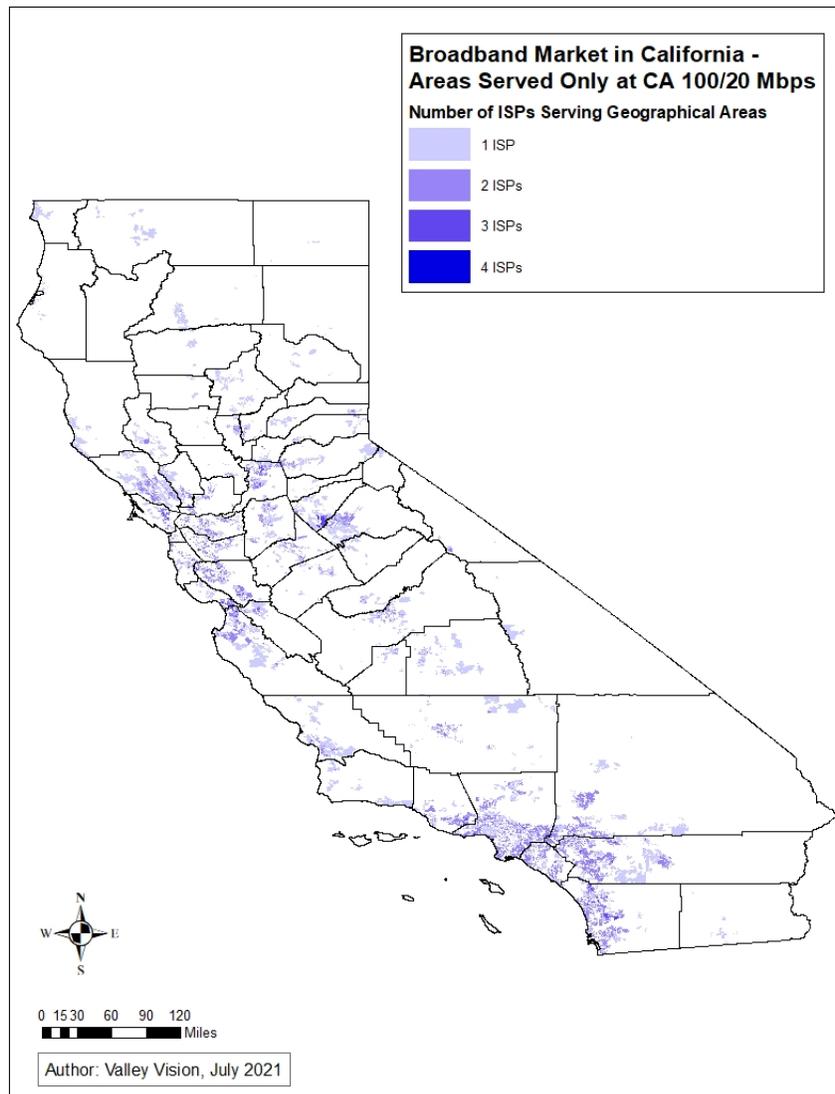
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	37,780	51.3%	11,970	50.0%	13,142	50.4%
2	31,087	42.2%	10,369	43.3%	11,130	42.6%
3	4,735	6.4%	1,608	6.7%	1,827	7.0%
	73,603		23,947		26,099	



In California: Areas Served at the CA Action Plan Standard (100/20 Mbps)

This includes only the dark blue areas in the coverage map and does not include areas served at higher standards (**100/20 Mbps ≤ speed <1000/500 Mbps**). In these areas, **98.9%** of the **population** (**98.8%** of **households**, and **98.8%** of **housing units**) are served by **two or less ISPs**.

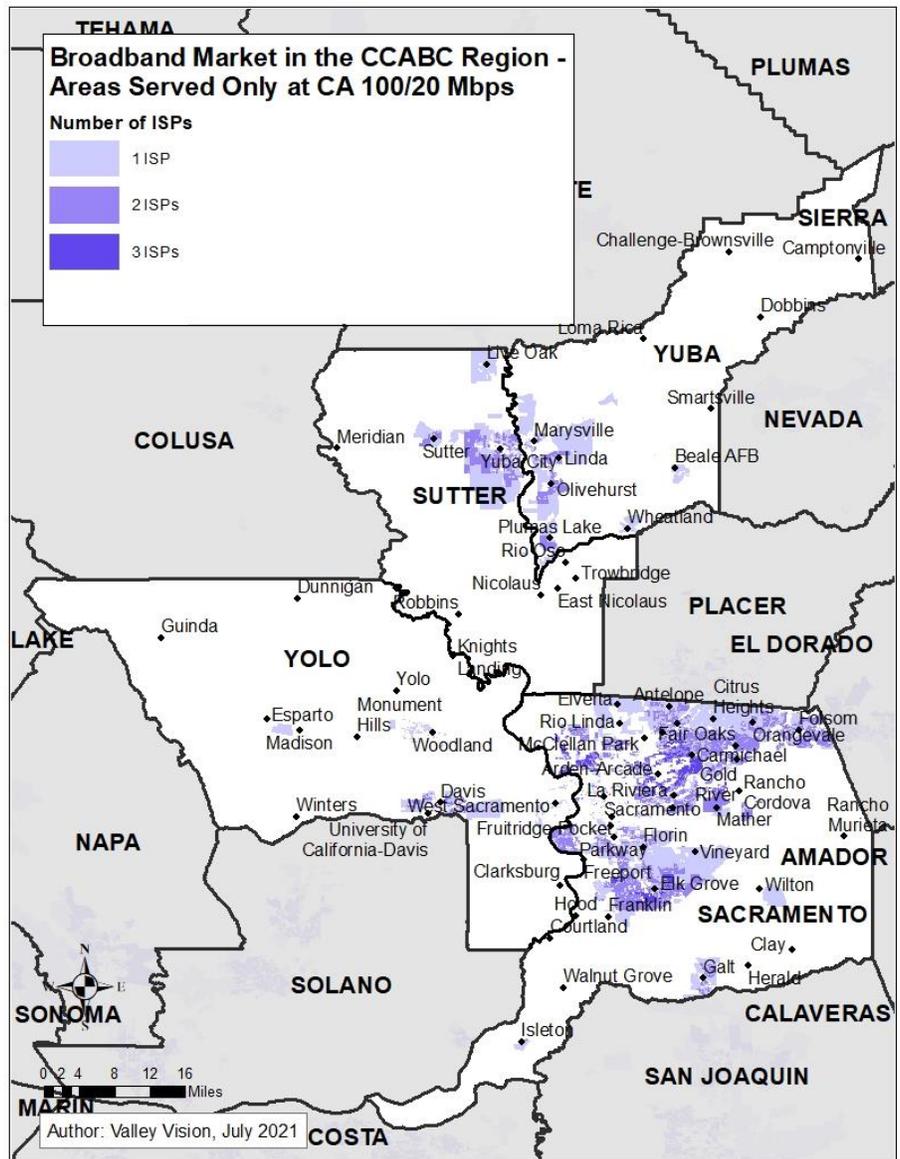
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	14,791,548	49.8%	4,856,378	50.1%	5,315,191	50.7%
2	14,595,941	49.2%	4,720,362	48.7%	5,045,235	48.2%
3	294,288	1.0%	105,516	1.1%	113,790	1.1%
4	5,639	0.02%	2,873	0.03%	3,277	0.03%
	29,687,415		9,685,129		10,477,493	



In the CCABC Region: Areas Served at the CA Action Plan Standard (100/20 Mbps)

This includes only the dark blue areas in the coverage map and does not include areas served at higher standards (100/20 Mbps ≤ speed <1000/500 Mbps). In these areas, **95.2%** of the population (94.8% of households, and 94.7% of housing units) are served by two or less ISPs.

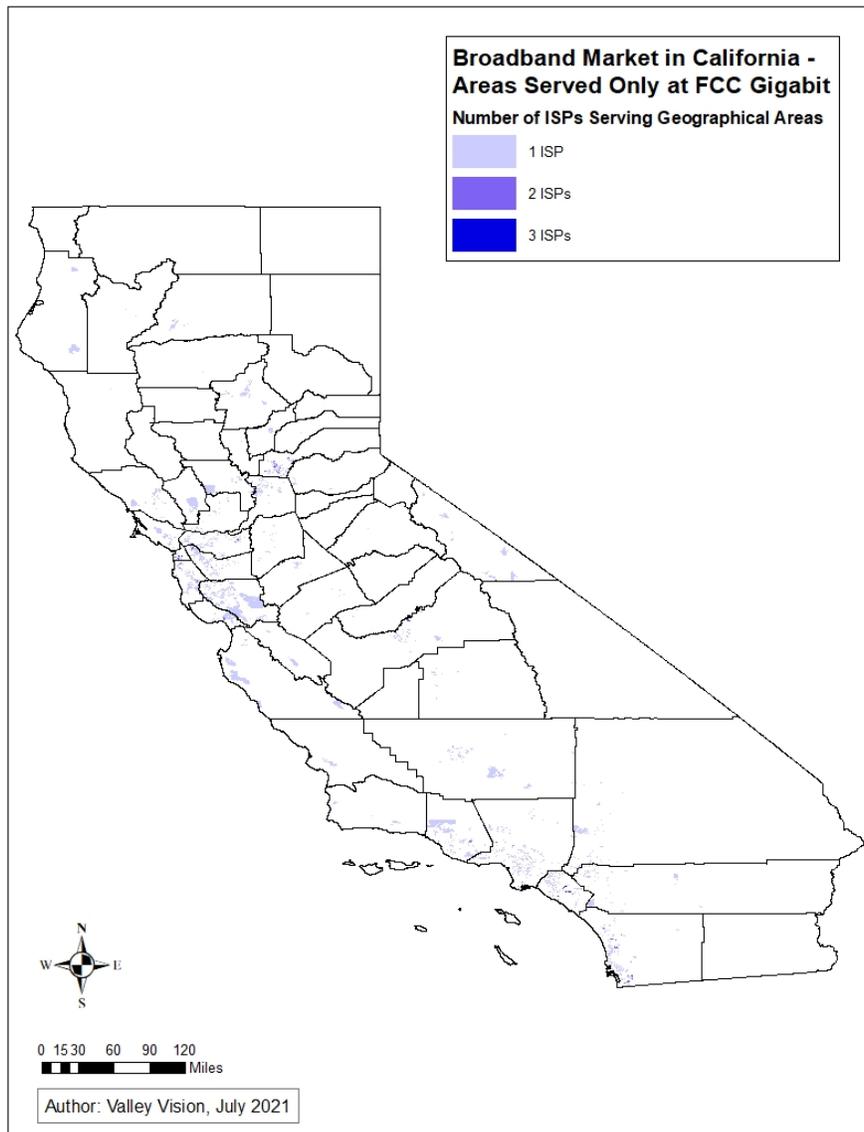
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	726,551	52.1%	236,712	50.8%	256,047	50.8%
2	601,736	43.1%	205,071	44.0%	221,651	44.0%
3	66,625	4.8%	24,112	5.2%	26,359	5.2%
	1,394,912		465,895		504,057	



In California: Areas Served at the FCC Gigabit Standard (1000/500 Mbps)

This includes only the gray areas in the coverage map (1000/500 Mbps ≤ speed). In these areas, **99.8% of the population (99.8% of households, and 99.8% of housing units)** are served by **two or less ISPs**.

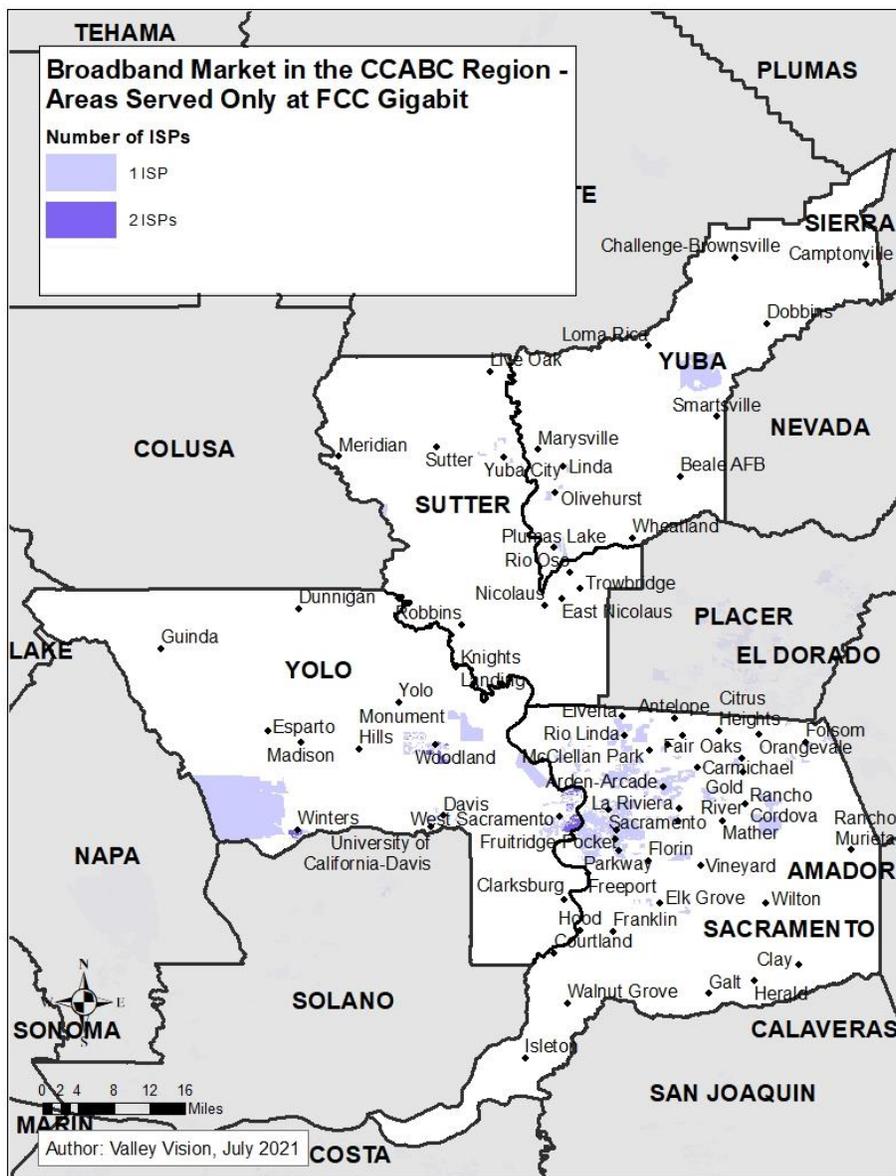
# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	7,072,870	94.1%	2,355,813	93.4%	2,528,408	93.3%
2	435,968	5.8%	162,807	6.5%	177,613	6.6%
3	11,111	0.1%	4,711	0.2%	5,228	0.2%
	7,519,949		2,523,331		2,711,248	



In the CCABC Region: Areas Served at the FCC Gigabit Standard (1000/500 Mbps)

This includes only the gray areas in the coverage map (1000/500 Mbps ≤ speed). In these areas, **100%** of the **population** (100% of households, and 100% of housing units) are served by **two or less ISPs**.

# of ISPs	Population	% Pop	Households	% HHs	Housing Units	% HHs
1	390,888	95.7%	141,984	96.0%	155,621	96.2%
2	17,373	4.3%	5,842	4.0%	6,193	3.8%
	408,262		147,827		161,814	



Full-Page Market Competition Maps

