



# California Public Utilities Commission

## Communications Division

### **DIVCA Video, Broadband and Video Employment Report For The Year Ending December 31, 2015**

### **The Digital Infrastructure and Video Competition Act of 2006 (DIVCA)**

*"To promote competition, the state should establish a state-issued franchise authorization process that allows market participants to use their networks and systems to provide video, voice, and broadband services to all residents of the state. . ."*

DIVCA § 5810



Annual Report to the Governor and the Legislature  
Submitted June 8, 2017

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# 1. Executive Summary

The Digital Infrastructure and Video Competition Act (DIVCA)<sup>1</sup> seeks to promote competition in “video and broadband services” via a “state-issued franchise authorization process that allows market participants to use their networks and systems to provide video, voice and broadband services to all residents of the state.”<sup>2</sup> This Report to the Legislature<sup>3</sup> presents the annual video and broadband service information of California state video franchise holders and their affiliates (SVF holders)<sup>4</sup> pursuant to the DIVCA, and the annual employment data required to be submitted by the largest SVF holders with more than 750 employees,<sup>5</sup> for the period January 1, 2014 through December 31, 2015.<sup>6</sup>

## **Finding 1: Video availability and consumer choice increased by 0.1% in 2015**

As of December 2015, AT&T and Verizon<sup>7</sup> offered wireline video to almost 7.4 million households – more than half of all California households. During 2015, AT&T and Verizon increased the number of households to whom they offer video by 0.1% (approximately 72,000 households) over the prior year. Since implementation of DIVCA in 2007, more than 5 million more households gained a choice of wireline video providers.

## **Finding 2: AT&T and Verizon continued to meet the low income video build-out requirement**

Both AT&T and Verizon in 2015 met the ongoing annual 30% low income video build-out requirement. Additionally, in prior years both AT&T and Verizon met their three and five year low income household build-out obligations and exceeded their two, three and five year

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<sup>1</sup> Cal. Pub. Util. Code §§ 5800 et seq.

<sup>2</sup> Cal. Pub. Util. Code §§ 5810(a)(1) and (a)(1)(C).

<sup>3</sup> Cal. Pub. Util. Code § 5960(c)

<sup>4</sup> Examples of affiliates include those providing wireless service, and video programming pursuant to unexpired local Cable TV franchises. State Video Franchise holders and their affiliates, hereafter are referred to as “SVF holders.”

<sup>5</sup> Cal. Pub. Util. Code § 5920(a)

<sup>6</sup> The CPUC issued D. 16-12-025, an 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 (December 8, 2016). The reader is cautioned that the statistics in this Report and those in the Competition OII Decision may differ. Although both based on the time period ending December 31, 2015, the Competition OII used different data sets from Data Requests specific to that proceeding. The data used to create this DIVCA report was sought and received from a different universe of providers than the Competition OII. In addition, different analytical techniques were used to develop the analyses used in this Report. This DIVCA Report is not intended to cover issues such as market concentration (applying, e.g., HHI analysis), which were the focus of the Competition OII, and presents no such analysis here.

<sup>7</sup> Verizon California sold its wireline business, including its video franchise to Frontier Communications Corporation (Frontier) in April 2016. We will continue to refer to Verizon in this Report.

video build-out obligations.<sup>8</sup>

### **Finding 3: Faster broadband services are being made available and more Californians are shifting their subscriptions from slower to faster speeds**

In this Report, we refer to “broadband service” as any service with a throughput at least 200 Kbps in either direction, as that is the definition used by the FCC in collecting and analyzing broadband deployment and subscription data. In this way, our findings and analysis can be compared to published national broadband statistics and statistics for other states.

Although the FCC currently defines “advanced telecommunications service” as having throughput speeds of 25/3 Mbps or greater, it has not revised its 200 Kbps floor in the definition of “broadband service,” even though a 200 Kbps - 756 Kbps connection is now so slow it would not work for the applications people are now using.<sup>9</sup> As seen throughout this Report, growth in both deployment and usage is indeed, as would be expected, at the higher end of broadband offerings. See section 5 of this Report at pages 18-20 for a detailed description of the FCC’s definition of broadband and its benchmark for “advanced telecommunications capability.”

By the end of 2015, broadband in the advertised download speed tier of 100 megabits per second (Mbps) to 500 Mbps, was available to 88.4% (11.4 million) of California households. At the end of 2013, only 54% of California households had such availability.

Subscribers to two of the fastest individual download speed tiers ( 50 Mbps < 100 and 100 Mbps < 500) constituted 53.5% (5.6 million) of all of the subscribers at the end of 2015. At the end of 2013, only 39,160 households subscribed to broadband faster than 100 Mbps. Two years later, at the end of 2015, 2.2 million households subscribed, an increase of over 540%.

In contrast, for two of the slowest download speed tiers, during the three year period between 2012 and 2015, the number of subscribers to the minimum advertised download speed category “under 3 Mbps” fell by 89%, and the minimum advertised download speed category “under 10 Mbps” fell by 63%.<sup>10</sup>

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<sup>8</sup> See, Cal. Pub. Util. Code § 5890(b)(1)(2).

<sup>9</sup> Originally, the term broadband was used to refer to any “always on” Internet access service, as opposed to dial-up, which had been the only Internet access residential technology until then. Maintaining the definition of “broadband” based on this “anything but dial-up” concept seems anachronistic to many, given the advances in broadband technology since the term was defined.

<sup>10</sup> There is very little impact from consideration of the lowest speed ranges on the results of analysis contained in this Report. Relatively few households subscribed to the lowest advertised speed tiers in December 2015, and that number is decreasing annually. At the end of 2015, only 346,454 households subscribed to speeds at

#### **Finding 4: Consumer choice is expanding for faster broadband service**

Seventy-eight percent (78%) of California households had wireline broadband available from two or more SVF holders at advertised minimum advertised download / upload speeds of 10/1 Mbps or faster in 2015, up from 72% in 2014. Twenty-seven percent (27.4%) of California households had wireline broadband available from two or more SVF holders at minimum advertised download / upload speeds of 25/3 Mbps or faster in 2015, up from 18% in 2014.<sup>11</sup>

#### **Finding 5: Broadband subscribership continues to increase, while subscriptions to video service remain flat**

Video subscribership remained flat at 6.6 million households during 2015, while broadband subscribership increased by 298,142 (2.9%). There were 3.9 million more broadband subscribers than video at the end of 2015.

#### **Finding 6: Subscriptions to cable modem broadband are double the number of subscriptions to DSL, and the difference is widening**

Cable modem service had 61% (6.4 million) of the total number of subscribers to wireline broadband, compared to 31% (3.3 million) for DSL, and 8% (816,727) for fiber to the home.

#### **Finding 7: Total employment across the six State-Issued SVF holders decreased by 3.3% (-1,271) to 37,099 during 2015 and decreased by 34.6% (-19,649) between 2007 and 2015**

The 2015 decrease was approximately the same as the -3.0% decrease reported during 2014, and significantly larger than the -0.9% decrease during 2013.

AT&T California's total number of employees in CA (excluding AT&T Mobility) declined by 40.2% (-11,867) between 2007 and December 2015. During that same period, Verizon's employee count declined by 55.3% (-4,487), Comcast's employees count declined by 37.4% (-2,677), and Cox's employee count declined by 41.8% (-1,357). Meanwhile, during that same 2007 to 2015 period, Time Warner's employee count increased by 8.6% (+633), and Charter's employee count increased by 7.6% (+106).

#### **Finding 8: Four of the six state-issued video franchise holders reported increases in the overall number of Californians they employed during 2015**

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less than an advertised 3 Mbps, and of those, 376 households were reported to subscribe to service between an advertised 200 Kbps and 768 Kbps.

<sup>11</sup> These are calculations where there are overlapping providers, which can result in some double counting. See discussion of data limitations in section 6 at pages 21-22 and in Appendix C (H and I) at pages 61-63.

**Finding 9: Three of the six SVF holders forecasted that they would add a total of 233 positions during 2016**

For 2016, AT&T forecasted adding 137 new employees, Time Warner forecasted adding 86 and Cox forecasted 10 new employees.

## 2. DIVCA Overview

### A. The CPUC's Role In Implementing DIVCA

The DIVCA statute provides that the CPUC is the sole franchising authority for issuing state video franchises. The statute also provides that a “holder of a state franchise shall not be deemed a public utility as a result of providing video service under this division,”<sup>12</sup> and prohibits the Commission from imposing requirements on state-issued franchise holders not expressly provided by DIVCA.<sup>13</sup> SVF holders otherwise operating as public utilities may be subject to public utility requirements.

DIVCA provides authority to the Commission over DIVCA franchise holders in the following areas:

- Issuing and renewing 10-year video franchises;<sup>14</sup>
- Gathering data from state-issued video franchise holders on their deployment of video and broadband services on an annual basis;<sup>15</sup>
- Aggregating data submitted by holders for use in an Annual Report from the CPUC to the Governor and Legislature;<sup>16</sup>
- Verifying that holders of video franchises have complied with build-out and anti-discrimination requirements;<sup>17</sup>
- Enforcing the prohibition of telco-video cross-subsidization;<sup>18</sup>
- Collecting fees from video franchise holders to equal the cost of carrying out its duties.<sup>19</sup>

As of December 2015, the CPUC has issued 53 state video franchises and 174 amendments to those franchises. A full list of SVF holders is available on the CPUC website in the Video Franchising section of the Communications Division's webpage at: <http://www.cpuc.ca.gov/General.aspx?id=2134>.

SVF holders are required to submit data annually, on April 1, regarding their provision of video and broadband services, and information pertaining to their service to low-income

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<sup>12</sup> Cal. Pub. Util. Code § 5820(c).

<sup>13</sup> Cal. Pub. Util. Code § 5840 (a).

<sup>14</sup> Cal. Pub. Util. Code § 5840 (a).

<sup>15</sup> Cal. Pub. Util. Code § 5960 (b).

<sup>16</sup> Cal. Pub. Util. Code § 5960 (c).

<sup>17</sup> Cal. Pub. Util. Code § 5890.

<sup>18</sup> Cal. Pub. Util. Code §§ 5940, 5950. See Decision Adopting a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006 at 174 [D. 07-03-014] (2007) (Phase 1 Decision). See pages 15-16 of the 2013 DIVCA Report for a discussion of the telco-video cross-subsidization issue.

<sup>19</sup> Cal. Pub. Util. Code § 5810(a)(3).

households within the holders' video service areas, as of December 31 of the previous year. DIVCA directs the California Public Utilities Commission (CPUC or Commission) to aggregate this data and report it to the Governor and the Legislature annually. (See Appendix A for a history of DIVCA, Appendix B for DIVCA decisions, and Appendix C for data collected.) Sections three (3) and four (4) of this Report summarize data describing video services that are provided by state-issued video franchise holders and their local affiliates, submitted in response to the statutory requirements of DIVCA.

## **B. Consumer Protection Under DIVCA**

Public Utilities Code § 5900(c) states that “the local entity (county or municipality) shall enforce all of the customer service and protection standards of this section with respect to complaints received from residents within the local entity’s jurisdiction.”<sup>20</sup> Sections 5900(d)-(j) set out the procedures for the imposition of fines by local entities and for judicial review; a court “shall conduct de novo review of any issues presented.”

DIVCA incorporates specific consumer protection provisions including, but not limited to, local office and telephone service hours, pricing and programming notices, and billing and disconnect practices and policies.<sup>21</sup> DIVCA directs local entities to enforce these customer service and protection standards, and to provide a schedule of penalties for any material breach by ordinance or resolution.<sup>22</sup> For any alleged material breach of consumer protection standards, a local entity must provide the state video franchise holder written notice of the alleged breach and give the holder at least thirty days to remedy the specified material breach.<sup>23</sup>

Even though the stated authority for enforcement of customer service and protection standards rests with the “local entities” (municipalities, counties and special districts), as set forth above, the Communications Division (CD) staff at the CPUC receives and answers calls from residents and local municipalities who have complaints and questions about services provided by holders of state-issued video franchises. Examples of questions and topics that the CD staff typically addresses include: quality of service issues, pricing concerns, line extension disputes, content and public, educational, and governmental (PEG) access issues. Staff responds to inquiries and complaints, and when appropriate, refers people to their local municipality. In addition, CD staff may contact local municipality staff about complaints

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<sup>20</sup> Cal. Pub. Util. Code § 5900(c-j).

<sup>21</sup> See, Cal. Pub. Util. Code § 5900(a), which in turn incorporates Cal. Gov’t Code §§ 53055, 53055.1, 53055.2 and 53088.2, as well as other customer service standards pertaining to the provision of video service established by federal law or regulation or adopted by subsequent enactment of the Legislature. Section 5900 also requires holders to comply with certain privacy standards.

<sup>22</sup> Cal. Pub. Util. Code §§ 5900(c) & (d).

<sup>23</sup> Cal. Pub. Util. Code § 5900(e).

received and provide information relating to their role in the process. Staff also sometimes assists the municipality by contacting the video franchise holder about the specific situation and informally mediating discussions between the local municipality or customer and the video franchise holder.

The CPUC is responsible for ensuring that video service providers have valid state video franchises and for enforcing other franchise provisions of the statute. Some small video service providers have been found to be operating without either state or local video franchises. When a local entity reports this to staff, staff sends the video service provider a compliance letter demanding that it obtain a state franchise as required by law. Staff coordinates with affected local governments to advise them of the status of the matter and to seek input. Should the service provider not comply, the matter is escalated to a formal proceeding. For example, the CPUC initiated an enforcement proceeding, Order Instituting Investigation (OII) 14-08-015, in 2014 against New Day Broadband for operating without a state-issued franchise. The CPUC fined New Day \$10,000 for operating without a State Video Franchise.<sup>24</sup>

### **C. 2014 Franchise Renewal Decision**

The Commission grants an initial franchise for a period of 10 years, after which the franchise may be renewed. On August 28, 2014, the CPUC issued D.14-08-007 (“Franchise Renewal Decision”) implementing the franchise renewal provisions of DIVCA by adopting rules for the renewal of state issued franchises.<sup>25</sup> Public Utilities Code § 5850 requires that the process for renewing an existing franchise be identical to the process set forth in DIVCA for obtaining an initial franchise, except that the renewal process must be consistent with federal law governing the renewal of cable television franchises and the applicant seeking renewal must not be in violation of any non-appealable court order issued pursuant to DIVCA. The renewal rules are incorporated into General Order 169.

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<sup>24</sup> New Day is no longer providing video service, as it sold part of the system to another state video franchise holder. New Day no longer does business in California and its fine remains unpaid.

<sup>25</sup> ORA filed a petition for modification of D.14-08-007 on July 1, 2015. The petition is still pending.

### 3. AT&T and Verizon Deployment and Build-Out Compliance

#### A. AT&T and Verizon Have Met Their Build-out Requirements

DIVCA requires SVF holders or their affiliates, with more than 1 million telephone customers (AT&T and Verizon), to build out facilities sufficient to provide specified percentages of customers within their telephone service areas access to their video service within five years of the passage of DIVCA.<sup>26</sup> DIVCA requires the CPUC to monitor compliance.<sup>27</sup>

If the Commission finds a SVF holder out of compliance with the build out, low income, or other provisions of DIVCA, DIVCA gives the Commission authority to impose fines up to one percent of SVF holders' total monthly gross video revenue, and/or suspend or revoke a state video franchise.<sup>28</sup>

As part of ongoing enforcement duties, CD staff has analyzed the deployment records of both AT&T and Verizon<sup>29</sup> to determine whether both organizations have complied with the requirements of DIVCA. These analyses determined that Verizon exceeded its two and five year build-out obligation, as defined in Public Utilities Code § 5890(e), by offering video services to at least 40% of the households in its telephone service area in 2011.

At the five-year time frame set forth in the statute, AT&T did not meet its five year build-out obligation, but it invoked § 5890(e)(3), which permits a video service provider with more than one million telephone subscribers to delay meeting this five year build out obligation until it has a 30% video "take rate" for six consecutive months.<sup>30</sup> AT&T qualified for this extension to meet its build-out obligation during both 2011 and 2012. In 2013, AT&T met its build-out obligation by offering video to at least 50% of the households within its telephone service area.

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<sup>26</sup> Cal. Pub. Util. Code § 5890(b).

<sup>27</sup> Phase I Decision, D. 07-03-014, at page 7; R.06-10-005, General Order 169 Implementing DIVCA, VII, §C, page 17; Cal. Pub. Util. Code § 5890 (g)-(i).

<sup>28</sup> Cal. Pub. Util. Code § 5890 (g)-(i).

<sup>29</sup> Verizon California sold its wireline business, including their video franchise to Frontier in April 2016, subsequent to the time frame of this Report. We will accordingly continue to refer to Verizon in this Report.

<sup>30</sup> Cal. Pub. Util. Code § 5890 (e)(3) states: "A holder shall not be required to meet the (build out) requirement...until two years after at least 30 percent of the households with access to the holders video service subscribe to it for six consecutive months."

The build-out requirements for holders with over one million telephone customers (AT&T and Verizon)<sup>31</sup> are shown in the table below:

### DIVCA Build-out Requirements

	Holders with more than One Million Telephone Customers in CA	
Time Frame	Verizon - Predominantly Fiber Optic to Premises	AT&T - Predominantly Non-fiber Optic to Premises
Within 2 years	25% of customer households in a telephone service area must have access to video service	N/A
Within 3 years	N/A	35% of households in telephone service area must have access to video service
Within 5 years*	40% of customer households in a telephone area must have access to video service	50% of households in telephone service area must have access to video service

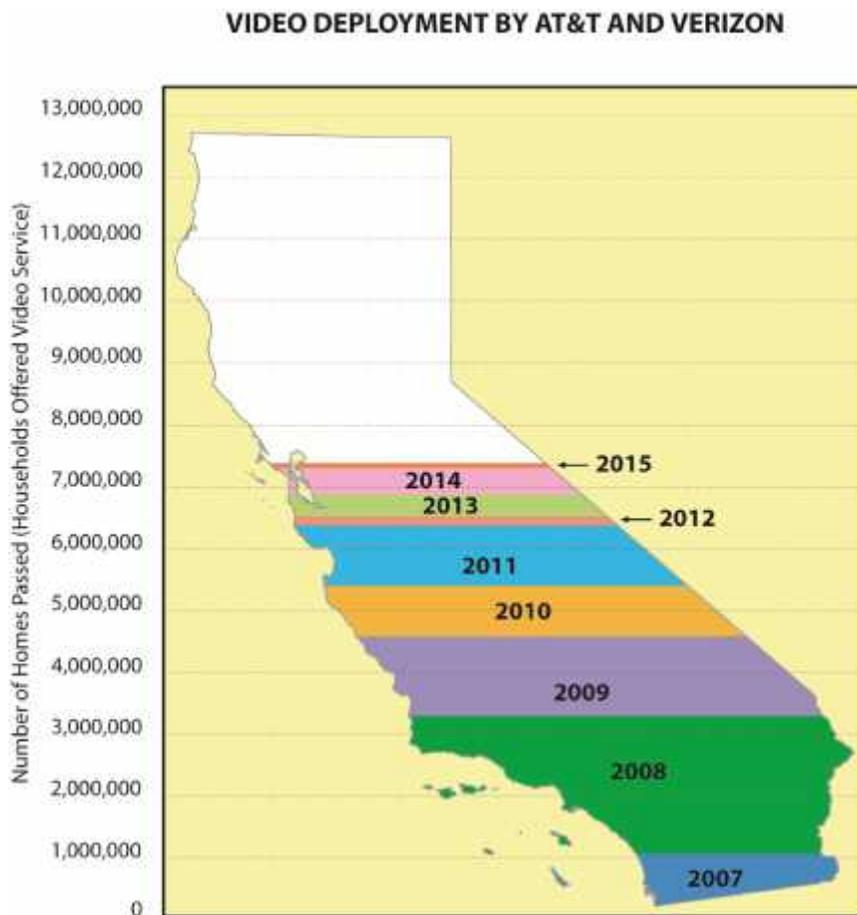
**\* Not required to meet these requirements until 2 years after at least 30% of households with access become subscribers for 6 consecutive months**

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<sup>31</sup> Because the incumbent cable companies offer video service to any household that is also offered voice service, the Commission did not impose DIVCA's low-income / build-out requirements on those cable companies. See D.07-03-014, at p.163 and D.07-10-013, at p. 3.

## B. Video Deployment by AT&T and Verizon Increased by 0.1% in 2015

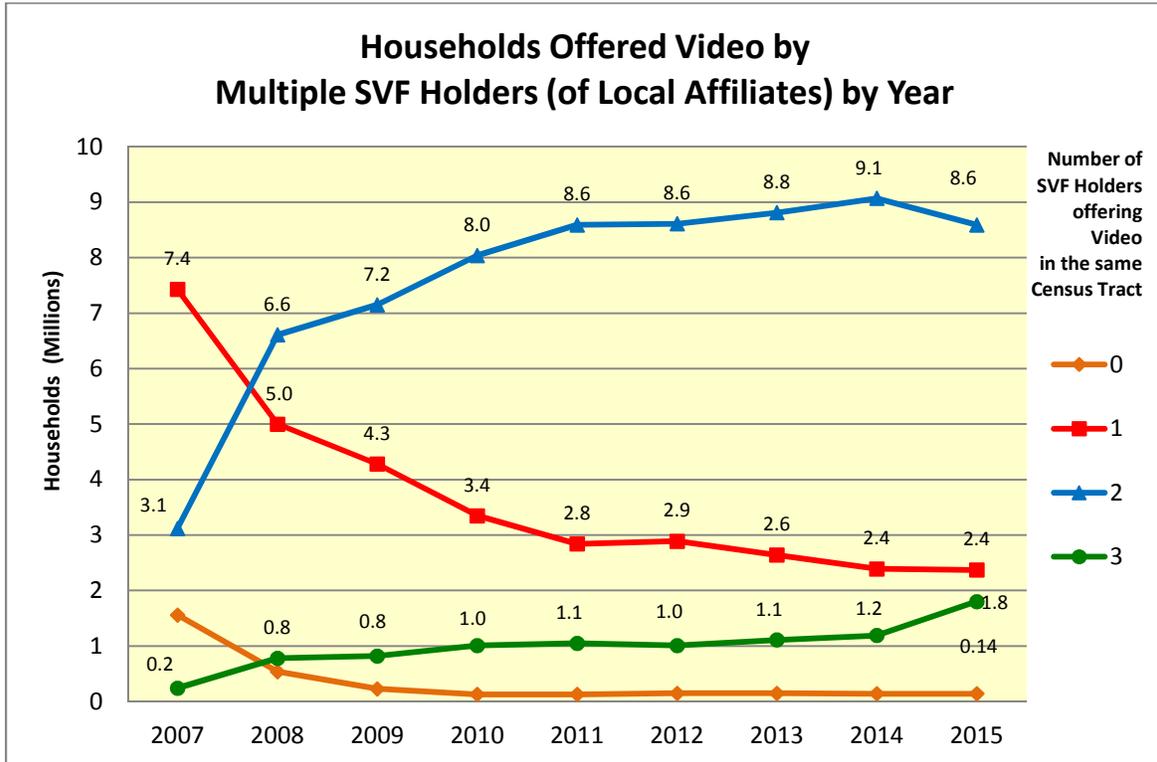
To measure video deployment, we count the number of households offered video services.<sup>32</sup> The chart below shows that during 2015, AT&T and Verizon increased their combined deployment of video services by 0.1% (approximately 72,000 Households) to 7.38 million households, more than half the 12.9million households in the state. This compares with a 6.2% increase during 2014, and a 5.5% increase during 2013. During 2011, AT&T and Verizon increased their combined video deployment by 18%.



<sup>32</sup> By statute, service providers submit DIVCA video availability data, to the CPUC on a Census tract basis. For a discussion of the staff's method of collecting, validating and analyzing DIVCA data, and the limitations of Census block and tract granularity, see Section 6 of this Report, pages 21-22, and Appendix C (Section H), pages 61-63. No such limitation applies here, as video availability data reflect actual households offered video service within each Census tract. The video availability data provided in Sections 3A, 3B, 3C & 3D on pages 8 -12of this Report involve AT&T and Verizon data only. Those two companies have video franchise areas only where telephone service is also available; traditionally, AT&T and Verizon do not have overlapping telephone service areas. As a result, Census tract granularity does not cause the over-counting described in the staff analysis that follows, which says that over-counting can sometimes occur when multiple companies operate within the same Census tract.

### C. Households Offered Video by Number of SVF Holders over Time

The line graph below shows that at the end of 2015, 10.4 million households are located in census tracts in which two or more SVF holders offer video services (i.e., 8.6 + 1.8 million). This number increased 1.4% (140,000) during 2015. The number of households located in census tracts in which three SVF holders offer video services increased by 51% (610,000) to 1.8 million.



### D. AT&T & Verizon Have Met Their Low Income Build-Out Requirements

In addition to imposing overall build-out requirements on SVF holders with more than 1 million telephone customers (AT&T and Verizon), DIVCA states: “A cable operator or video service provider that has been granted a state franchise under this division may not discriminate against or deny access to service to any group of potential residential subscribers because of the income of the residents in the local area in which the group resides.”<sup>33</sup> To operationalize this requirement, DIVCA also imposes low income build-out requirements for state-issued franchise holders with more than one million telephone customers in California.<sup>34</sup>

<sup>33</sup> Cal. Pub. Util. Code § 5890 (a).

<sup>34</sup> Cal. Pub. Util. Code § 5890 (j)(4); "Low income household" means those residential households located within the holder's existing telephone service area where the average annual household income is less than thirty-five thousand dollars (\$35,000), based on the 2000 United States Census Bureau estimates adjusted

DIVCA requires that five years after Verizon and AT&T begin offering video service and continuing thereafter, each is obliged to ensure that at least 30% of the households with access to video service in their respective video service territories are low income households. The table below summarizes these requirements:

### **DIVCA Low Income Build-Out Requirements**

<b>Time Frame</b>	<b>Holders with more than one million telephone customers in CA</b>
Within 3 years	25% of households in a telephone service area with access to video service must be low-income households
Within 5 years	30% of households in a telephone service area with access to video service must be low-income households.
Annual requirement after 5 years	30% of low-income households in a telephone service area must continue to have access to video service.

As with the overall build-out requirement, if the Commission finds a SVF holder out of compliance with the low income build-out provisions of DIVCA, DIVCA gives the Commission authority to impose fines up to 1 percent of the SVF holders' total monthly gross video revenue, and/or suspend or revoke a state video franchise.<sup>35</sup>

As part of ongoing enforcement duties, the CPUC's Communications Division staff have analyzed the deployment records of both AT&T and Verizon to determine whether these SVF holders have complied with the low income requirements of DIVCA. These analyses determined that both AT&T and Verizon met their on-going low income build-out requirement at both the three year mark in 2010 and the five year mark, in 2012. This analysis was done again in 2013, 2014, 2015, and staff again determined that both AT&T and Verizon met DIVCA's on-going low income build-out requirement.

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annually, to reflect rates of change and distribution through January 1, 2007. The low income household percentages derived from these 2007 estimates are the basis for calculating low-income compliance thereafter.

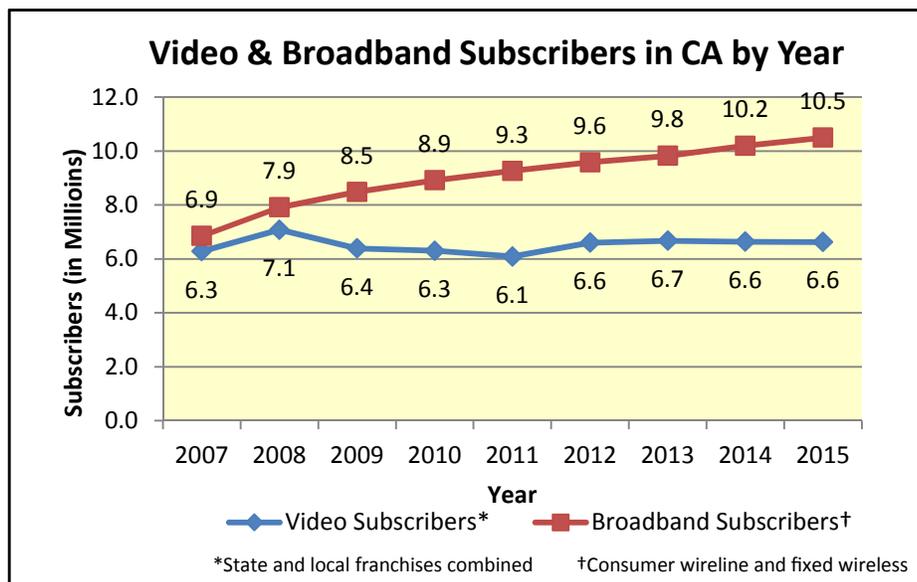
<sup>35</sup> Cal. Pub. Util. Code §5890(h).

## 4. Analysis of Video Subscribership Data

### A. Video Subscribership Has Plateaued, While Broadband Subscribership Continues to Grow

The line graph below shows that traditional wireline bundled linear video<sup>36</sup> subscribership in California has remained essentially flat at 6.6 million subscribers for the four years ending in 2015, down from a peak of 7.1 million subscribers in 2008, and up from a low of 6.1 million in 2011. In contrast, broadband subscribership continued to grow by 2.9% in 2015, to 10.5 million. Since 2007, broadband subscribership to SVF holders (including their local affiliates) in California has grown by 52.2%, while video subscribership has plateaued. Consequently, there were 3.9 million more broadband subscribers than video in 2015.

As seen in the chart below, video subscribership in California is consistent with nationwide trends in video subscribership. A recent FCC report shows nationwide subscribership to multichannel video programming distributors (MVPDs) that provide linear video<sup>37</sup> fell by 1% during 2015.<sup>38</sup>



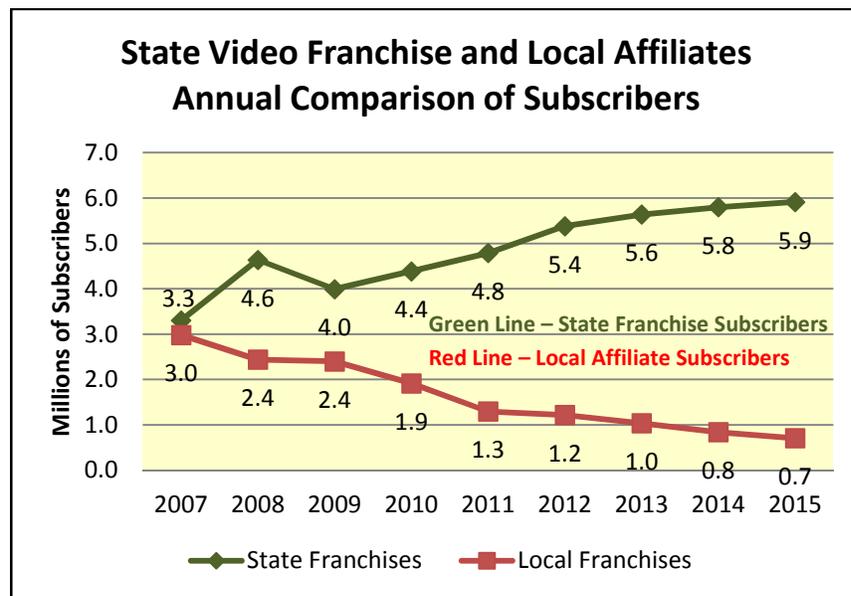
<sup>36</sup> Linear video is a television service where the viewer must watch a scheduled program at the particular time it is offered, and on the particular channel it is presented, or record it for later viewing. Alternatives to this are Over-The-Top (OTT) streaming services, digital video recorders (DVRs) and video-on-demand services.

<sup>37</sup> FCC nationwide metrics include satellite providers DIRECTV and DISH Network.

<sup>38</sup> FCC's 18<sup>th</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, DA, 17-71, MB Docket No. 16-247, January 17, 2017, page 30.

## B. Shift From Local Franchises to State Video Franchises Continued

The shift towards state-issued video franchises has continued to grow each year. The line graph below shows that the number of households subscribing to traditional wireline bundled linear video provided by SVF holders increased by 78.8% (2.6 million) between 2007 and 2015, to 5.9 million households. Meanwhile, total video subscribership to SVF holders remained essentially flat at 6.6 million since 2012.



The line graph above shows the continued transition from local franchises to state-issued video franchises. We estimate that by 2021 virtually all local video franchises will have been converted to state-issued video franchises.

Under DIVCA, an incumbent video provider that is operating under a local franchise has the option of opting into a state-issued franchise, once a competing video provider that has a state-issued video franchise begins operating in the incumbent video provider's local franchise area. If the incumbent does not exercise this option or a new video service provider does not begin providing service in its local franchise area, the incumbent's local franchise remains in effect until the franchise expires, after which time the incumbent must seek a state-issued franchise.

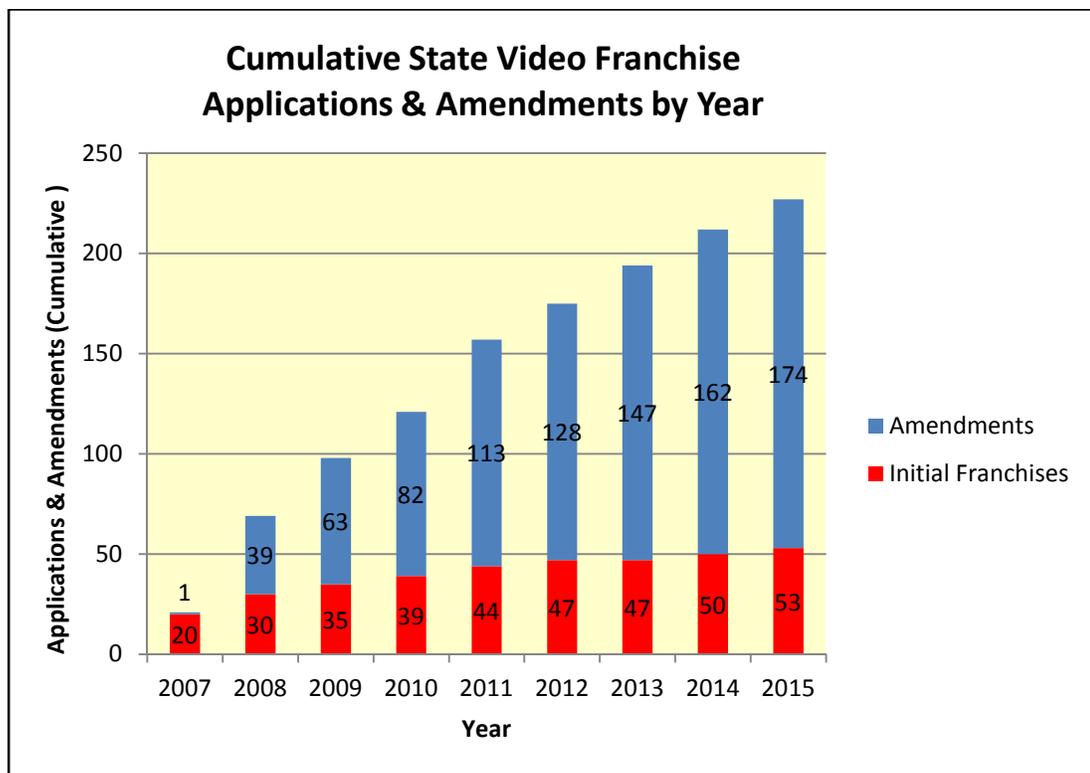
Most incumbent video providers shifted to state-issued video franchises soon after new entrants (telephone companies) began providing video service in one or more of their local franchise areas in 2007. This shift is reflected by the 20 initial applications granted in 2007 and 10 additional initial applications granted in 2008 (see bar chart in section 4C on page 16).

This shift is also reflected by the year-to-year cumulative increase between 2008 and 2014 in the number of subscribers to state-issued franchise holders (see the line graph in section 5B on the previous page). It is also reflected in the increase in amendments to the existing state-issued franchises, as competing video service providers expanded into more of the incumbent's local franchise areas, or the incumbents' existing local franchises expired. (See bar chart on the next page in section 5C.)

### C. Amendments to Existing State Video Franchises

The cumulative red bars in the chart below show that the growth of new state-issued video franchises slowed significantly since 2011. The red bars show that during 2015, there were 3 new franchise applications granted. The blue bars show the number of amendments increased by 12 during 2014, compared with 15 in 2014, 19 in 2013; 15 in 2012; and 31 in 2011. Amendments to existing video franchises “reflect changes to the franchise service area of a SVF Holder.”<sup>39</sup>

A state-issued video franchise grants the holder the right to offer video services in all or part of the state. State-issued video franchises are not exclusive. Multiple video service providers can receive video franchises for the same geographic area.



The map on the next page represents both incumbent and new entrant video service providers in California. Maps representing each video franchise are available on the CPUC website.<sup>40</sup> The areas with cross hatching indicate where both the incumbent Cable TV franchise holders and the new entrant telephone companies (AT&T and Verizon) have overlapping video franchise territories. The green area represents the entire video franchise service areas of AT&T and Verizon, not just the areas where they have actually deployed video services.

<sup>39</sup> CPUC, General Order 169, VI, C.

<sup>40</sup> See <http://www.cpuc.ca.gov/General.aspx?id=2134>.



## 5. Introduction and Context For Analysis of SVF Holder Broadband Data

The following broadband section of this report analyzes data provided by state-issued video franchise holders and their affiliates.<sup>41</sup> The CPUC has previously published the following reports that address *all* broadband service providers:

- *Market Share Analysis of Retail Communications Report, June 2001 through 2013.*<sup>42</sup>
- *California Broadband Report: A Comparative Summary of Broadband Adoption for June 30, 2011 to June 30, 2012.*<sup>43</sup>
- *The California Advanced Services Fund Report, January to December 2016.*<sup>44</sup>
- *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, D. 16-12-025 (December 8, 2016)*<sup>45</sup>

While the FCC has changed its benchmark for “advanced telecommunications capability” to 25 Mbps downstream, and 3 Mbps upstream in 2015, the FCC maintains its historical definition and use of broadband speeds from as low as 200 Kbps.<sup>46</sup> For these reasons, we collect and analyze broadband download speeds over the following speed tiers:

- 200 Kbps to 1.5 Mbps
- 1.5 Mbps to 3 Mbps
- 3 Mbps to 6 Mbps
- 6 Mbps to 10 Mbps
- 10 Mbps to 25 Mbps

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<sup>41</sup> This Report does not include data from providers unaffiliated with state-issued franchise holders, although the vast majority of broadband connections are associated with SVF holders. Examples of broadband provider data not included in this report are data from Local Exchange Carriers that are not video franchise holders, Wireless Internet Service Providers, and mobile service providers like Sprint, T-Mobile, US Cellular and Metro PCS

<sup>42</sup> Available at <http://www.cpuc.ca.gov/General.aspx?id=4170>.

<sup>43</sup> Published in February 2014 by the Center for Economic Development at California State University, Chico in conjunction with the CPUC. See <http://www.cpuc.ca.gov/General.aspx?id=5753>.

<sup>44</sup> Available at <http://www.cpuc.ca.gov/General.aspx?id=9226>

<sup>45</sup> Available at <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=171031953>

<sup>46</sup> Previous DIVCA reports used the FCC’s 2010 definition of broadband (transmission speeds “...from at least 200 Kbps in one direction...”), as does the FCC today. For example, the FCC wrote in the most recent *2016 Broadband Progress Report*: “As of December 2014, 73 percent of households (throughout the nation) have a subscription to a fixed broadband service of at least 200 kbps in one direction, and 46 percent of these subscriptions were to services with a speed of at least 25 Mbps/3 Mbps.” *In re 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 16-6, 31 FCCR 669, ¶ 99 (January 29, 2016) (*2016 Broadband Progress Report*).

- 25 Mbps to 50 Mbps
- 50 Mbps to 100 Mbps
- 100 Mbps to 500 Mbps
- 500 Mbps to 1 Gbps
- 1 Gbps to 2 Gbps

Another broadband speed metric relates to the California Advanced Services Fund (CASF) which currently uses a minimum benchmark of 6 Mbps download and 1.5 Mbps upload for identifying underserved areas that are eligible for CASF funding<sup>47</sup>

A third important broadband speed metric relates to the Connect America Fund, Phase II standard of 10 Mbps download and 1 Mbps upload. An analysis of Connect America Fund, Phase II areas relative to the CASF program is included in the 2016 CASF annual report.

Lastly, a fourth important speed metric relates to the FCC’s “advanced telecommunications capability” benchmark of 25 Mbps downstream and 3 Mbps upstream.<sup>48</sup> In February 1996, Congress, in its revision of the Communications Act of 1934, directed the FCC to annually evaluate “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.”<sup>49</sup> The FCC publishes this annual evaluation in its *Broadband Progress Report*.

In the FCC’s *2015 Broadband Progress Report*, the FCC found that, “having ‘advanced telecommunications capability’ requires access to actual download speeds of at least 25 Mbps and actual upload speeds of at least 3 Mbps.”<sup>50</sup> The following year, in the FCC’s *2016 Broadband Progress Report*, the FCC stated: “Our fixed broadband download speed threshold of 25 Mbps remains sufficient to ensure that a household can access a range of bandwidth intensive services, including HD video streaming, simultaneously over multiple devices.”<sup>51</sup>

<sup>47</sup> *The California Advanced Services Fund Report, January to December 2015.*

<sup>48</sup> In the FCC’s *2015 Broadband Progress Report*, it clarified that “(f)or simplicity, in this Report we sometimes refer to ‘advanced telecommunications capability’ as ‘broadband’, but we note that ‘advanced telecommunications capability’ has a unique definition in section 706 that differs from the term ‘broadband’ in other contexts. Thus our discussion of broadband in this Report may not apply equally to discussions of broadband in other circumstances or in other proceedings. However, ‘advanced telecommunications capability’ is a statutory term with a definition that differs from the term ‘broadband’ as it is used in other contexts.” *In re 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 15-10, 30 FCCR 1375, ¶ 1, fn 1 (rel. Feb. 4, 2015) (*2015 Broadband Progress Report*).

<sup>49</sup> 47 U.S.C. § 1302(b).

<sup>50</sup> See, *2015 Broadband Progress Report*, ¶26.

<sup>51</sup> *2016 Broadband Progress Report*, ¶ 54.

Thus, we report on the FCC's "advanced telecommunications capability" benchmark of 25 Mbps downstream and 3 Mbps upstream as well as other speed tiers in this Report. To make our analysis in this Report more meaningful, we combine different broadband speeds into "minimum advertised download speed categories," always stating the minimum advertised speed for each speed category.

The 6 /1.5 Mbps and higher minimum speed category provides policy makers facts that can inform their decisions regarding the CASF program. Similarly, tracking the 10/1 Mbps minimum speed category provides policy makers facts that can inform their decisions regarding the FCC's Connect America Fund<sup>52</sup> in California. The FCC itself uses these speed categories in its Annual Broadband Progress Reports which are issued pursuant to section 706 of the Telecommunications Act of 1996. We believe it is also necessary to track the 25 Mbps/ 3Mbps minimum speed category to help evaluate the deployment of advanced communications services in the State.

The FCC, in its *2016 Broadband Progress Report* stated: "We find that the current 25 Mbps/3 Mbps benchmark for fixed services remains an appropriate measure of whether a service provides advanced telecommunications capability.... We conclude that 25 Mbps/ 3 Mbps continues to provide consumers with the capacity necessary to utilize 'advanced' services that 'enable users to originate and receive high-quality voice, data, graphics, and video telecommunications.' (47 U.S.C. § 1302)."<sup>53</sup>

Relevant to the collection and analysis of the lower broadband speeds is whether interconnected voice service can be supported by broadband services at various speeds. Asymmetrical DSL providers offer Voice over Internet Protocol (VoIP) services utilizing internet connections less than 6 Mbps download.<sup>54</sup> Interconnected OTT VoIP providers advertise that their service requires a "high-speed internet connection," which can include "any internet service".<sup>55</sup> Thus, lower speed tiers may support interconnected VoIP services.

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<sup>52</sup> FCC 14-190, Released 12/18/2014, [FCC-14-190A1 Rcd.pdf](https://www.fcc.gov/general/connect-america-fund-caf) , <https://www.fcc.gov/general/connect-america-fund-caf>.

<sup>53</sup> *2016 Broadband Progress Report*, ¶¶ 51, 52.

<sup>54</sup> Though asymmetrical DSL service speed degrades as distance between the end-user and the serving wire center/remote terminal increases, a DSL provider's VoIP offering is network managed such that it may provide high quality VoIP over a slow broadband speed, such as at 3/1 Mbps or lower. Of note is that ISDN provided reliable high quality voice service using only 128 kbps.

<sup>55</sup> In an on-line chat between CPUC staff and a Vonage representative about whether there was a minimum speed requirement for its service to work well, the Vonage representative stated "you just need a high-speed Internet connection". The representative further stated that 1 Mbps downstream and 300 Kbps upstream, "will be more than enough. It will definitely work as long as you have the Internet service". This information was obtained during an on-line chat between Robert Wullenjohn and a Vonage service representative, [www.vonage.com](http://www.vonage.com), May 3, 2016. Despite this assurance, such OTT services are affected by the vagaries of the underlying network through which the voice service is provided and are subject to greater quality variances than

## 6. Analysis of Broadband Availability Data

### A. Methodology Used to Produce Broadband Availability Data

The method of estimating the availability of SVF provided broadband services begins with SVF holders providing data at specified granularities, which then is validated by CPUC staff. The actual data sets used for analysis in this DIVCA report have been validated by staff using other available commercial and government data. To validate reported availability data, staff uses subscriber data to invalidate inaccurate availability data provided by SVF holders. For example, if a SVF holder reports that they offer broadband service in a census block (“served”), but they report no customers in the census tract containing this block, staff notifies the SVF holder and removes that census block from the served category. Similarly, consumer feedback is used to validate the availability information received from SVF holders.

This Report continues with that traditional approach and we describe below the limitations of this method. Note that these limitations do not apply to subscription and penetration analyses presented in subsequent section of this report, as those analyses rely upon actual subscribership numbers.

Despite improvements in granularity of the data collected over time, e.g. census block and tracts, rather than prior zip-code based data, there are still analytical limitations inherent in collecting data at anything beyond street address level. Further, because census blocks are a much more granular mapping unit than census tracts, they provide a much better picture of broadband availability than census tracts do. However, the unavoidable fact of aggregation away from address level data is the introduction of a level of imprecision into the availability analysis.<sup>56</sup>

Since it is impossible to know precisely where within each census block service is being offered, we can only classify census blocks as being either served or unserved by each provider, then add up the number of providers in each. This naturally can result in an overstatement of the level of broadband choices.

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within a managed VoIP provider’s network. Other considerations include the number of access applications being used for upload and download during VoIP sessions.

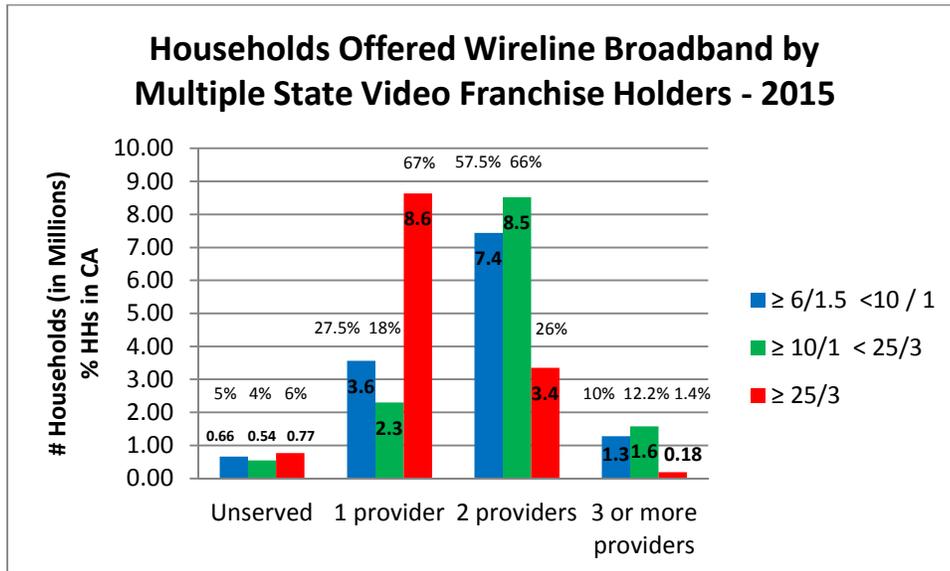
<sup>56</sup> The FCC has also wrestled with the appropriate level of granularity to measure competition, most recently in its *Special Access/Business Data Services* decision. *In re Business Data Services, et al.*, 31 FCC Rec 4723 (May 2, 2016) at ¶ 63 and Figure 5 (Census block for subscription availability), and ¶ 192 (distinguishing between Census block and building-level data).

When drawing conclusions from this Report, in addition to the data limitations described above, it is important to keep in mind that only services offered by SVF holders and their locally-franchised affiliates are reflected. Broadband and video services offered by local independent wireline providers and wireless and satellite ISPs are, by definition, excluded. Nevertheless, the data serve as a good metric for analyzing trends. A more detailed and technical discussion of these topics can be found in Appendix C on pages 44 through 54.

**B. Households Offered Broadband by Two or More SVF Holders:  
78% of Households Have Broadband Choice at Minimum Advertised  
Speeds of 10/1 Mbps<sup>57</sup> or Faster; 27% Have Broadband Choice at 25/3 Mbps  
or Faster**

The chart below shows the number of households located in census blocks in which one, two, or three or more SVF holders offer broadband services at three different minimum advertised download / upload speed categories.<sup>58</sup> The data show that 67% of households (8.6 million) are offered wireline broadband service by a single SVF holder at a minimum advertised speed of 25/3 Mbps or faster, and 27.4% (i.e., 26% + 1.4%) are offered minimum advertised speeds of 25/3 Mbps or faster by two or more SVF holders, up from 18% in 2014. When adding these categories together, these data show that 94% of households are offered broadband by at least one SVF holder at speeds 25/3 Mbps or faster, the same as in 2014.

In addition, 27.5% of households are offered wireline broadband service by a single SVF holder at the minimum CASF “served” advertised speeds of 6/1.5 Mbps or faster; 67.5% (i.e., 57.5% + 10%) of households are offered wireline broadband service by two or more SVF holders at the minimum CASF “served” advertised speeds of 6/1.5 Mbps or faster, one half of a percentage point less than 68% in 2014.<sup>59</sup> Five percent (5%) are completely unserved, the same as in 2014.



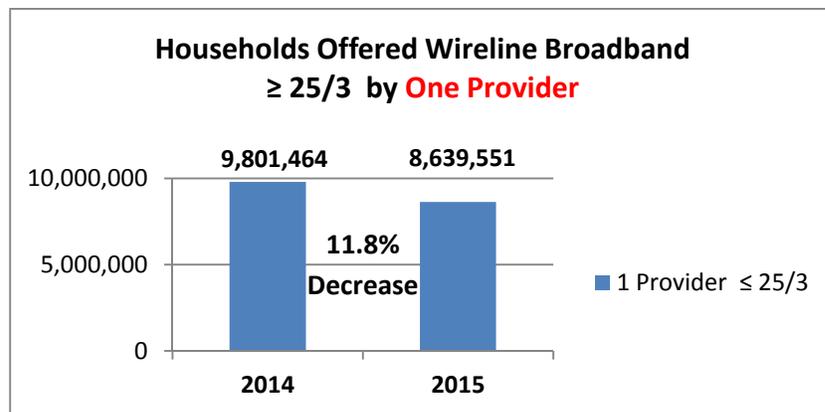
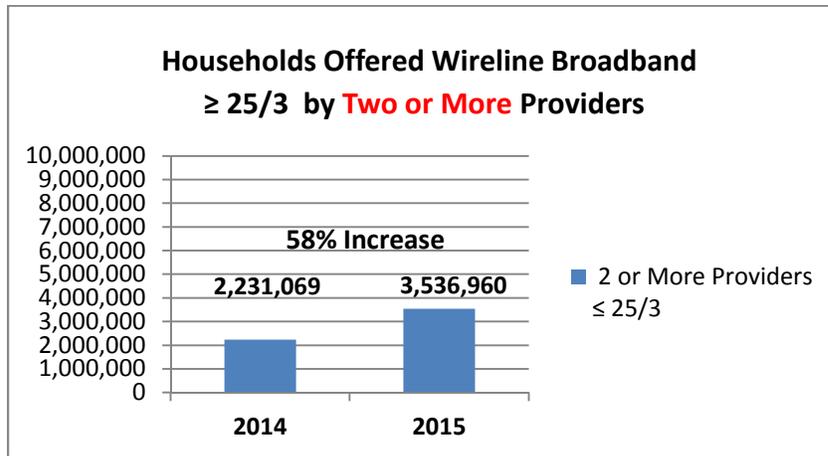
<sup>57</sup> The notation convention for 10 Megabits per second advertised download and 1 Megabits per second upload is 10/1 Mbps, where advertised download and upload is implied.

<sup>58</sup> Like all previous FCC and CPUC analysis of reporting data relying upon Census block, zip-code or other non-discrete location data, it is impossible to determine the degree to which multiple providers serve every household within a reporting area. Details about Census block reporting limitations are described in sections H and I of Appendix C on pages 62-64.

<sup>59</sup> The CPUC defines “served” status as a minimum 6/1.5 Mbps for implementing the CASF.

## Households Offered Wireline Broadband By Multiple State Video Franchise Holders - 2015

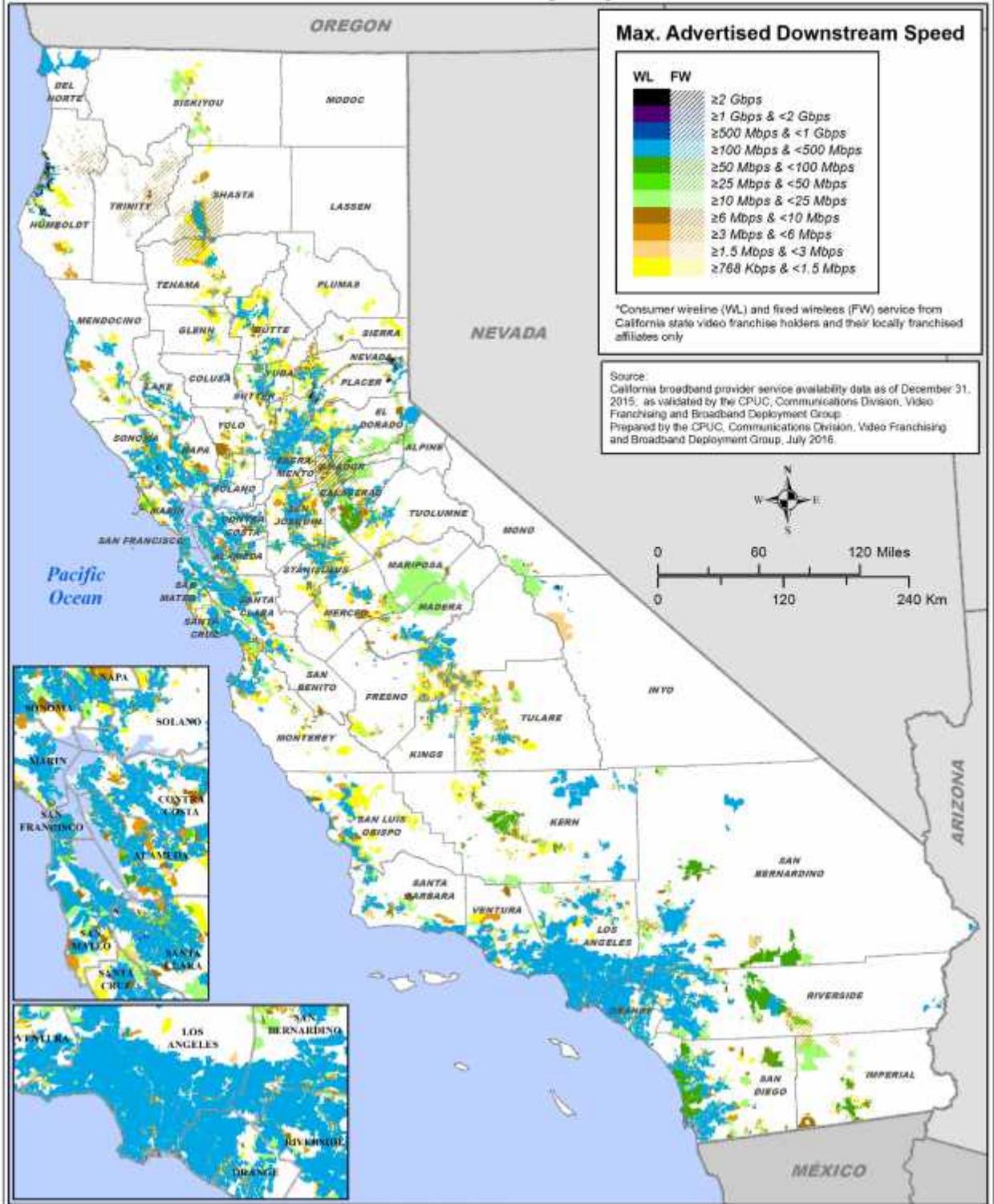
The bar charts below show that during 2015, 58% more households (1.3 million) were offered broadband at minimum advertised download speeds of 25/3 Mbps by two or more providers and 11.8% fewer households (1.2 million) were offered broadband at those speeds by one provider.



The map on the next page shows broadband availability by maximum advertised downstream speed available in census blocks across the state. The areas with yellow color have maximum advertised broadband speeds less than 1.5 Mbps available. These areas are located in many counties including: rural Marin, Mendocino, Plumas, Sierra, Yuba, Humboldt, Monterey, Fresno, Tehama, Tulare, Tuolumne, Kern, Ventura, and San Luis Obispo Counties.



# STATE OF CALIFORNIA VIDEO FRANCHISING Broadband Availability\* by Census Block

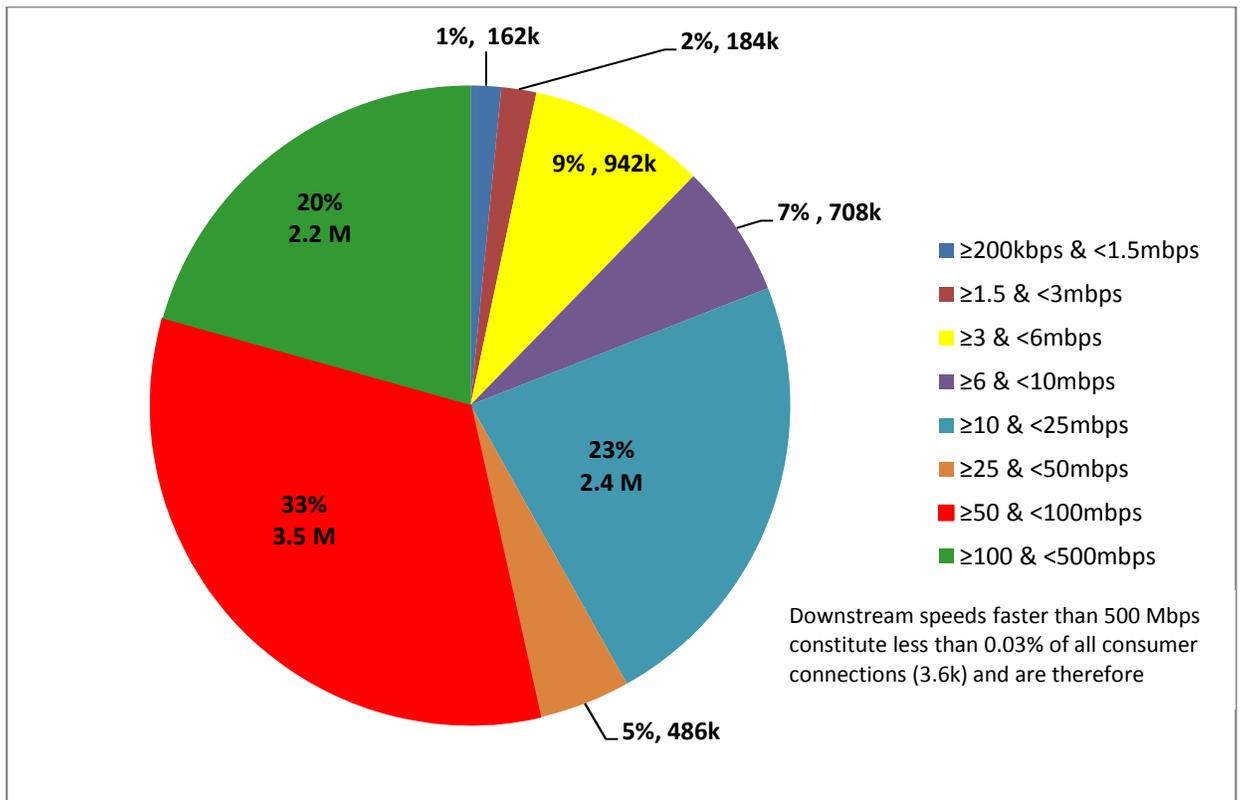


# 7. Analysis of Broadband Subscriber Data

## A. Percentage Breakdown of 2015 Broadband Subscribers by Advertised Download Speed Tiers

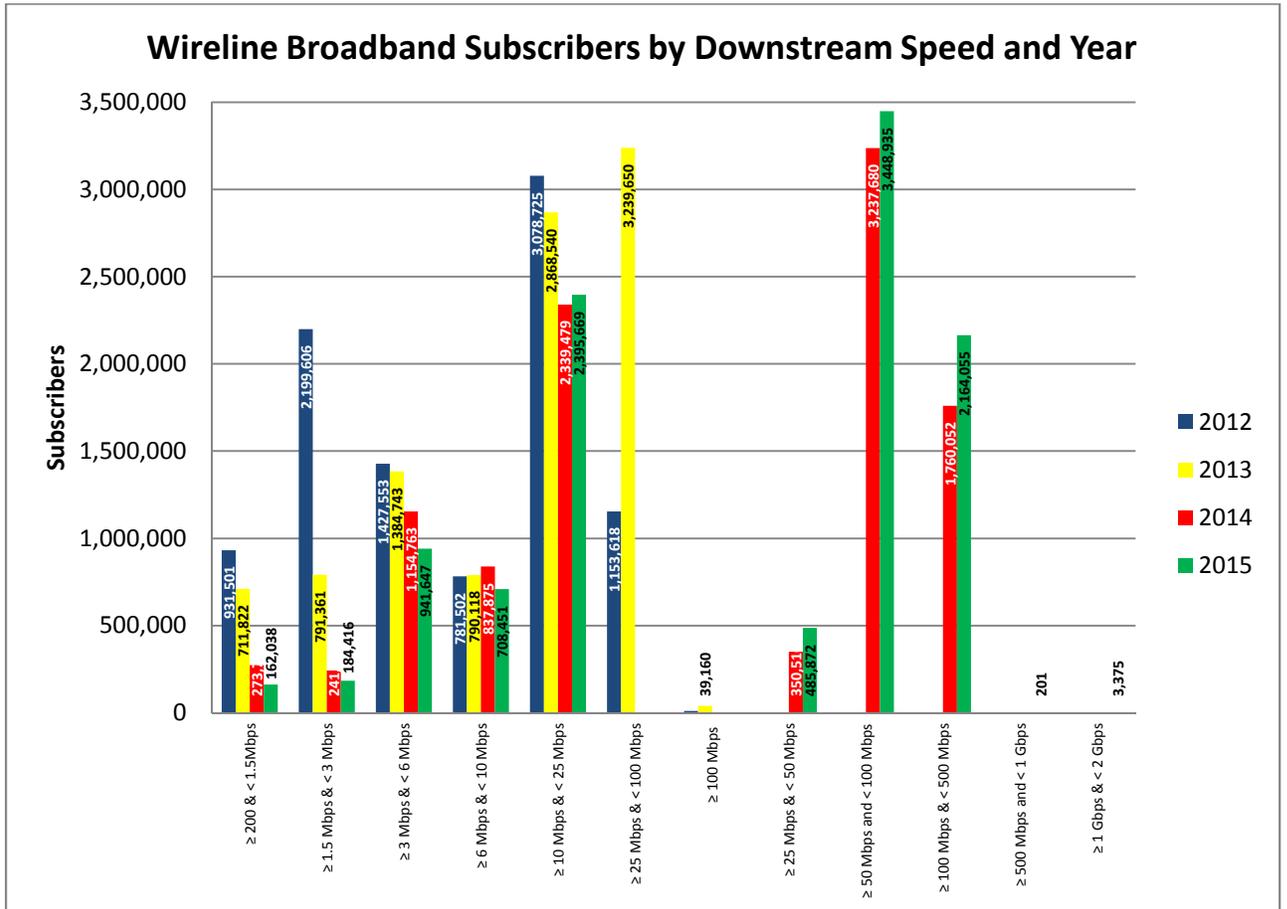
The pie chart below divides the 10.5 million households in CA that subscribed to wireline broadband provided by SVF holders into eight advertised download speed tiers. The analyses in the following sections aggregate these individual speed tiers into various speed categories that may help policy makers see significant trends in the data over time.

**Wireline Broadband Subscribers  
by Download Advertised Speed Tier – 2015**



## B. Subscribers are Continuing to Move to Faster Speed Tiers

The bar chart below shows that the two fastest individual download speed tiers with significant numbers of subscribers are: (A) Between 50 & 100 (3.5 Million) (B) Between 100 & 500 Mbps (2.2 Million).<sup>60</sup> Together those two speed tiers constituted 53.48% (5.613 million) of all of the subscribers at the end of 2015.<sup>61</sup>



At the end of 2015, 5.617 million<sup>62</sup> households (53.52% of all subscribers) subscribed to broadband at advertised download speeds faster than 50 Mbps. At the end of 2014, 4.997 million households (47.7% of all subscribers) subscribed to broadband at advertised download speeds faster than 50 Mbps. In 2013, only 39,160 had broadband faster than 100 Mbps and 3.3 million households (31.6% of all subscribers) subscribed to broadband at advertised download speeds faster than 25 Mbps.

<sup>60</sup> By comparison, in 2008, the most subscribed-to download speed was only 3-6 Mbps. See DIVCA Report, 2010.

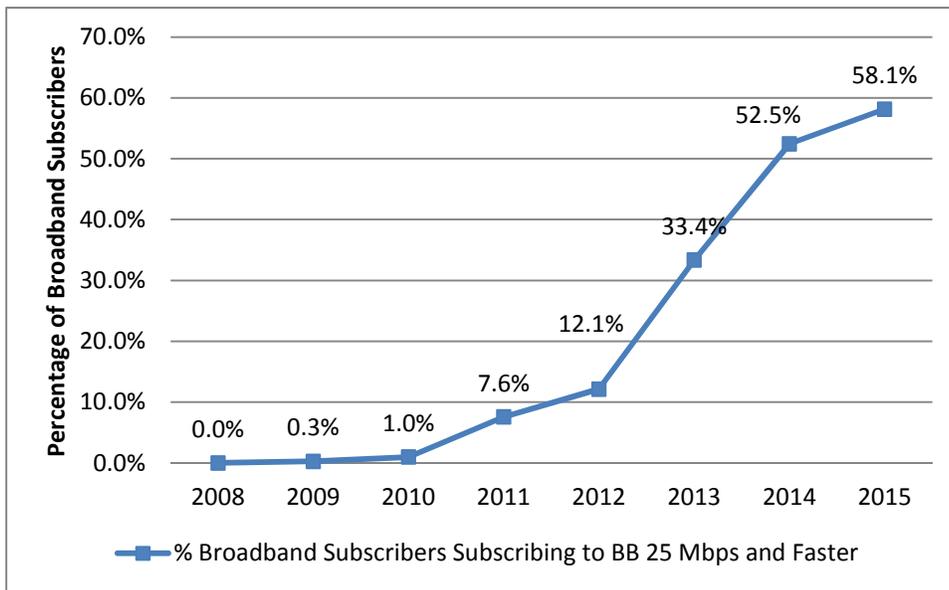
<sup>61</sup>  $3,448,935 + 2,164,055 = 5,612,990$  ;  $5,612,990 / 10,494,659 = 53.48\%$

<sup>62</sup>  $3,448,935 + 2,164,055 + 201 + 3,375 = 5,616,566$  ;  $5,616,566 / 10,494,659 = 53.52\%$

**C. In 2015, 58.15%<sup>63</sup> of Broadband Subscribers Subscribed to Minimum Advertised Download Speeds 25 Mbps and Faster**

This is up from 52.5% in 2014, 33.5% in 2013 and 12.1% in 2012.

**Percentage of Broadband Subscribers  
Subscribing to BB 25 Mbps and Faster Download Speed**



<sup>63</sup>  $6,102,438 / 10,494,659 = 58.148\%$

### D. Subscribership to the Fastest Minimum Advertised Download Speed Category (25 Mbps or faster) Has Significantly Higher Growth Rates than All the Others

The table below shows that the number of households subscribing to wireline broadband from SVF holders at minimum advertised download speeds equal to or faster than 25 Mbps increased by 14.1% from 2014 to 2015, to 6.1 million California households. Since 2012, when 1.2 million households subscribed to 25 Mbps or faster broadband, the number of subscribers has increased by 424%.

While not nearly as great as the subscriber growth in the “25 Mbps or Faster” minimum advertised download speed category, the “10 Mbps and Faster” and “6 Mbps and Faster” minimum advertised download speed categories also showed significant growth during 2015, as well as during the three year period 2012 through 2015, as can be seen in the table below. Comparatively, the all speeds combined speed category (equal to or faster than 200 kbps) only grew by 2.9% in 2015.

**Wireline Broadband Subscribers by  
Minimum Advertised Download Speed Category**

Speed Category	2012	2013	2014	2015	2013-14 Growth	2014-15 Growth	2012-15 Growth
BB Subscribers to Download Speeds Equal to or Faster than <b>25 Mbps</b>	1,163,506	3,278,810	5,349,069	6,102,438	63.1%	14.1%	424%
BB Subscribers to Download Speeds Equal to or Faster than <b>10 Mbps</b>	4,242,231	6,147,350	7,688,548	8,498,107	25.1%	10.5%	100%
BB Subscribers to Download Speeds Equal to or Faster than <b>6 Mbps</b>	5,023,733	6,937,468	8,526,423	9,206,558	22.9%	8.0%	83%
BB Subscribers to Download Speeds Equal to or Faster than <b>3 Mbps</b>	6,451,286	8,322,211	9,681,186	10,148,205	16.3%	4.8%	57.3%
BB Subscribers to Download Speeds Equal to or Faster than <b>200 kbps</b>	9,582,393	9,825,394	10,196,517	10,494,659	3.8%	2.9%	9.5%
<b>Total Households in California</b>	12,675,876	12,731,223	12,830,035	12,941,948	0.8%	0.9%	2.1%

**E. More California households subscribed to faster broadband in 2015, with 47% subscribing to minimum advertised download speeds of 25 Mbps or faster**

The change in wireline broadband penetration rates<sup>64</sup> (growth) for the five minimum advertised download speed categories shown in the table below, are almost the same as the growth rates of subscribers to higher broadband speeds, shown in the table on the previous page. All the categories show year over year growth, with the largest growth in the faster speed categories.

**Wireline Broadband Penetration Rates  
Reported by SVF Holders  
Minimum Advertised Download Speed Category**

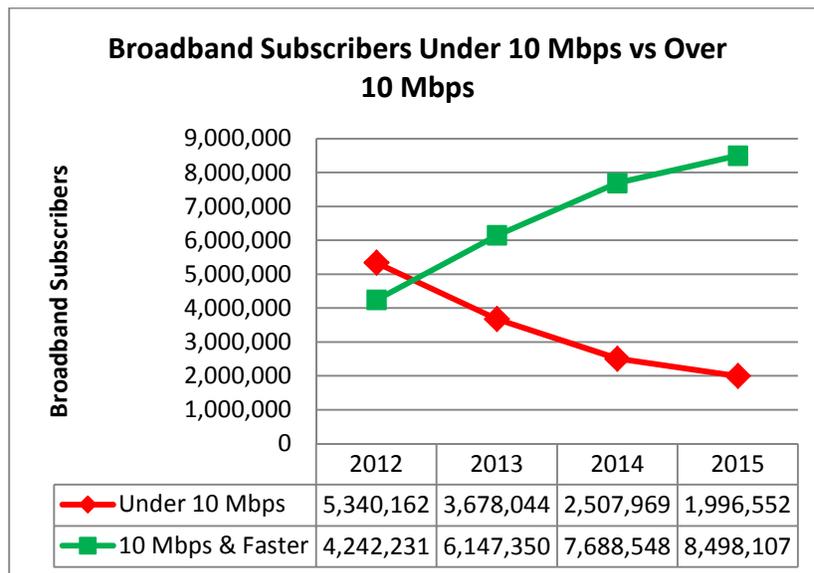
Speed Category	2012	2013	2014	2015	2013-14 Growth	2014-15 Growth	2012-15 Growth
Penetration Rate for Wireline Broadband Download Speeds Equal to or Faster than <b>25 Mbps</b>	9.2%	25.8%	41.7%	47.2%	61.9%	13.1%	414%
Penetration Rate for Wireline Broadband Download Speeds Equal to or Faster than <b>10 Mbps</b>	33.5%	48.3%	59.9%	65.7%	24.1%	9.6%	96%
Penetration Rate for Wireline Broadband Download Speeds Equal to or Faster than <b>6 Mbps</b>	39.6%	54.5%	66.5%	71.1%	22.0%	7.0%	79%
Penetration Rate for Wireline Broadband Download Speeds Equal to or Faster than <b>3 Mbps</b>	50.9%	65.4%	75.5%	78.4%	15.4%	3.8%	54%
Penetration Rate for Wireline Broadband Download Speeds Equal to or Faster than <b>200 kbps</b>	75.6%	77.2%	79.5%	81.1%	3.0%	2.0%	7%
<b>Total Households in California</b>	12,675,876	12,731,223	12,830,035	12,941,948	0.9%	0.8%	2%

<sup>64</sup> Penetration rates are determined by dividing the number of subscribers to a particular advertised speed category or speed tier by the number of households in CA, 12,941,948. The number of households that subscribed to broadband in 2015 was 10,494,659, 2.4 million less than the total number of households in the state.

**F. The Number of Households Subscribing to Broadband in the Fastest Speed Category Increased by 424% Between 2012 and 2015, While the Number of Households Subscribing to Broadband in the Slowest Speed Category Decreased by 89%**

The table and line graph below show different ways of analyzing the same subscriber data that was presented in the previous sections. Between 2012 and 2015, the number of broadband subscribers in the advertised download speed category “Under 3 Mbps” fell by 88.9%, while the number of broadband subscribers in the minimum advertised download speed category “25 Mbps or faster,” increased by 424%. The table also shows that between 2012 and the end of 2015, the number of subscribers to broadband, at minimum download speeds of 10 Mbps or faster, from SVF holders, increased by 100.3%, while the number subscribing to speeds under 10 Mbps fell by 62.6%.

Minimum Advertised Broadband Download Speed Category	2012	2013	2014	2015	% Change 2014-2015	% Change 2013-2014	% Change 2012-2015
<b>Under 3 Mbps</b>	3,131,107	1,503,183	515,331	346,454	-32.8%	-65.7%	-88.9%
<b>Under 10 Mbps</b>	5,340,162	3,678,044	2,507,969	1,996,552	-20.4%	-31.8%	-62.6%
<b>10 Mbps &amp; Faster</b>	4,242,231	6,147,350	7,688,548	8,498,107	10.5%	25.1%	100.3%
<b>25 Mbps &amp; Faster</b>	1,163,506	3,278,810	5,349,069	6,102,438	14.1%	63.1%	424.5%



The line graph above illustrates the magnitude of the simultaneous increases and decreases in broadband speeds, as can be seen in the middle two rows of the table above. The line graph

visually shows these changes when one divides the total number of broadband subscribers (10.5 million) at the end of 2015 into two groups, one group subscribing to broadband at advertised download speeds under 10 Mbps and the second group subscribing to minimum advertised download speeds of 10 Mbps and higher.

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## G. Cable Modem Technology is Used by Twice as Many Subscribers as DSL and the Difference Is Widening

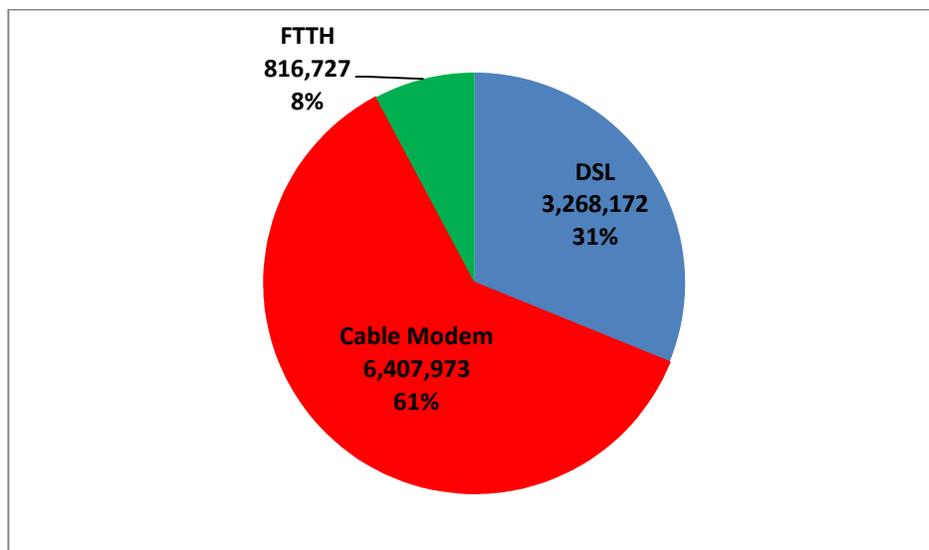
The pie chart below and the line chart on the following page (p. 34) show the technologies that SVF holders and their affiliates used to deploy broadband as of December 31, 2015.

**Cable modems** were the most frequently used residential broadband wireline technology at the end of 2015. Cable modems were used by 61% (6.4 million) of the residential households to subscribe to broadband in 2015, up from 58% in 2014, 56% in 2013 and 52% (4.8 million) in 2011. Cable Modem usage has increased by 68.4% between 2008 and 2015.

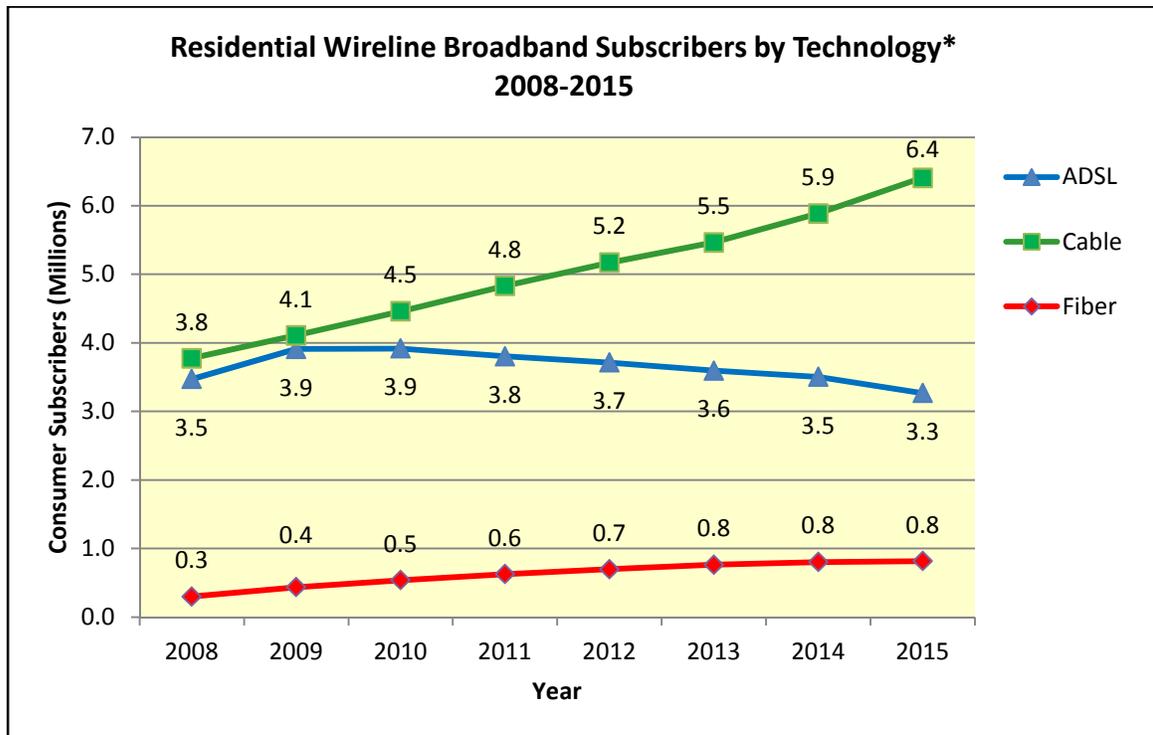
**Digital Subscriber Line (DSL)** technology peaked in 2009 and since then has declined to 31% of broadband subscribers. This is a decrease of thirteen (13) percentage points from 44% in 2010. DSL technology typically is used by telephone companies to deploy broadband over their existing copper plant.<sup>65</sup> U-Verse uses a version of DSL to provide data at speeds over 25 Mbps.

**Fiber-to-the-home (FTTH)** technology provides broadband to a smaller percentage of residential subscribers in California, but it continues to show growth. In 2015, eight percent (8%) of residential users were served by fiber optic technology, the same as in 2014 and up from 7% in 2012, 6% in 2010 and 4% in 2008. Fixed wireless technology provided broadband to 1,774 subscribers in California in 2014, up from 754 in 2014 and 504 in 2011.

### Residential Wireline Broadband Subscribers by Technology - 2015



<sup>65</sup> Verizon uses FTTH, as do some others.



\*66

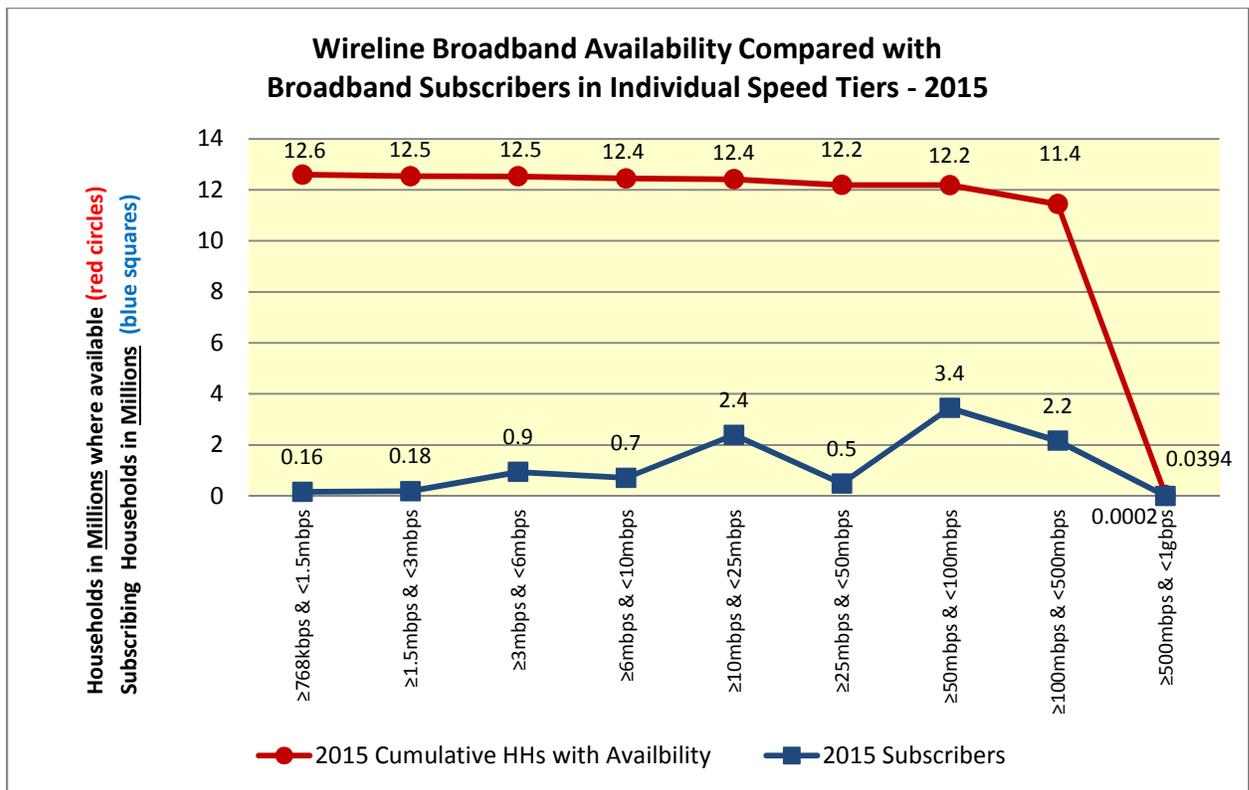
<sup>66</sup> Eleven (11) subscribers used Synchronous Digital Subscriber Line (SDSL) technology in 2015. Except for during 2008, SDSL, other copper wireline, and fixed wireless subscribers have never accounted for more than 0.5% of total consumer subscribers, and are therefore not visible on this graph.

## H. The Broadband Availability / Subscribership Gap: For Each Individual Advertised Download Speed Tier, Broadband Availability Significantly Exceeds Subscribership

The gap between the red and blue lines in the line graph below, illustrates that California households with broadband available to them do not subscribe to the highest speeds offered.

The broadband chart below compares the numbers of households that have broadband available in individual download speed tiers with the number of subscribers to the same speed tiers. For example, the red line in the graphic shows that 12.2 million California households (94.1%) had an advertised 50 Mbps to 100 Mbps wireline broadband download service available at the end of 2015, and the blue line shows that 3,448,935 of those subscribed (28.3%).

The red line also shows that 11.4 million of California households (88.4%) had an advertised 100 Mbps to 500 Mbps wireline broadband download service available at the end of 2015. The blue line shows that 2,164,055 of those subscribed (18.9%).



## 8. Employment Reporting Required Under DIVCA

DIVCA requires the California Public Utilities Commission (CPUC) to collect employment information from state-issued video franchises employing more than 750 full-time employees in California. The CPUC is required to post the information on its website and report it to The Assembly Committee on Utilities and Commerce and the Senate Committee on Energy, Utilities and Communications annually.

This is the seventh report on SVF employment data.<sup>67</sup> The data in this Report reflects data as of December 31, 2015. As in the past, six state-issued video franchise holders reported that they employed more than 750 full-time employees in the State of California. The franchise holders were AT&T California (AT&T), Verizon, Time Warner, Comcast, Cox and Charter.

The balance of this Report contains this submitted information. Specifically, the following is the information required to be reported to the CPUC by the qualifying SVFs:

- Number of California residents employed on a full-time basis
- Percentage of the state-issued video franchise holder's total domestic workforce that resides in California
- Employees categorized by occupation
- Average wages and salaries (including benefits) categorized by occupation
- Number of out-of-state residents employed by independent contractors, which personally provide services to the franchise holder, unless the holder is contractually prohibited from disclosing this information to the public
- Forecast of the number of net new positions expected to be created during the next year (2012).

As in the past, of the 53 state-issued video franchise holders, the following six had more than 750 full-time employees in California and were therefore required to report employment data for 2011:

- AT&T California (AT&T)
- Verizon California (Verizon)
- Comcast
- Charter Communications
- Cox Communications
- Time Warner Cable

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<sup>67</sup> There have been six previous DIVCA Employment Reports published as stand-alone documents. They can be found on the CPUC website at the following URL:<http://www.cpuc.ca.gov/General.aspx?id=2241>

The employees of state-issued video franchise holders that are described in this report may be involved in wireline telephone, video, and / or data services. DIVCA does not require franchise holders to categorize their employees by the type of technology they work on. Video programming operations may include existing local affiliates of state-issued video franchise holders. AT&T and Verizon's employment numbers exclude data from some of their related operations, as detailed below.

- Verizon California's employment submission **includes** the total number of employees in its wireline telephone, DSL and FiOS data and video operations. Verizon's employment submission **excludes** Verizon's wireless operations and **excludes** the following Verizon affiliates: Verizon West Coast (small ILEC), Corporate (legal, regulatory), Verizon Business or non-affiliates such as Idearc (formerly Verizon Directories).
- AT&T California's employment submission **includes** their wireline telephone, U-verse video, and DSL operations, but **excludes** AT&T's wireless operations.

## 9. Total Employees

The tables below show the change in the number of employees of state video franchise (SVF) holders between 2007 and 2015. The bar chart on the next page shows the number of employees each SVF holder reported at the end of 2007 and 2015.

The tables below show that the six holders of state-issued video franchises, which employed more than 750 full-time employees at the end of 2015, reported a total of 37,099 employees in California, as of December 31, 2015. Between 2007 and 2015, the total number of employees declined by 34.6% (-19,649).

In aggregate, the total number of people employed by all the SVF holders declined by 3.3% (-1,271) during 2015. However, during 2015, Time Warner, Comcast, Charter, and Cox increased employment by 325 employees. Time Warner added 240 employees during 2015, Comcast added 29, Cox added 44 and Charter added 12 during 2015.

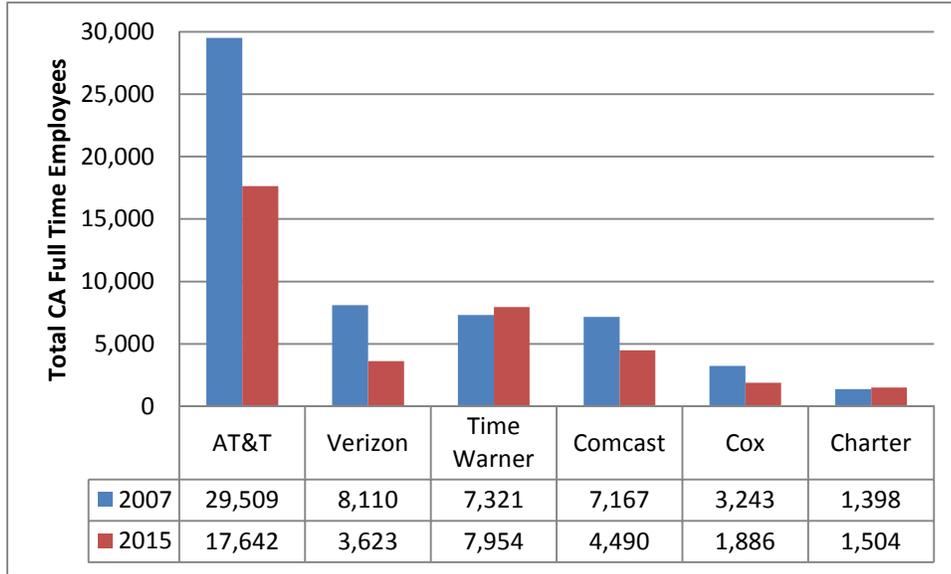
### Total Employees by SVF Holders 2007 – 2015

SVF Holder	2007	2008	2009	2010	2011	2012	2013	2014	2015
AT&T	29,509	25,881	24,751	21,447	20,481	19,360	19,595	18,728	17,642
Verizon	8,110	7,070	6,242	5,804	5,409	4,951	4,399	4,133	3,623
Time Warner	7,321	7,900	6,409	6,038	5,960	7,017	7,382	7,714	7,954
Comcast	7,167	7,290	6,608	6,221	5,943	4,332	4,166	4,461	4,490
Cox	3,243	3,321	3,121	3,065	2,751	2,800	2,486	1,842	1,886
Charter	1,398	1,341	1,240	1,312	1,175	1,456	1,527	1,492	1,504
<b>Total</b>	<b>56,748</b>	<b>52,803</b>	<b>48,371</b>	<b>43,887</b>	<b>41,719</b>	<b>39,916</b>	<b>39,555</b>	<b>38,370</b>	<b>37,099</b>

### Percentage Change of Total Employees by SVF Holder Between 2007 and 2015

SVF Holder	% Change 2012-2013	% Change 2013-2014	% Change 2014- 2015	% Change 2007-2011	% Change 2007-2015
AT&T	1.2%	-4.4%	-5.8%	-30.6%	-40.2%
Verizon	-11.1%	-6.0%	-12.3%	-33.3%	-55.3%
Time Warner	5.2%	4.5%	3.1%	-18.6%	8.6%
Comcast	-3.8%	7.1%	0.7%	-17.1%	-37.4%
Cox	-11.2%	-25.9%	2.4%	-15.2%	-41.8%
Charter	4.9%	-2.3%	0.8%	-16.0%	7.6%
<b>Total</b>	<b>-0.9%</b>	<b>-3.0%</b>	<b>-3.3%</b>	<b>-26.5%</b>	<b>-34.6%</b>

## Total Employees by SVF Holder 2007 vs. 2015



# 10. Total Employees by Occupation

Most State Video Franchise holders, that are required to report employee information under DIVCA, provide the California Public Utilities Commission (CPUC) with copies of their U.S Equal Opportunity Commission EEO-1 filings. The CPUC uses the same categories listed in these filings to show the statistics below. However, some similar categories have been grouped together for the purposes of this report. See Appendix E (pages 69-70) for a detailed description of the job classifications used in this Report.

The table below categorizes the 37,099 employees, who were employed by the six reporting holders at the end of 2015, into eight different occupational categories. For all but one of the franchise holders (Charter), skilled craft workers made up the largest category of workers.

**Total CA Employees by Occupation - 2015**

<b>Occupational Categories</b>	<b>AT&amp;T</b>	<b>Verizon*</b>	<b>Time Warner</b>	<b>Comcast</b>	<b>Cox</b>	<b>Charter</b>	<b>Total</b>
Exec / Senior Leaders	0	6	27	10	0	5	<b>48</b>
Officials / Managers	710	53	1,000	569	312	167	<b>2,811</b>
Professionals	543	301	883	162	262	68	<b>2,219</b>
Technicians	5,161	N/A	156	606	157	546	<b>6,626</b>
Sales / Associates	309	N/A	1,788	586	286	266	<b>3,235</b>
Office / Clerical	4,084	N/A	1,818	687	245	92	<b>6,926</b>
Skilled Crafts	6,835	3,263	2,268	1,739	586	137	<b>14,828</b>
Oper/Labor/Serv	N/A	N/A	14	131	38	223	<b>406</b>
<b>Total</b>	<b>17,642</b>	<b>3,623</b>	<b>7,954</b>	<b>4,490</b>	<b>1,886</b>	<b>1,504</b>	<b>37,099</b>

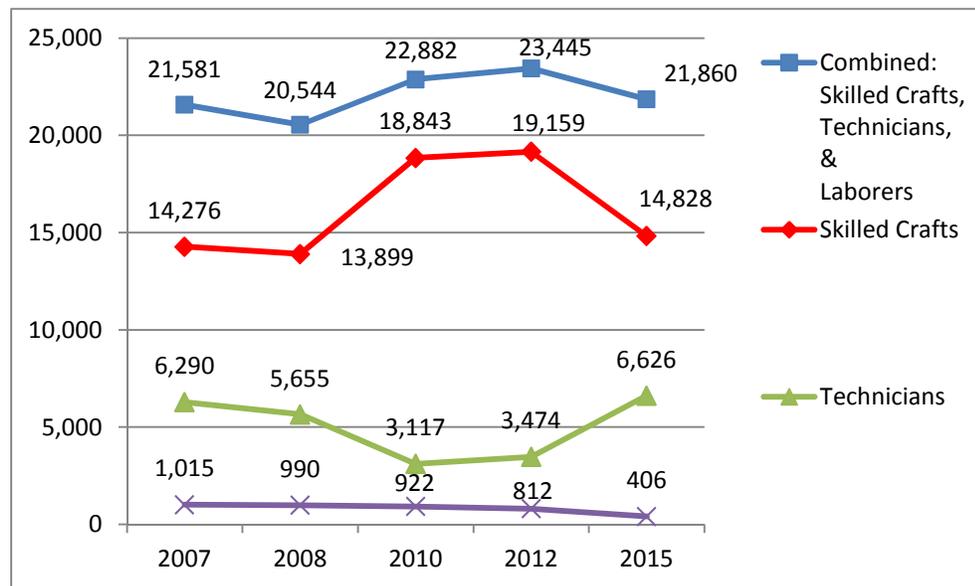
\*Verizon used the following six occupational categories: Senior Leaders, Directors, Managers, Supervisors / Specialists, Associates / Non-exempt. A majority of Verizon's "Associates/ Non Exempt Employees" appear to be unionized employees and therefore we put them into the "skilled crafts" category, so they can be compared with other SVF holders. We are aware that there is a subset of those employees which may not be unionized, but are earning the same income as "skilled craft" workers.

# 11. Network Infrastructure Installation and Maintenance Employees Between 2007 and 2015 by Occupational Classification

This section of the report is a longitudinal analysis of the number of people employed by the six largest SVF holders to install and maintain their network infrastructure. The line graphs on the next page show the same information for AT&T and Verizon.

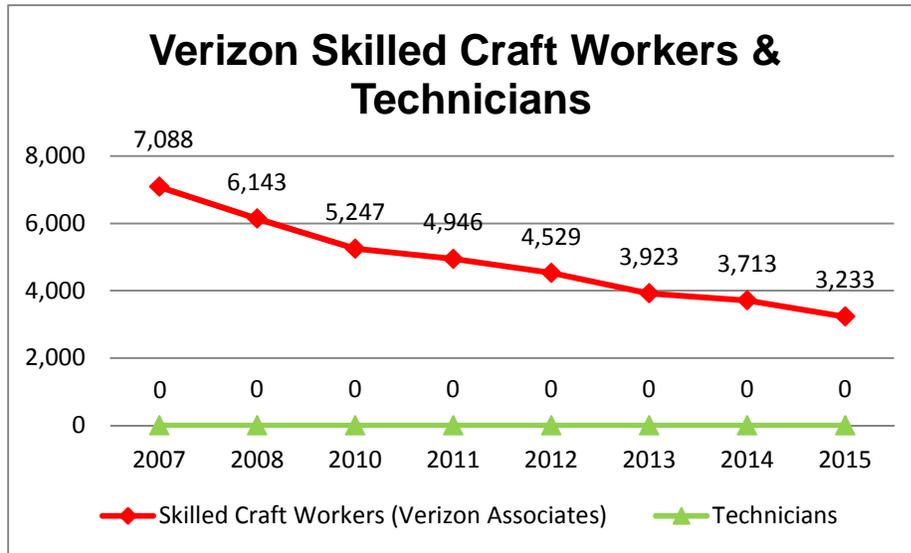
The line graph below shows the total number of employees reported by all six SVF holders, for the skilled crafts, technician and laborer occupational classifications for 2007, 2008, 2010, 2012 and 2015. The blue line on top is a combined total of all three occupational classifications.

**Total Number of Technicians, Skilled Crafts and Laborers and All Three Combined Over Time: 2007 – 2015**

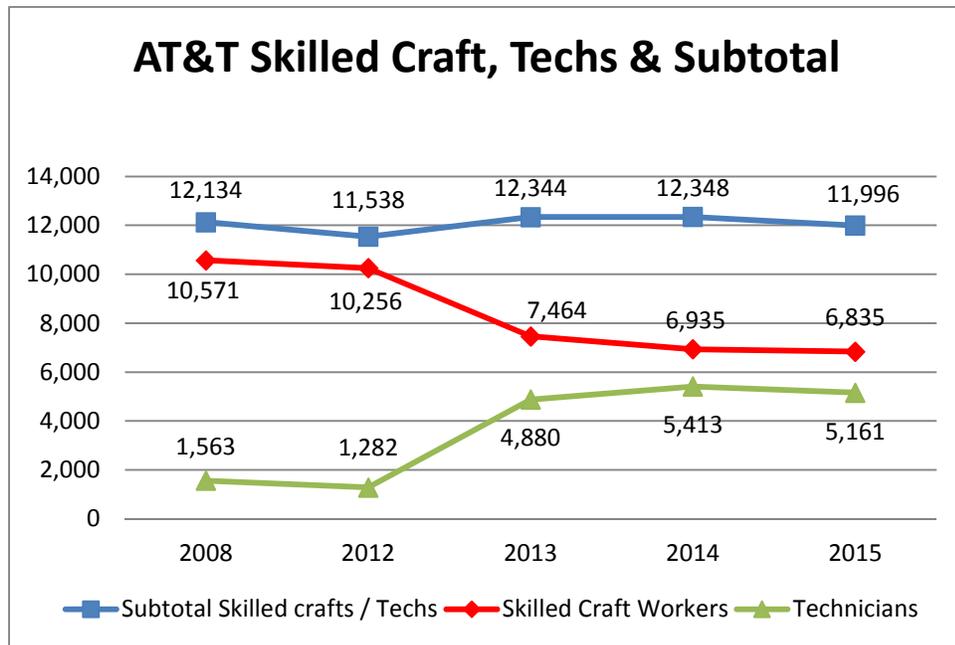


The next page contains line graphs showing the number of employees that Verizon and AT&T reported in the Skilled Crafts, Technicians and Laborer occupational categories.

The line graph below shows that between 2007 and the end of 2015 the number of Verizon Skilled Crafts / Technical employees fell by 54.3% (3,855) to 3,233.



The line graph below shows that between 2008 and the end of 2015 the number of AT&T Skilled Crafts and Technical employees fell by 9.4% (1,251) to 11,996.



Between the end of 2012 and the end of 2013 (during 2013), the number of skilled craft workers reported by AT&T fell by 2,792 to 7,464. Simultaneously, the number of technicians employed by AT&T during the same time period rose by 3,598, for a net increase of 806 employees.

AT&T reported that the main reason for these changes is that “during 2013 the ‘Premise Technician’ title was moved from the Skilled Crafts to the “Technicians” category, as part of a regular review of job classifications.”

## 12. Company by Company Comparison of Number of Employees by Occupational Classification: 2015 Compared with 2010

The table on the next page compares the number of employees by occupational classification in 2015 for each SVF holder, with the same data for 2010. In aggregate, the number of people employed by these six SVF holders declined by 6,788 (15.5%) between 2010 and 2015.

However, Time Warner and Charter reported more employees in 2015 than in 2010. So in actuality, the net decline of 6,788 employees between 2010 and 2015 took place among four of the six largest SVF holders. During this five year period, **Time Warner** added 1,916 employees and **Charter** added 192. Meanwhile, between 2010 and 2015, **AT&T** reported 3,805 fewer employees, **Verizon** reported 2,181 fewer employees, **Comcast** reported 1,731 fewer employees, and **Cox** reported 1,179 fewer employees.

### CA Employees by Occupation: 2015 Compared with 2010

Occupational Classification	Executives / Senior Leaders	Officers/ Managers	Professionals	Technicians	Sales / Associates	Office / Clerical	Skilled Crafts	Laborers & Service Workers	Total
<b>AT&amp;T 2010</b>	4	975	1,067	1,063	711	8,551	9,076	0	<b>21,447</b>
<b>AT&amp;T 2015</b>	0	710	543	5161	309	4084	6835	0	<b>17,642</b>
<b>Δ AT&amp;T</b>	<b>-4</b>	<b>-265</b>	<b>-524</b>	<b>+ 4,098</b>	<b>-402</b>	<b>-4,467</b>	<b>-2,241</b>	<b>N/A</b>	<b>-3,805</b>
<b>Verizon 2010</b>	8	54	403	0	92	0	5,247	0	<b>5,804</b>
<b>Verizon 2015</b>	6	53	301	N/A	N/A	N/A	3,263	N/A	<b>3,623</b>
<b>Δ Verizon</b>	<b>-2</b>	<b>-1</b>	<b>-102</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1,984</b>	<b>N/A</b>	<b>-2,181</b>
<b>Time Warner 2010</b>	10	738	316	826	403	1,770	1,593	382	<b>6,038</b>
<b>Time Warner 2015</b>	27	1,000	883	156	1788	1818	2268	14	<b>7,954</b>
<b>Δ Time Warner</b>	<b>+17</b>	<b>+262</b>	<b>+547</b>	<b>-670</b>	<b>+1,385</b>	<b>+48</b>	<b>+675</b>	<b>-368</b>	<b>+1,916</b>
<b>Comcast 2010</b>	15	683	173	689	511	2,179	1,718	253	<b>6,221</b>
<b>Comcast 2015</b>	10	569	162	606	586	687	1739	131	<b>4,490</b>
<b>Δ Comcast</b>	<b>-5</b>	<b>-114</b>	<b>-11</b>	<b>-83</b>	<b>+75</b>	<b>-1,492</b>	<b>+21</b>	<b>+122</b>	<b>-1,731</b>
<b>Cox 2010</b>	0	432	289	359	513	523	889	60	<b>3,065</b>
<b>Cox 2015</b>	0	312	262	157	286	245	586	38	<b>1,886</b>
<b>Δ Cox</b>	<b>0</b>	<b>-120</b>	<b>-27</b>	<b>-202</b>	<b>+227</b>	<b>-278</b>	<b>-303</b>	<b>-22</b>	<b>-1,179</b>
<b>Charter 2010</b>	6	169	61	180	114	235	320	227	<b>1,312</b>
<b>Charter 2015</b>	5	167	68	546	266	92	137	223	<b>1,504</b>
<b>Δ Charter</b>	<b>+1</b>	<b>-2</b>	<b>+7</b>	<b>+366</b>	<b>+152</b>	<b>-143</b>	<b>-183</b>	<b>+4</b>	<b>+192</b>
<b>Total 2010</b>	43	3,051	2,309	3,117	2,344	13,258	18,843	922	<b>43,887</b>
<b>Total 2015</b>	48	2,811	2,219	6,626	3,235	6,926	14,828	406	<b>37,099</b>
<b>Δ Total</b>	<b>+5</b>	<b>-240</b>	<b>-90</b>	<b>+3,509</b>	<b>+891</b>	<b>-6,332</b>	<b>-4,015</b>	<b>-512</b>	<b>-6,788</b>

## **13. Company by Company Comparison of Average Salaries and Wages (including benefits) by Occupation: 2015 Compared with 2010**

The table on the next page compares of the average salaries and wages (including benefits) for each occupational category for each of the six SVF holders with more than 750 employees in 2015 with the corresponding salaries and wages in 2010.

Overall, there is a wide range of average salaries and wages for all levels of employees across all franchise holders.

While the average salaries and wages for most occupational classifications at most of the SVF holders increased during this five year period, salaries and wages at AT&T declined in all occupational categories.

Technician salaries at AT&T declined by \$28,809 (-35.6%) to \$54,487, significantly lower than Technician salaries at all but one (Charter) of the other SVF holders. Similarly, average salaries for sales associates at AT&T declined by \$38,462 (-48.7%) to \$40,575. During this same five year period, average salaries for Skilled Craft workers at AT&T declined by \$4,244 (-5.1%) to \$78,831.

### Average Salaries & Wages (Including Benefits) by Occupation: 2015 Compared with 2010

Occupation	Exec / Senior Leaders	Officers / Managers	Professionals	Technicians	Sales / Associates	Office / Clerical	Skilled Crafts	Operatives/Laborers/Service Workers
<b>AT&amp;T 2010</b>	\$265,065	\$122,869	\$109,398	\$83,296	\$79,037	\$79,403	\$83,075	N/A
<b>AT&amp;T 2015</b>	See Officers	\$95,493	\$87,178	\$54,487	\$40,575	\$68,602	\$78,831	N/A
<b>Verizon 2010</b>	\$194,892	\$139,103	\$111,772	N/A	\$89,020	N/A	\$84,224	N/A
<b>Verizon 2015</b>	\$201,300	\$159,065	\$125,769	N/A	N/A	N/A	\$97,885	N/A
<b>Time Warner 2010</b>	\$386,372	\$106,197	\$80,910	\$69,740	\$45,713	\$48,900	\$51,630	\$43,301
<b>Time Warner 2015</b>	\$481,569	\$136,367	\$99,641	\$84,136	\$97,414	\$49,297	\$68,063	\$62,463
<b>Comcast 2010</b>	\$284,867	\$103,068	\$87,053	\$83,230	\$103,810	\$99,477	N/A	\$51,231
<b>Comcast 2015</b>	\$287,109	\$109,885	\$91,748	\$87,164	\$63,265	\$54,672	\$67,222	\$58,578
<b>Cox 2010</b>	N/A	\$104,043	\$78,681	\$47,666	\$38,712	\$44,990	\$58,890	\$38,240
<b>Cox 2015</b>	N/A	\$121,273	\$91,932	\$78,859	\$78,630	\$57,548	\$67,678	\$46,559
<b>Charter 2010</b>	\$243,505	\$88,714	\$79,256	\$60,778	\$37,330	\$38,897	\$47,422	\$36,429
<b>Charter 2015</b>	\$201,286	\$85,800	\$80,141	\$55,705	\$42,730	\$46,287	\$47,559	\$39,775

## **14. Number of Out-of-State Residents Employed by Independent Contractors**

None of the six companies reported information describing the number of out-of-state residents employed by independent contractors, companies, and consultants hired by the holder.

## **15. Forecasts of Job Creation**

The table on the following page shows that three SVF holders forecasted that they would add a total of 233 positions during 2016. Of these, AT&T forecasted they would add 137 new employees during 2016, Time Warner forecasted they would add 86, and Cox forecasted 10 new jobs during 2016.

**Forecast of 2016 Job Creation for Each Occupational Classification  
by State Video Franchise holders**

<b>Company</b>	<b>Occupational Classifications</b>	<b>Forecast of Net New Positions for 2016</b>
AT&T	Sales Managers	28
	Skilled Craft Workers	109
Verizon	No forecasts provided	No forecast provided
Comcast	No forecasts provided	No forecast provided
Time Warner Total from all entities	Executives / Senior Leaders	No forecast provided
	First/ Mid Level Managers	14
	Professionals	3
	Technicians	21
	Sales/ Associates	46
	Office/ Clerical	2
	Craftworkers	No forecast provided
	Operatives/ Laborers/ Service Workers	0
Cox	Executives / Senior Leaders	No forecast provided
	First/ Mid Level Managers	No forecast provided
	Professionals	No forecast provided
	Technicians	10
	Sales/Associates	No forecast provided
	Office/ Clerical	No forecast provided
	Craftworkers	No forecast provided
	Operatives/ Laborers/ Service Workers	No forecast provided
Charter	Executives / Senior Leaders	No forecast provided
	First/ Mid Level Managers	No forecast provided
	Professionals	No forecast provided
	Technicians	No forecast provided
	Sales/Associates	No forecast provided
	Office/ Clerical	No forecast provided
	Craftworkers	No forecast provided
	Operatives/ Laborers/ Service Workers	No forecast provided
<b>Total</b>		<b>233</b>

In their previous year submissions, AT&T California forecasted that it would add 312 employees during 2015. In actuality, during 2015 AT&T reduced their workforce by 1,086 employees. Time Warner provided a forecast saying they planned to add 248 employees during 2015. Time Warner

ended the year 2015 by adding 247 employees. Cox forecasted adding 10 technician jobs during 2016, but Cox did not provide a forecast for 2015. However, Cox ended 2015 with 44 more employees than at the end of 2014.

### Analysis of AT&T's 2015 Job Creation Forecast

Job Classification	AT&T Forecast 2015 Job Creation	AT&T Actual 2015 Jobs Created	2014 AT&T Employees	2015 AT&T Employees	% Change AT&T Employees 2014 - 2015
Executives / Senior Leaders			0	0	N/A
Managers	15	-67	777	710	-8.6%
Professionals	0	-50	593	543	-8.4%
Technicians	0	-252	5,413	5,161	-4.7%
Sales / Assoc.	0	-9	318	309	-2.8%
Office / Clerical	0	-608	4,692	4,084	-13.0%
Craftworkers	297	-100	6,935	6,835	-1.4%
Operatives / Laborers / Service Workers	0	0	0	0	N/A
<b>Total</b>	312	-1,086	18,728	17,642	-5.799%

### Analysis of Time Warner's 2015 Job Creation Forecast

Job Classification	Time Warner Forecast 2015 Job Creation	Time Warner Actual 2015 Jobs Created	2014 Time Warner Employees	2015 Time Warner Employees	% Change Time Warner Employees 2014 - 2015
Executives / Senior Leaders		-7	34	27	N/A
Managers	9	33	967	1000	3.4%
Professionals	2	29	854	883	3.4%
Technicians		7	149	156	4.7%
Sales / Assoc.	180	174	1614	1788	10.8%
Office / Clerical	1	8	1810	1818	0.4%
Craftworkers	56	-4	2272	2268	-0.2%
Operatives / Laborers / Service Workers		0	14	14	N/A
<b>Total</b>	248	247	7,680	7,927	3.216%

### Analysis of Cox's 2015 Job Creation Forecast

Job Classification	Cox Forecast 2015 Job Creation	Cox Actual 2015 Jobs Created	2014 Cox Employees	2015 Cox Employees	% Change Cox Employees 2014 - 2015
Executives / Senior Leaders			0	0	N/A
Managers	0	34	278	312	12.2%
Professionals	0	52	210	262	24.8%
Technicians	0	6	151	157	4.0%
Sales / Assoc.	0	15	271	286	5.5%
Office / Clerical	0	-37	282	245	-13.1%
Craftworkers	0	-25	611	586	-4.1%
Operatives / Laborers / Service Workers	0	-1	39	38	N/A
<b>Total</b>	0	44	1,842	1,886	2.4%

# 16. Appendices

## Appendix A

### DIVCA History

On September 29, 2006, the Governor signed into law Assembly Bill 2987, the Digital Infrastructure and Video Competition Act of 2006 (DIVCA). DIVCA's goals are to promote rapid, widespread competition in the broadband and video markets, and accelerate the deployment of additional infrastructure in California.

DIVCA is implemented by the CPUC and addresses not only video franchising, but also provides a vehicle for the deployment of additional broadband infrastructure within California, particularly to unserved and underserved areas. DIVCA changed video franchising within California by transferring the authority for issuing franchises for the provision of video services from local entities to the State of California and separated franchising and enforcement. The State Legislature designated the CPUC as the sole franchising authority for issuing state video franchises as of January 1, 2007.

California was the eighth state to reform video franchising with the intent to facilitate competitive video and broadband entry. As of 2014, twenty five states had transferred video franchising authority to the state. These states include California, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Iowa, Indiana, Kansas, Louisiana, Michigan, Missouri, New Jersey, North Carolina, Nevada, Ohio, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, and Wisconsin.

Prior to DIVCA, cable television franchises in California were issued by cities, counties and special districts, as provided by state statute. This required cable operators to negotiate separate franchise agreements with each local entity where they wished to provide video service. California contains 58 counties encompassing 482 incorporated municipalities (cities and towns). These local franchise agreements required that service providers comply with specific customer service and performance standards and other requirements that often varied by locality.

For new entrants seeking to provide video and broadband services over a large area, the process of negotiating franchise agreements with each individual local entity would have been an arduous process, delaying entry into the market by many years and increasing startup and operating costs. To speed the entry of new video and broadband providers into the marketplace, the Legislature sought to replace the local franchising system with one in which

the State would issue video franchises. The CPUC was designated as the agency charged with issuing state video franchises.

Following the adoption of DIVCA implementation rules, the CPUC began issuing ten-year state video franchises. [See Appendix B on the next page (p. 39) for summaries of implementing decisions]. The Commission will issue a state video franchise so long as an applicant is eligible for a state franchise, the application is complete, the applicant pays the \$2,000 application fee and provides evidence of having obtained an appropriate surety bond, and the applicant swears that it will adhere to all state and federal laws, rules, and regulations.

## **Appendix B**

### **DIVCA Decisions and Resolution**

#### **Rules Adopted to Implement DIVCA**

On October 5, 2006, shortly after DIVCA was enacted, the CPUC issued its Order Instituting Rulemaking to consider the adoption of a General Order and procedures to implement DIVCA (R. 06-10-005) (“Rulemaking”). In the course of this Rulemaking, the CPUC developed rules for implementing DIVCA.

#### **Adopting Rules to Implement DIVCA**

On March 1, 2007, following the receipt of comments and reply comments in the Rulemaking and subsequent Proposed Decision, the CPUC issued Decision (D.) 07-03-014 (Phase I Decision) establishing rules for implementing DIVCA and adopting General Order 169. These rules set forth application requirements, CPUC procedures for considering applications, build-out, anti-discrimination, annual reporting requirements of both cable and broadband information by census tract, and other requirements as mandated by DIVCA.<sup>68</sup>

#### **Adopting Non-Discriminatory Buildout Requirements for Small Local Exchange Carriers (LECs)**

On October 4, 2007, in Phase II of the Rulemaking, the CPUC issued D.07-10-013 (Phase II Decision), which adopted non-discriminatory build-out requirements for smaller companies and

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<sup>68</sup> On October 5, 2006, the Commission issued Opinion Modifying Decision 07-03-014 [D. 10-07-050], Cal. PUC Lexis 298 (2010), which amended the form of the franchise certificate adopted in the Phase I Decision to conform to statutory requirements.

additional reporting requirements.<sup>69</sup> In Phase II, the CPUC determined that the “reasonable time” deployment standard applicable to franchise holders who are telephone companies with fewer than one million telephone customers should largely mirror the build-out timetable required of the larger telephone companies. Further, the CPUC determined that, in their annual reports to the CPUC, holders must provide video subscriber data, finding that such data are necessary in order for the CPUC to determine whether franchise holders are adhering to the requirements of DIVCA.<sup>70</sup>

On July 10, 2008, in Phase III of the Rulemaking, the CPUC issued D.08-07-007 (Phase III Decision), which amends the bonding requirements under DIVCA, adopts new rules regarding deadline extensions for build-out requirements, and adopts additional reporting requirements.

Under DIVCA, holders of a state video franchise are subject to statutory requirements regarding, among other things, the extent and pace at which large new entrant franchise holders must build facilities and offer video services to households. The statute provides that franchise holders may apply to the CPUC for an extension of the time for such build-out requirements to be satisfied, under certain circumstances. The Phase III Decision added procedural requirements to ensure that holders’ extension requests are made and decided in a timely fashion.

Further, the Phase III Decision eliminates an unintended and unfair asymmetry in the bond requirement under General Order 169 between new entrants in the video marketplace and incumbent cable operators. Local franchises held by incumbent cable operators tend to be held by many separate affiliates of an ultimate parent. Verizon and AT&T, by contrast, have each applied for only one state franchise covering their entire video service areas. The Phase III decision changes the rules under DIVCA to require only one bond to be posted to cover all affiliated holders rather than separate bonds so that “incumbent” applicants for video franchises do not have additional burdens placed on them due to their historic corporate organization under the local franchising scheme.

Finally, the Phase III Decision requires holders to include in their annual data submitted to the CPUC, broadband subscriber data they have reported to the FCC on Form 477.<sup>71</sup> The FCC released its Report and Order and Further Notice of Proposed Rulemaking adopting new

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<sup>69</sup> Order Instituting Rulemaking to Consider the Adoption of a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006 Opinion Resolving Issues in Phase II [D.07-10-013] 2007 Cal.PUC Lexis 548 (2007).

<sup>70</sup> Previously, the Commission’s Rules required the submission of data related to the number of households offered video services, but not the number of households subscribing to such services.

<sup>71</sup> Throughout this Report, reference is made to “477 Data.” Franchisees do not actually provide the CPUC with a copy of the actual Form 477 they submitted to the FCC. Rather, they submit the same information the FCC collects on its Form 477 to the CPUC in response to an independent data requirement based on state law.

requirements for reporting broadband service by speed tier on June 12, 2008.<sup>72</sup> The CPUC issued this decision to reflect the FCC's requirements for reporting broadband service. Holders are now required to report the same broadband speed information that it reports to the FCC to the CPUC.

## Franchise Renewal Rules

On August 28, 2014, the CPUC issued Decision 14-08-007 (D. 14-08-007) implementing the franchise renewal provisions of DIVCA by adopting renewal rules. Initial franchises are granted for a period of 10 years but may be renewed by a franchise holder if it wishes to continue to provide service. Section 5850 requires that the process for renewing an existing franchise be identical to the process set forth in DIVCA for obtaining an initial franchise except that the renewal process must be consistent with federal law governing the renewal of cable television franchises and the applicant seeking renewal must not be in violation of any non-appealable court order issued pursuant to DIVCA. In addition, § 5900(k) of DIVCA requires that ORA be allowed to advocate on behalf of consumers during the renewal process.

The Decision finds that these requirements are met by adopting rules for the renewal of existing franchises that are identical to the rules for the issuance of an initial franchise with two exceptions. First, the rules require that a renewal applicant attest to the fact that it is not in violation of any non-appealable court order issued pursuant to DIVCA. Second, they require that ORA and local entities be provided with notice of the application and the opportunity to comment on the sole issue of whether the applicant is in violation of a non-appealable court order.

Renewal applications must be submitted no later than 3 months prior to the date current franchise is due to expire but no earlier than 6 months prior to that date. Comments on the application must be submitted in writing to the Commission's Video Franchising and Deployment Group within 15 days after the application is served on local entities and ORA and must be accompanied by a court order supporting the claim that the applicant is in violation of a non-appealable court order.

In addition, the rules permit ORA to comment on whether the application is complete and the extent to which the applicant has complied with DIVCA's obligations during the term of its existing franchise. Comments submitted by ORA on past compliance with DIVCA's obligations may lead to future action by the Commission but have no bearing on the disposition of the application for renewal.

On July 1, 2015, ORA filed a petition seeking to modify the renewal decision. Responses to

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<sup>72</sup> F.C.C., Form 477 Order, fn. 21, *supra*.

the petition were filed on July 31, 2015 and a reply was filed by ORA on August 10, 2015. The Commission has not acted on the petition to date.

## **Resolutions**

CPUC staff made several recommendations for revisions to the application forms through two resolutions, T-17107 and T-17141, which were subsequently adopted by the CPUC.

DIVCA provides for video franchise holders to pay fees to the CPUC calculated to equal the amount authorized in the CPUC budget for DIVCA implementation. In March 2008, Resolution T-17137 was adopted, which stated that beginning with fiscal year 2007-2008, each SVF holder's user fee would be determined annually based on the pro-rata percentage of households that exist in that holder's video serve area, compared to the total number of households in the service areas of all holders combined. Subsequently, another resolution was passed reverting back to the original process of determining user fees for each SVF holder annually based on the pro-rata percentage of each SVF holder's gross video revenue, compared to the total gross video revenues reported to the CPUC by all SVF holders in the state.

## **DIVCA Application Process**

The application process was designed to be simple and straight-forward. It requires applicants to file the following: a completed application form; a \$2,000 application fee; confirmation of technical, managerial, and financial qualifications demonstrated through the posting of a bond (\$100,000 to \$500,000); an affidavit attesting to the lawful operation of the franchise; a definition of the video service area sought; demographic information by census block group; the expected date for the deployment of video service in the video service area; and, a list of affected local entities.

The CPUC must determine within 30 days if an application is complete and issue the franchise within 14 days of such determination.<sup>73</sup> If the application is not complete, CPUC staff is required to notify the applicant, and the 30-day clock restarts. If the CPUC does not issue the franchise within the required 14 days, it is deemed issued. The new franchise holder then notifies the affected local entities.<sup>74</sup>

The CPUC's Phase I Decision allowed applicants, except for incumbent cable operators, to begin filing applications for state-issued video franchises as of March 1, 2007.<sup>75</sup> The first such

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<sup>73</sup> Cal. Pub. Util. Code § 5840 (h).

<sup>74</sup> Cal. Pub. Util. Code § 5840 (n).

<sup>75</sup> Phase 1 Decision at Appendix B at 4; DIVCA required the CPUC to begin accepting applications no later than April 1, 2007; Cal. Pub.Util. Code §5847(g).

application was filed by Verizon California Inc. on March 2, 2007. AT&T California filed its application on March 7, 2007. These franchise applications were reviewed for completeness, and video franchises Nos. 0001 and 0002 were issued to Verizon and AT&T on March 8 and March 30, 2007, respectively. All franchise applications and grants may be viewed on the Commission's web site.<sup>76</sup>

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<sup>76</sup> <http://www.cpuc.ca.gov/PUC/Telco/Information+for+providing+service/videofranchising.htm>

# Appendix C

## DIVCA Data Collection, Methods, Sources and Limitation

### A. DIVCA's Data Reporting Requirements

State video franchise holders are required to submit data relating to their provision of video and broadband services annually by April 1.<sup>77</sup> Pursuant to DIVCA, all video franchise holders must report, by census tract, the following:<sup>78</sup>

#### 1. Video Information:

- a. The number of households in the holder's video or telephone service area.<sup>79</sup>
- b. The number of *low-income* households in the holder's video or telephone service area.
- c. The number of households in the holder's video or telephone service area to which video service is offered by the holder.
- d. The number of *low-income* households in the holder's video or telephone service area to which video service is offered by the holder.
- e. The number of subscribers in the holder's video or telephone service area.<sup>80</sup>

#### 2. Broadband Information:

- a. The number of households to which the holder makes broadband available in California. If the holder does not maintain this information on a census tract basis, in its normal course of business, the holder may reasonably approximate the number of households based on information it keeps in the normal course of business.
- b. The number of households that subscribe to broadband that the holder makes available in this state.
- c. The speed of service that subscribers obtain, based on the speed tiers adopted by the FCC.<sup>81</sup>
- d. Whether the broadband service provided by the holder utilizes wireline-based facilities or another technology.
- e. If a SVF holder and/or any of its Affiliates uses non-wireline technology to provide

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<sup>77</sup> Cal. Pub. Util. Code § 5960.

<sup>78</sup> Cal. Pub. Util. Code § 5960.

<sup>79</sup> Incumbents must report by video service area; telephone corporations by telephone service area.

<sup>80</sup> Phase II Decision D. 07-10-013.

<sup>81</sup> Cal. Pub. Util. Code Decision Amending General Order 169 Phase III Decision D.08-07-007, 07/10/2008, Appendix C (1)(b).

Broadband, it must list the type(s) of technology used in each census tract.<sup>82</sup>

- f. DIVCA directs the CPUC to aggregate the data described above and to report the aggregated totals to the Governor and the Legislature annually.<sup>83</sup>

## **B. Video and Broadband Subscribership Data Sources**

DIVCA requires state video franchise holders to submit annual data describing their territories, availability of service, and subscribership. The most recent data used in this report were current as of December 31, 2015. These data were used throughout this report and provided a base from which to compare and evaluate providers' year-to-year performance under DIVCA.

All state video franchise holders who had state franchises and/or amendments issued before December 31, 2014, submitted annual data pursuant to Public Utilities Code § 5960. Each parent company of a state video franchise holder filed one annual report which included broadband and video service data for all of their state-franchised operations, as well as their locally-franchised affiliates that operate in California and provide video or broadband service in the state.

The analysis of video and broadband service begins with these self-reported data from parent companies of the state video franchise holders and affiliates. This report does NOT include video or broadband data from service providers that do not hold state video franchises.<sup>84</sup>

To aggregate the data reported by census tract and map and analyze it, staff used an Oracle database and a Geographic Information System (GIS). Staff also used Excel spreadsheets to aggregate, analyze and create graphs of the annual data. The findings are illustrated in maps, graphs, and charts throughout the report.

## **C. Broadband Availability Data Sources**

Broadband availability data used previously in this analysis was first collected pursuant to the CPUC's State Broadband Initiative Program (SBI) grant, under the auspices of the National Telecommunication and Information Administration's (NTIA). The NTIA used the data collected by the CPUC, and each other state, for its National Broadband Map.

At the end of the 5-year SBI program, the responsibility for broadband data collection and for

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<sup>82</sup> Cal. Pub. Util. Code Decision Amending General Order 169 Phase III Decision D.08-07-007, 07/10/2008, Appendix C (2)(a) .

<sup>83</sup> Cal. Pub. Util. Code § 5960.

<sup>84</sup> Some of the small video franchisees did not report broadband availability data. They may provide only video and no broadband data.

the National Broadband Map shifted from the NTIA to the FCC, and the FCC began collecting broadband availability data every six months on Form 477. While SVF holders are required by DIVCA to report broadband availability data by census tract, we ask SVF holders to submit the same data they reported to the FCC on Form 477.

In submitting their availability data to the FCC, a broadband provider may elect to provide data on the availability of their service by either 1) address, or 2) census block. If a provider offers service in a census block the entire block is assumed to be served. Subscriber data (connections) are reported on Form 477 by census tract. After collecting the raw broadband data directly from providers, staff subjects it to validation using several available resources. More details are available in the introduction to section 6 of this report and on the State Broadband Mapping Program webpage.<sup>85</sup>

#### **D. Build-out and Non-Discrimination Data Sources**

Under California Public Utilities Code § 5890(e), telephone companies with more than one million subscribers are required to submit data supporting their compliance with the statute's 5-year build-out and non-discrimination requirements. These data were provided to the Commission as separate filings by AT&T and Verizon by their respective 5-year franchise anniversaries.

#### **E. Determining the Number of Providers and Households Served per Census Block or Tract**

The broadband availability data from each provider were incorporated into feature classes in a file geodatabase according to State Broadband Initiative standards, where they exist in a many-to-one relationship to the census blocks. That is, many availability records exist for each census block, based on differences in provider name, technology type, and upstream and downstream speed. To estimate the number of distinct broadband providers per census block, data from each provider was exported to shapefiles then attribute-joined to a clean census block shapefile, which removes any "duplicate" records, thereby enforcing a one-to-one relationship.

After all provider data has been exported and joined, each distinct provider name, contained in a separate field, is concatenated together into a single field, using the field calculator's "&" operator. The resulting concatenation sequences were then sorted alphabetically, common blocks of sequences were identified visually and selected, and the number of distinct providers were entered in a new field.

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<sup>85</sup> See <http://www.cpuc.ca.gov/General.aspx?id=2540>.

Video data mandated under DIVCA are gathered in Excel data templates and stored permanently in an ORACLE database, from which data is queried. Calculations, such as the number of distinct providers per census tract, were performed directly in the queried tables, then exported to Excel and immediately joined to a census tract shapefile for mapping.

Once the number of broadband providers per census block and video providers per census tract were determined, the aggregate number of households associated with each of these provider numbers could be summed from the shapefile attribute table.

## **F. 2010 Census Data**

Census 2010 household data were used as the basis for estimating the aggregate number of households in census blocks with a common number of broadband providers (0, 1, 2, 3, 4, or 5). These data were combined with household growth factors derived from the California Department of Finance's (CDF) annual household estimates by incorporated city and county, to project a household estimation to the current year for each census block. We derived the household growth factor by dividing the CDF's current year household estimate by their previous year household estimate for each incorporated city, and the unincorporated balance of each county. This growth factor was then applied to all census blocks whose centroid fell within the incorporated city or unincorporated balance of the county in question, to arrive at a new current year projected household estimate for each census block.

This method of household projection is a significant improvement over the methods used in the earliest DIVCA reports. In 2008 we used a single statewide growth rate for every calculation, both county and census tract. We refined the method in 2009 by using separate growth rates for each county, and their component census tracts. This addressed the regional variation in growth rates but failed to address the urban/rural dichotomy.<sup>86</sup> This method most likely resulted in an overestimation of the number of households served by multiple providers, thus painting a rosier picture of broadband competition in California than has actually been the case.

The current method accounts for variations in both regional household growth rates and urban / rural areas. As a result, the projections are closer to reality. But it also creates a statistical disconnect with previous reports, which became progressively less accurate the further away from Census 2000 they were. Prior to January 2011, when the 2010 census data were released, our best estimate of households in California was 12,790,143. The 2010 Census data showed that the actual number of households in California (in April 2010) was 12,577,498. We had overestimated the number of households by about 1.7% statewide, and probably much more in some locations.

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<sup>86</sup> With the exception of purely rural counties, such as Alpine, Modoc, and Trinity.

## G. 2010 Census Boundaries

The 2010 Census delivered more than just up-to-date household estimates. It also added new blocks and tracts and redrew existing boundaries. The number of census blocks in California increased by 33.2% (533,136 to 710,145) over 2000. The number of census tracts increased by 14.1% (7,049 to 8,043) over 2000. The effect of these increases is to reduce the average size of both blocks and tracts, thereby increasing their overall granularity as mapping units, and increasing the accuracy of any household estimation based on their selection. This increased accuracy can manifest as a decrease in the household estimate in specific areas outside urban cores, because the blocks or tracts which now comprise these areas have a smaller overall footprint. Blocks and tracts within urban cores are far less likely to have been split or redrawn. Therefore, they only manifest an increase in the overall household estimate.

## H. Census Data Aggregation Limitations

Despite the use of more granular census boundaries and up-to-date data, there are still limitations inherent in their use for household estimation in local areas. Census blocks are a much more granular mapping unit than census tracts, and they provide a much better picture of broadband availability than census tracts do of video availability under DIVCA. However, the unavoidable fact of aggregation means that staff's ability to perfectly analyze and depict the availability of broadband and video service is still limited.

The table below compares the relative sizes of census tracts and blocks in California.

Geo- graphy	Count	Size (in sq. mi.)			Number of Households		
		Min.	Max.	Ave.	Min.	Max.	Ave.
Census Block	709,128	<0.000001	523	0.22	0	1,392	18
Census Tract	8,043	0.00052	7,008	19.7	0	8,362	1,562

Census tract reporting for video availability data, as opposed to actual address reporting, makes it impossible to know exactly how many households are offered service in any given census tract, or how many households exist within the franchise territory of any given state franchise holder. Individual franchise holders report the number of households to which they offer service by census tract. For census tracts where they are the only provider, this figure can be taken as the actual number of households offered service in that tract. However, for census tracts in which there are multiple providers, it is impossible to know whether or not the competing services are offered to the same households. Therefore, simply adding the

“households offered video” figures from two or more providers may result in double or triple counting, bringing some availability and subscription rates to over 100%.

Consequently, mapping where competition has occurred (one of the core concerns of DIVCA) is complicated. Since it is impossible to know where, within each census tract, video service is being offered, we can only classify tracts as being either served or unserved by each provider, then add up the number of providers in each tract. In this way, the current level of video competition is also overstated.

Similarly for broadband, if one household in a census block was offered service by any franchise holder, then it was assumed that all households within it were offered the service, and the block was considered “served.” This naturally results in an overstatement of the level of availability. Error estimation was not done for this report, so it is not known how inaccurate these estimates are. Nor would error estimation be of much use in this case, due to the use of aggregated data, rather than discreet data points. On the other hand, the population density within California varies widely, as reflected in the extreme variation in its census geography sizes. This means that the census tracts comprising California’s vast rural north and east (where most of the error in the results probably lie) are relatively few, and the total number of households this represents are also relatively few.

When drawing conclusions from this report, it is important to keep in mind that only services offered by state-issued video franchise holders and their locally-franchised affiliates are reflected. Broadband and video services offered by local independent wireline providers and fixed wireless ISPs or satellite ISPs are, by definition, excluded.

## **I. Validation Resources and Methods for 2015 California Broadband Map**

### **1. Overview**

Census block data create a challenge when trying to understand the status of broadband availability at a more detailed level, such as for a specific address. It is not uncommon for the map to show all of the households in a census block as “served” at the threshold of 6 megabits per second down or greater and 1.5 megabits per second up or greater even though some households in that block remain under- or unserved (a false positive). At the same time, there are instances of the opposite problem as well where the map shows a census block being 100% unserved when there are indeed some households that are served (a false negative).

Given the Legislative and Commission directives to implement the California Advanced Services Fund (CASF) program, the validation procedures currently in place tend to favor

false negatives over false positives. In other words, the Interactive Map may understate availability of broadband rather than overstate it.

The CPUC's CASF Grant Program relies on the California Broadband Initiative Map and supporting data to determine eligibility for infrastructure grants. However, the California Interactive Broadband Map is not the final arbiter of CASF eligibility. Indeed, the CASF application includes a challenge process, which allows providers to identify portions of a census block that are in fact served.

In order to minimize false positives, the 2015 update of the Interactive Map, which is based on broadband availability data as of December 31, 2014, includes "red zone" and "purple zone" validation layers for each provider.<sup>87</sup> The red zone layer shows areas for which either no validation method exists to verify the existence of a broadband provider's service, or public feedback contradicted the provider's claim of service. The purple zone layer shows areas for which no validation method could verify a broadband provider's advertised downstream or upstream throughput. This does not mean there is no service, or service is definitely not available at the speeds submitted. It only means that we haven't been able to confirm the presence of service with the data sources available to us. Nevertheless, blocks that cannot be validated are shown as unserved, which reduces false positives.

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<sup>87</sup> See <http://www.broadbandmap.ca.gov/>.

## 2. Methods to Validate Broadband Data Submitted by SVF Holders

The table below and on the next page summarizes the validation method, type of data, and to which type of broadband connection the validation method applies.

Data Source	Data Type	Fixed: Wireline	Fixed: Wireless	Mobile Wireless
Broadband Subscriber Data from providers	Number of subscribers by upstream and downstream speeds by census tract used to validate availability and speed at census tract	YES	YES	NO
TeleAtlas Wire Center	Serving wire center locations of telephone companies used to validate DSL coverage	YES	NO	NO
CPUC Mobile Field Test Upstream and Downstream Interpolation	Interpolated coverage based on mean minus 2 standard deviation used to validate availability at census block	NO	NO	YES
CPUC Mobile Field Test Results Point Data	Provider-specific, "In coverage" location results showing "No Effective Service" (point data)	NO	NO	YES
CalSPEED results	Speed test results from LTE-capable devices and "No Effective Service" results from ANY device	NO	NO	YES
Customer address service and speed information	Provider-supplied list of customers showing their address and subscribed speeds – used to validate availability and speed at census tract	YES	YES	NO

Data Source	Data Type	Fixed: Wireline	Fixed: Wireless	Mobile Wireless
Public Survey	Reports of “no service” for a specific provider used to validate availability at census block (“no service” = block becomes unavailable for that provider)	YES	YES	YES
Tower data and/or EDX propagation image	Coverage propagation of fixed wireless provider based on tower, radio, and antenna data submitted by the provider <b>used as a baseline for availability footprint</b>	NO	<b>YES (footprint only)</b>	NO

### 3. Detailed Description of Each Type of Data Used to Validate Broadband Data Submitted by SVF Holders

**FCC Form 477 Subscriber Data** - For fixed services, the FCC collects data from each broadband provider twice a year. Providers submit the same information directly to the CPUC once each year. This includes the number of broadband connections by technology type and speed tier (upstream and downstream) for each census tract where the provider has customers. If a provider indicates it has broadband service in a particular census block but has not reported customers for the census tract where that block resides, the subscriber data cannot validate the actual presence of service. In the case of speed validation, if a provider has not reported any subscribers in any of the census blocks nested within the applicable census tract, then this subscriber information cannot validate the speed for the entire census tract. As with any validation technique, there are inherent errors. For example, if subscriber data show that a particular provider has customers in a census tract and at the maximum advertised speeds submitted to us, we consider all blocks within that census tract to be validated for speed and/or availability for that provider. Because subscriber data is only available at the census tract level, this validation tool tends to yield false positives and overstates validation for individual census blocks. In contrast to fixed broadband service data, mobile broadband service data are aggregated at the state level which is not useful for census tract level validation.

**TeleAtlas Wire Center Data** lists every Local Exchange Carrier (LEC) landline wire center in the United States. The term “wire center” refers to the location where the telephone company terminates its local lines; this is usually the same location as a central office, although a wire center might house multiple central offices. Buffers are created at 12,000 feet from provided Wire Center point datasets to cross reference ISP data submissions to the CPUC. The wire center boundary is a representation of the area served by all of the switching equipment housed at that physical location. When a provider indicates broadband availability in a particular census block, and that location is within the distance from the wire center to support a given speed, that census block is considered validated. If the census block is beyond 12,000 feet from the central office, the speed cannot be validated. This methodology is used for DSL technologies only.

**CPUC Mobile Field Test Upstream and Downstream Interpolation** uses data generated by the CPUC’s semi-annual mobile field tests, which cover 1,990 randomly selected points across the state and measure broadband performance for the four major mobile wireless operators: Verizon, AT&T, Sprint, and T-Mobile USA. The mean minus two standard deviation results are interpolated to create a kriging map. This map is used to estimate availability, upstream, and downstream throughputs. We compare the interpolated model against each provider’s stated coverage and speed. In cases where the estimate is below the provider’s stated coverage, we create a purple zone for the census block(s) that fall under all or part of that area. In cases where the estimate shows no coverage but the provider’s map does show coverage, we create a red zone.

**CPUC Mobile Field Test Point Data** come from our semi-annual field tests. The mean minus two standard deviation point data from the Fall 2014 tests were compared against each operator’s advertised availability in the census block where the test was conducted. In census blocks where the test result for a particular operator was zero or “No Effective Service,” but the operator advertised coverage there, the coverage for that census block was considered unvalidated.

**CalSPEED Results** are crowd-sourced mobile test results from the CPUC’s Android mobile testing application. The CPUC launched CalSPEED on Google Play’s app store on April 5, 2013. The point data results through May 2014 were compared against each operator’s advertised availability in the census block where the test was conducted. These results included operators beyond the four tested for the bi-annual mobile field testing. In census blocks where the test result for a particular operator was zero or “No Effective Service,” but the operator advertised coverage there, the coverage for that census block was considered unvalidated.

**Customer Address Service and Speed Information** - Where we were unable to validate any areas of a provider's availability (their entire footprint was shown as a red zone), we requested customer address information to use as a validation data source. Census tracts where customers resided were considered validated.

**Public Survey** - As part of our effort to collect and incorporate information from the public, we created an online as well as downloadable paper survey that members of the public fill out to tell us their providers and at what speeds they subscribe. The survey also captures whether they have been denied service or do not have access to specific providers claiming to offer service to their area. There is also a section where they can tell us the results from speed tests. The survey and FAQ are available on the CPUC web site at: <http://www.cpuc.ca.gov/General.aspx?id=5868>. Results through May 30, 2015 were used to validate broadband availability. Reports of "no service" override other validation methods.

**Tower data and/or EDX propagation image** - For fixed wireless providers, we used tower location and system parameter information, where available, to propagate a fixed wireless provider's coverage area using EDX's Signal software, version 11.2. The wireless propagation model is based on the Anderson-2D propagation model. System parameters included frequency, transmit power, receiver sensitivity, antenna gain, and height. EDX produced coverage patterns for each tower/sector combination taking into account terrain and land use/clutter that may hinder signal dispersion. For terrain, we used two data sets, EDX universal .201 and SRTM 3- second .HGT format. For land use/clutter, we used is GCATTN\_2011\_clutter 30-meter .151 files. A separate propagation shapefile was created for each downstream and upstream speed tier combination, and all shapefiles were later overlaid and dissolved to where only the fastest advertised speed available was visible.

#### **4. Description of Mobile Broadband Field Testing Program**

Through the mobile broadband field testing program, the CPUC has shown that carrier-reported "highest advertised broadband speeds" are not representative of the typical user experience. The FCC similarly rejects the adequacy of the carrier-reported maximum advertised speeds collected by the NTIA under its Broadband Data Initiative, and instead requires carriers to report their lowest advertised speeds on FCC Form 477 Deployment. The FCC has not yet determined whether "lowest advertised speeds" now being collected will be any better at representing that experience.

Assuming a normal distribution of data, adopting a speed standard at two standard deviations below the mean results in estimate speeds that would meet or exceed the speed standard 98% of the time. While the test results do not fall into a normal distribution, and the actual percent probability of availability will vary, we believe that speeds two standard deviations below the mean is more representative of a typical user experience than average speeds.

For the interpolation model used for mobile provider validation, we calculate, for every test location within a provider's footprint, a mean minus two standard deviation value for both upstream and downstream speeds. The standard deviation is calculated from the 40 test results (20 for upstream, 20 for downstream) collected at each test location for each provider. We take the mean upstream and downstream speeds for each provider from the most recent mobile field test for each location (averaging smartphone and tablet speeds) and subtract two standard deviations for those upstream and downstream speeds from the means. The resulting mean minus two standard deviation values form the basis of the kriging (interpolation) model created for each provider. The image created by the kriging process looks similar to a heat map with color shading denoting high speeds, low speeds, and no service.

## Appendix D

### Video Franchise Area Maps

Maps of Video Franchise areas can be found in the video franchising section of the CPUC website at:

<http://capuc.maps.arcgis.com/home/webmap/viewer.html?webmap=84e56f2c02834408a6b7a5f3bebb044b>

If you need assistance locating maps of state-issued video franchise holders, please contact [Michael.Pierce@cpuc.ca.gov](mailto:Michael.Pierce@cpuc.ca.gov) or call him at (415) 703-2618.

# Appendix E

## Employee Categorization

The DIVCA statute does not require SVF Holders to categorize their employees into separate job classifications when they report the number of their employees each year.<sup>88</sup> Therefore, when the Commission wrote General Order 169, it required that SVF Holders with more than 750 employees report the number of California residents it employees “by occupational classification.”<sup>89</sup> However, the Commission did not specify any particular method to use or names for job classifications.

Because the Legislature and Commission left the method and classifications up to each SVF Holder, not all SVF Holders used the same method or job titles for classifying their employees. Therefore, in 2008, staff harmonized the different job categories in a ways that made logical sense. Staff continues to use the same method each year. The fact that each of the SVF Holders has been very consistent from year to year in the way they categorized their employees has made this job much easier then it might have been.

Staff has always used the definitions provided by the U.S. Equal Employment Opportunity Commission to classify the employees reported by the SVF Holders. Below are two of the occupational classifications, *Technicians* and *Craft Workers*, described by the U.S. EEOC:

From **2017** EEO Instruction Booklet:

***Technicians***. Jobs in this category include activities that require applied scientific skills, usually obtained by post-secondary education of varying lengths, depending on the particular occupation, recognizing that in some instances additional training, certification, or comparable experience is required. Examples of these types of positions include: drafters; emergency medical technicians; chemical technicians; and broadcast and sound engineering technicians.<sup>90</sup>

From **2017** EEO Instruction Booklet:

***Craft Workers*** [formerly Craft Workers (Skilled)]. Most jobs in this category include

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<sup>88</sup> Section 5920 (a) of DIVCA states: “ A holder of a state franchise employing more than 750 total employees in California shall annually report to the commission... (1) The number of California residents employed by the holder, calculated on a full-time or full-time equivalent basis.”

<sup>89</sup> Section VII (B)(1) of G.O. 169 require SVF Holders to report: “...the types and numbers of jobs by occupational classification held by residents of California employed by State Video Franchise Holders and the average pay and benefits of those jobs...”

<sup>90</sup> <https://www.eeoc.gov/employers/eeo1survey/2017survey-instructions.cfm>

higher skilled occupations in construction (building trades craft workers and their formal apprentices) and natural resource extraction workers. Examples of these types of positions include: boilermakers; brick and stone masons; carpenters; electricians; painters (both construction and maintenance); glaziers; pipelayers, plumbers, pipefitters and steamfitters; plasterers; roofers; elevator installers; earth drillers; derrick operators; oil and gas rotary drill operators; and blasters and explosive workers. This category also includes occupations related to the installation, maintenance and part replacement of equipment, machines and tools, such as: automotive mechanics; aircraft mechanics; and electric and electronic equipment repairers. This category also includes some production occupations that are distinguished by the high degree of skill and precision required to perform them, based on clearly defined task specifications, such as: millwrights; etchers and engravers; tool and die makers; and pattern makers.”<sup>91</sup>

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<sup>91</sup> <https://www.eeoc.gov/employers/eo1survey/2017survey-instructions.cfm>

# Appendix F

## Confidentiality of the Employment Data Provided by Video Franchise Holders

### Note on Confidentiality

Some franchise holders requested confidentiality for this information; however, the employment data submitted is not afforded confidentiality protection under DIVCA.<sup>92</sup> While the Public Utilities Commission (CPUC) extends the confidentiality provisions of PU Code Sec. 583 to data submitted under DIVCA,<sup>93</sup> the CPUC has a special policy for the annual employment reports. The CPUC has determined that the employment data submitted under DIVCA is not protected by the general policy of confidentiality. The CPUC's Phase I Decision states:

Despite AT&T's and Verizon's requests, we do not afford confidential treatment to the employment data. To do so would violate the express language of DIVCA. Public Utilities Code §5920(b) requires the CPUC to make "the information required to be reported by holders of state franchises . . . available to the public on its Internet Web site." Unlike annual broadband and video reports produced pursuant to Public Utilities

Code §5960, DIVCA does not direct that our employment reports aggregate information provided by state video franchise holders; instead, these reports are supposed to convey "information . . . reported by holders" without any further stipulation. The Legislature could have imposed an aggregation requirement, but it chose not to here. Thus, we find it is most consistent with the statute to make individual reports submitted pursuant to Public Utilities Code §5920 available to the public. . . .<sup>94</sup>

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<sup>92</sup> Cal. Pub. Util. Code §5920(b) The CPUC shall annually report the information required to be reported by holders of state franchises pursuant to subdivision (a), to the Assembly Committee on Utilities and Commerce and the Senate Committee on Energy, Utilities and Communications, or their successor committees, and within a reasonable time thereafter, shall make the information available to the public on its Internet Web site.

<sup>93</sup> Order Instituting Rulemaking to Consider the Adoption of a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006, Decision 08-07-007, Decision Amending General Order 169 (Cal. P.U.C. July 10, 2008) at P. 22, Phase III Decision, July 14, 2008, 5.2 Discussion... we note that §5960(d) of the California Public Utilities Code extends the protections of §583 to all data provided to the CPUC annually in the reporting requirements imposed by DIVCA.

<sup>94</sup> Phase I Decision, March 1, 2007, Order Instituting Rulemaking to Consider the Adoption of a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006, 07-03-014, adopting a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006.

Given this determination, the CPUC will make these data provided by individual video franchise holders available to the public in this Report to the legislative committees of reference. The information in the report has been aggregated to the extent necessary so as not to disclose pay and benefits information at the level where an individual employee could be identified.

Note on FTE Counts

Some franchise holders reported employee headcounts, rather than full-time equivalent (FTE) counts as required. This means that some part-time employees may have not been counted.

# Appendix G

## General Order 169 Employment Reporting Requirements, as Amended

### Reporting Requirements

#### Annual Employment Reports

##### **1. Reporting Obligations Imposed on State Video Franchise Holders with More than 750 California Employees**

A State Video Franchise Holder employing more than 750 total employees in California shall report to the CPUC annual employment information, as of January 1 of the year in which it first was issued a State Video Franchise and each year thereafter. These reports shall include the following information:

- (1) The number of California residents employed by the State Video Franchise Holder, calculated on a full-time or full-time equivalent basis.
- (2) The percentage of the State Video Franchise Holder's total domestic workforce that resides in California, calculated on a full-time or full-time equivalent basis.
- (3) The types and numbers of jobs by occupational classification held by residents of California employed by State Video Franchise Holders and the average pay and benefits of those jobs and, separately, the number of out-of-state residents employed by independent contractors, companies, and consultants hired by the State Video Franchise Holder, calculated on a full-time or full-time equivalent basis, when the State Video Franchise Holder is not contractually prohibited from disclosing the information to the public. This paragraph applies only to those employees of an independent contractor, company, or consultant that are personally providing services to the State Video Franchise Holder, and does not apply to employees of an independent contractor, company, or consultant not personally performing services for the State Video Franchise Holder.
- (4) The number of net new positions proposed to be created directly by the State Video Franchise Holder during the upcoming year by occupational classifications and by category of full-time, part-time, temporary, and contract employees.

These reports shall be filed with the Commission no later than April 1 for each annual reporting period.

## **2. Commission Reports to Legislative Committees**

The CPUC shall annually report the information required to be reported by State Video Franchise Holders pursuant to Rule VII.B.1 to the Assembly Committee on Utilities and Commerce and the Senate Committee on Energy, Utilities and Communications, or their successor committees, and within a reasonable time thereafter, shall make the information available to the public on its Internet website.

End of DIVCA Video, Broadband and Employment Report

For the Year Ended December 31, 2015