

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider
Modifications to the California Advanced
Services Fund.

Rulemaking 12-10-012

**COMMENTS OF THE PUBLIC ADVOCATES OFFICE
ON THE ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING
COMMENTS ON THE ELIGIBILITY FOR AND PRIORITIZATION OF
BROADBAND INFRASTRUCTURE FUNDS FROM THE CALIFORNIA
ADVANCED SERVICES FUND**

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I. INTRODUCTION

Pursuant to the September 5, 2018 Administrative Law Judge Ruling in Rulemaking 12-10-012 (Ruling), the Public Advocates Office at the California Public Utilities Commission (Cal PA), formerly the Office of Ratepayer Advocates,¹ submits the following comments on the eligibility for and prioritization of broadband infrastructure funds from the California Advanced Services Fund (CASF).

II. DISCUSSION

A. Grants of 100 Percent Funding

While the California Public Utilities Commission (CPUC or Commission) *may* award grants to fund up to 100 percent of a broadband infrastructure deployment project, doing so would generally be unreasonable.² Applicants should have some financial stake in a project to better ensure that the expenditures of ratepayer funds are prudent, necessary, and cost effective. The Commission should continue to require applicants to have an appreciable level of financial commitment as an incentive to ensure successful broadband deployment projects. Therefore, the Commission should require that applicants commit to funding no less than 15 percent of a project's capital costs.

If the Commission chooses to substantially increase funding to at or near 100 percent of a broadband infrastructure project's costs, then it should impose stringent requirements including the following:

- The applicant should demonstrate that the project is not feasible to construct without a grant equal to 100 percent of the project's capital costs. To demonstrate infeasibility, the applicant should submit five years of pro forma financial projections. The Commission should verify infeasibility by

¹ The Office of Ratepayer Advocates was renamed the Public Advocates Office of the Public Utilities Commission pursuant to Senate Bill No. 854, which was signed by the Governor on June 27, 2018 (Chapter 51, Statutes of 2018).

² P.U. Code § 281(f)(13) states: "The commission *may* award grants to fund all or a portion of the project." (Emphasis added)

analyzing the projected rate of return on the applicant's funding contributions. In recent years, CASF grant recipients proposed projects where, in the fifth year of operations, the projected rate of return on the applicant's contributions are as low as 2.21%.³ The Commission should not award grants of 100% funding to projects that exceed a 2.21% return (in the fifth year) on the applicant's total capital contributions to the project. The Commission should analyze all applications approved within the past three calendar years to determine if any projects were feasible with a lower projected rate of return on the applicant's contributions. The Commission should also consider greenfield projects apart from projects that merely upgrade existing infrastructure.

- The project should make a "significant contribution" toward achievement of the program goals, as described in more detail below in Section B.
- CASF support should only cover a project's capital costs and exclude operational costs.⁴
- The project should deploy broadband services to low-income areas. The Commission should define "low income areas" as areas within a Census Block Group having median income less than \$49,200, which is consistent with the Commission's California Alternative Rates for Energy program and the Phase II Staff Proposal.⁵ If the project includes households in multiple census blocks, the majority of the census blocks within the project area should be low-income areas.
- The applicant should offer a low-cost broadband service plan to eligible low-income households in the project area.⁶

³ Refer to the Gigafy Occidental Application (Race Communications), which the Commission approved in Resolution T-17524.

⁴ Refer to Section F for additional details on Cal PA's recommendation that CASF support cover only capital costs and not operational costs.

⁵ The Phase II Staff Proposal is presented at Appendix C of the February 14, 2018 Amended Scoping Memo and Ruling of Assigned Commissioner in Rulemaking 12-10-012.

⁶ Refer to Section C for additional details on Cal PA's recommendation that CASF applicants offer a low-cost broadband service plan to low-income households in the project area.

- At least one-third of the households within the project area have dial-up service only or no connectivity at all.
- The applicant should secure a performance bond to cover the entirety of the grant amount.
- The project deploys high-quality service consistent with the service quality standards recommended below in Section G.
- If the project contains a middle-mile component, the CASF grantee should set interconnection fees “at cost” to allow other service providers to access the CASF-funded network.

B. Definitions for PU Code Section 281(f)(13)

The Ruling requests comment on how the Commission should define “location and accessibility” to implement PU Code Section 281(f)(13).⁷ The Commission should define these terms in a manner consistent with PU Code Section 281(b), where eligible “locations” are areas with inadequate “accessibility” as determined by the presence of “unserved households.”⁸ PU Code Section 281(b) also requires the Commission to give preference to projects in areas where Internet connectivity is available only through dial up service.⁹ Furthermore, if the Commission chooses to fund at or near 100 percent of a broadband infrastructure project’s costs, it should require that the project serve low income areas, in addition to the other criteria stated above.

The Ruling requests comments on how the Commission should define “existence of communication facilities” to implement PU Code Section 281(f)(13). The Commission should give the words “existence of communication facilities” their

⁷ PU Code Section 281(f)(13) states, “The commission may award grants to fund all or a portion of the project. The commission shall determine, on a case-by-case basis, the level of funding to be provided for a project and shall consider factors that include, but are not limited to, the location and accessibility of the area, the existence of communication facilities that may be upgraded to deploy broadband, and whether the project makes a significant contribution to achievement of the program goal.”

⁸ PU Code Section 281(b)(1)(B) defines “unserved households” as a household for which no facility-based broadband provider offers broadband service at speeds of at least 6 megabits per second (mbps) downstream and one mbps upstream.

⁹ PU Code Section 281(b)(2)(B)(i).

ordinary, common sense meaning.¹⁰ Projects that upgrade existing facilities may cost less than projects that deploy new infrastructure and facilities. Therefore, the Commission should evaluate applicants' requested grant-per-household (and give preference to lower amounts) to satisfy the requirement to consider the "existence of communication facilities that may be upgraded to deploy broadband."¹¹

The Ruling requests comments on the extent to which the Commission should *require* applicants to use existing communication facilities.¹² The Commission should not require applicants to make use of existing facilities. Instead, as explained above, the Commission should give preference to projects that request the lowest grant-per-households to deploy adequate broadband service to eligible areas.

The Ruling requests comments on how the Commission should define a "significant contribution [to achievement of the program goal]" to implement PU Code Section 281(f)(13). The goal of the CASF program is to provide funding for infrastructure projects that will provide broadband access to no less than 98 percent of California households in each consortia region by December 31, 2022.¹³ The Commission should define a "significant contribution" as a project that deploys broadband service to at least 10 percent of unserved households within a consortia region with less than 98% deployment. Applying this definition to data recently provided by Communications Division staff¹⁴ yields the following thresholds per consortia region:

¹⁰ *Ste. Marie v. Riverside County Regional Park & Open-Space Dist.* (2009) 46 Cal.4th 282, 288, stating that when interpreting statutes, courts should first give words their ordinary, common sense meaning.

¹¹ PU Code Section 281(f)(13).

¹² Ruling at p. 4.

¹³ PU Code Section 281 (b)(1)(A).

¹⁴ CPUC Staff Report, "Eligible Households with CAF II by Consortium and County - Wireline, Fixed Wireless, and Mobile Broadband (December 31, 2016)," available at [http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Communications_-_Telecommunications_and_Broadband/Service_Provider_Information/California_Advanced_Services_Fund_\(CASF\)_Program/CA17HACCCAFII.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Communications_-_Telecommunications_and_Broadband/Service_Provider_Information/California_Advanced_Services_Fund_(CASF)_Program/CA17HACCCAFII.pdf)

Figure 1.
Cal PA Significant Contribution Recommendations¹⁵

Consortia Region	Total Households	Percent Households Served	Unserved Households	Recommended Significant Contribution
Upstate California	44,031	81.9%	7,979	798
Northeast California	226,237	83.1%	38,184	3,818
Redwood Coast	72,004	87.0%	9,365	937
Inyo / Mono	13,910	88.9%	1,540	154
Gold Country	255,229	90.3%	24,862	2,486
Central Sierra	63,791	90.9%	5,810	581
Eastern Sierra	47,866	91.9%	3,873	387
Central Coast	241,422	95.3%	11,320	1,132
North Bay / North Coast	379,362	96.0%	15,116	1,512
San Joaquin Valley	1,224,387	96.5%	43,072	4,307
Southern Border	1,183,826	97.2%	32,928	3,293
Connected Capital Area	660,904	97.2%	18,226	1,823
Pacific Coast	525,485	97.5%	13,020	1,302
Inland Empire	1,349,761	97.7%	31,219	3,122
East Bay	1,114,773	98.6%	15,611	n/a
Los Angeles County	3,326,188	98.9%	36,541	n/a

C. Low-Income Broadband Plans

To help ensure CASF broadband deployment projects benefit all households within the project area, the Commission should require CASF applicants to offer low-

¹⁵ This data includes only wireline broadband services. The data excludes wireless broadband services because the technical limitations of wireless services necessitate a thorough validation of availability, reliability, and service quality.

income broadband plans. Deploying infrastructure to unserved areas is only helpful to the extent that households are capable of accessing that infrastructure. Many unserved areas include low-income households that may not be able to afford broadband services at market prices. In addition to helping low-income households access the publicly funded broadband infrastructure, low-income broadband plans will also encourage broadband adoption – which is another goal of the CASF program.

The Commission should require that low-income broadband plans offered by CASF grant recipients meet adequate benchmarks for service speeds and pricing. This will ensure that the low-income broadband plans are not providing substandard service and are affordable. The Commission should require applicants to offer low-income broadband plans with speeds of at least 10 Megabits per second (Mbps) download and 1 Mbps upload with a maximum price of \$14.99 per month, with no contract term minimums, and provide a modem or any other necessary consumer premise equipment at no additional cost to the low-income customer.¹⁶ A maximum monthly recurring price of \$14.99 is the same price the Commission adopted for the low-income plan required of Charter Communications as a condition of approval for its merger with Time Warner Cable and Bright House Networks.¹⁷ The \$14.99 price is also more than the \$13.99 price the Commission adopted for the low-income plan required of Frontier Communications as a condition of approval for its merger with Verizon California, Inc.¹⁸ Lastly, the \$14.99 price is \$5 more than Comcast Communication’s Internet Essentials Program.¹⁹

¹⁶ The Commission should periodically assess, at least once every five years, the price of low-income plans to ensure that prices remain reasonable and affordable for low income households.

¹⁷ See D.16-05-007 at p. 12.

¹⁸ See D.15-12-005 at Attachment A at p. 3.

¹⁹ More information on Comcast’s Internet Essentials Program is available at <https://internetessentials.com/apply>

D. Scoring Criteria

The Commission should augment, but not replace, the current scoring criteria with the proposed new criteria on eligibility and performance standards. The current scoring criteria accounts for important factors that the Commission should continue to use to evaluate project applications, including: funds requested per customer, speeds, financial viability, low income areas, pricing, and deployment timeframes. The Ruling also proposes new criteria that are equally important to ensure a successful project and prudent use of ratepayer funds. The Commission should augment the current scoring criteria with the requirements proposed in the instant Ruling, including: a commitment to serve all households within the project area, speeds of at least 10 mbps down and 1 mbps up, latency of 100 milliseconds or less, a 12 month deployment timeframe absent CEQA review, and a commitment to offer affordable service plans. The Commission should also give preference to service providers that do not impose data caps.

E. Ministerial Review

The Commission should require the Resolution process for all grants to ensure accountability, transparency, and allow for public and stakeholder input. If the CPUC decides to award grants through ministerial review, it should do so only for low cost projects. The Staff Ministerial Review Proposal (on page 6 of the Ruling) includes an evaluation of project costs, but the proposed thresholds are too high. For example, the Staff Ministerial Review Proposal includes a maximum grant threshold of \$5,000,000.²⁰ Nearly 80 percent of the projects approved in the last three calendar years include grants under \$5,000,000. If the CPUC decides to award grants through ministerial review, it should only do so for projects that fall into the bottom 10 percent in grant per household *and* total grant as compared to previously approved CASF projects.

²⁰ Ruling at p. 6.

F. Administrative Expenses

Administrative expenses are correctly categorized as operating expenses and the Commission should not make any percentage of these costs eligible for CASF funding. Currently, the CASF program only funds capital expenses of a proposed project and does not fund operating expenses.²¹ The capital costs funded include labor costs associated with capital expenses such as contract and subcontract labor hired for construction, which directly relate to the CASF-funded projects that lead to incremental progress toward meeting CASF program goals. Any labor associated with operating expenses should be the applicant's responsibility, as ongoing operational and maintenance costs do not produce incremental progress toward meeting CASF's goals and should not be funded by the CASF.

In addition, an applicant should be expected to cover administrative costs as it will show that it is in a financially healthy position to support operational expenses for the proposed project. Allowing administrative expenses will require that Commission staff reviewing projects spend additional time reviewing administrative costs to ensure they are prudent, making the review process more time consuming and potentially more difficult. Finally, funding spent on administrative costs will leave less funding for future broadband infrastructure projects for unserved and underserved households.

G. Connect America Fund

P.U. Code § 281 (f)(5) states that a facility-based broadband provider that has accepted Connect America Fund Phase II (CAF) funding can use CASF funds to supplement CAF support in a CAF area.²² To avoid unnecessarily spending of CASF funds in CAF areas, the Commission should require that a CAF provider seeking to supplement CAF support with a CASF grant in a CAF area: 1) deploy broadband to 100

²¹ D.07-12-054, Finding of Fact 38, p. 57.

²² P.U. Code § 281(f)(5)(C)(ii).

percent of households in the census block;²³ 2) include in its CASF application details of the CAF upgrades so that the proposed project encompasses both the CASF and CAF plans; 3) ensure the CAF deployments meet all of the requirements of the CASF program including but not limited to service quality requirements (e.g. broadband upload and download speeds), pricing requirements, and construction timeframes; and 4) cap the CASF grant request at an amount based on total number of households less the CAF-locations per census block.

By requiring that a provider deploy broadband to 100 percent of the households in a census block, no household in a census block, funded by both CAF and CASF, will be left on the wrong side of the digital divide. For example, if a census block has ten total households, and CAF funding for two locations,²⁴ the Commission should require the project to deploy service to all ten households in order to receive a CASF grant. For this example, the Commission should award a CASF grant based on a *maximum* of eight households.²⁵ The Commission should require the provider to submit a detailed CASF application incorporating the broadband deployment/upgrades to all ten households. This will help the Commission prevent duplicative funding between CASF and CAF.

By requiring the provider to submit a description of its CAF deployments/upgrades as part of its CASF application, the Commission can analyze data on the CAF upgrades to ensure the provider will meet its CAF obligations. The

²³ If the applicant proposes to deploy broadband to less than 100 percent of the households in the census block due to the high deployment costs for certain households, the CPUC should allow the applicant to seek a waiver from this requirement. The applicant should submit a detailed explanation, including business and financial data, to demonstrate why it is not economically feasible to reach 100 percent of households in the census block. The applicant should also identify the addresses that it will deploy broadband to using CAF funds so the CPUC can verify that CASF support will not duplicate CAF support.

²⁴ The Commission should assume that all CAF locations are households.

²⁵ The CASF grant should equal a maximum of 85 percent of the capital costs to deploy broadband infrastructure to the CASF-eligible households.

Commission should also require that the CAF upgrades meet the CASF requirements such as service quality requirements (e.g. minimum speeds and latency), customer pricing guarantees, and two years or less construction period. This will allow the Commission to ensure CAF upgrades will occur in a timely manner and that customers in those locations will also benefit from CASF requirements, such as the customer pricing commitments.

Finally, for a CASF grant that supplements CAF funding, the Commission should calculate a maximum CASF grant using the total number of households minus the CAF-locations per census block. Capping the CASF grant in this manner will ensure that CASF grants do not duplicate CAF support. CASF support percentages should still apply so that the CASF grant does not equal 100 percent of the cost to deploy broadband service. A CASF grant recipient should contribute no less than 15 percent of the capital costs to deploy broadband to eligible households. For example, if a census block contains ten households and CAF support for two locations, and it costs \$100 to deploy broadband service per household, the maximum CASF grant should equal 85 percent of \$800, or \$680.²⁶

H. Satellite Services

The Ruling asks how the CASF program should treat satellite providers and satellite broadband service. P.U. Code § 281 (f)(1) states that the Commission “shall award grants from the Broadband Infrastructure Grant Account on a technology-neutral basis, including both wireline and wireless technology.” As such, the Commission should consider applications from satellite providers and subject a satellite provider receiving CASF support to the same requirements listed above in Section G.

Regardless of the technology, the Commission should ensure that CASF funded projects provide high-quality advanced communications services.²⁷ To ensure high

²⁶ This example assumes a CASF funding level of 85% of eligible costs. The CASF should fund a maximum of 85% of eligible costs.

²⁷ P.U. Code § 281(a).

quality service, the Commission should set standards for key service quality metrics: speed, latency, network reliability, packet loss, and jitter. To verify the quality of services after completion of CASF projects, the Commission should require, for a period of at least two years, grantees to submit data on the following: network trouble tickets, service outages, service orders, service installations, and customer complaints. The Public Advocates Office discusses all of these metrics in detail in comments submitted to this docket on May 1, 2018, which have been appended hereto as Attachment A. The recommendations for speed, latency, network reliability, packet loss, and jitter are also listed below.

1. Speed

P.U. Code § 281 includes requirements on the minimum data transfer speeds that Broadband Infrastructure Grant Account (“Infrastructure Account”) grantees must provide. The Commission must require Infrastructure Account grantees to deploy networks capable of providing at least 10 Mbps download and 1 Mbps upload (“10/1 Mbps”).²⁸ While 10/1 Mbps is a minimum threshold, faster speeds can provide increased levels of service quality. For example, the Federal Communications Commission’s (“FCC”) current definition for wireline (fixed) broadband services with advanced telecommunications capabilities requires speeds of at least 25 Mbps download and 3 Mbps upload (25/3 Mbps).²⁹ The Commission should give preference to projects that deploy faster speeds to facilitate the deployment of high quality broadband service.

²⁸ P.U. Code § 281(f)(5)(A).

²⁹ *In the Matter of 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*, 2016 Broadband Progress Report, GN Docket No. 15-191, FCC 16-6, (rel. Jan. 29, 2016) (hereinafter, “2016 Broadband Progress Report”) at p. 3.

2. Latency

In its Opening Comments filed April 16, 2018, AT&T recommends the CPUC add a latency factor³⁰ to the scoring criteria for applications to the Infrastructure Account.³¹ The Commission should adopt AT&T's recommendations that the CPUC require applicants to specify the latency of their proposed service as part of their applications and include latency in scoring applications for ranking purposes.³² In comments submitted to the FCC, the CPUC recommended the inclusion of latency as part of the criteria defining "advanced telecommunications capability" for wireline and mobile data services.³³ In other comments to the FCC, the CPUC stated, "[L]atency is a key impact that determines whether the network can support real-time services like VoIP services."³⁴ Therefore, in order to ensure that CASF broadband services are high-quality, the CPUC should add a latency factor to scoring criteria for applications to the Infrastructure Account.

Industry standards aim to have networks perform with a round-trip latency of less than 100 milliseconds (ms).³⁵ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will meet a latency threshold of 100 ms or less, which is a maximum threshold suitable for real-time applications, including VoIP.³⁶

³⁰ Latency is a measurement of the time it takes a packet of data to travel from one point in the network to another, and can be measured as one-way or round-trip time in milliseconds. Lower latency values are desirable, as networks with high latencies can experience audio distortions and a decreased network quality. High latency causes websites to load slowly and video to lag and distort which can negatively impact real-time applications such as video conferencing services, teleworking, and telemedicine.

³¹ AT&T Opening Comments at pp. 4, 14.

³² AT&T Opening Comments at p. 14.

³³ CPUC Comments to the FCC, GN Docket No.15-191, September 15, 2015 at p. 3.

³⁴ CPUC Comments to the FCC, GN Docket No.14-126, September 4, 2014 at p. 18.

³⁵ The FCC recognized in its Copper Retirement Program that a round-trip latency of 100ms was required for automatic grant of an application. In the Matter of Technology Transitions and Policies and Rules Governing Retirement of Copper Loops by Incumbent Local Exchange Carriers, Declaratory Ruling and Order on Reconsideration, July 15, 2016. FCC 16-90A1 p. 34.

³⁶ 47 C.F.R. § 54.309(a)(2)(iii).

3. Network Reliability

The Commission should also assess CASF broadband services using a reliability metric called Transmission Control Protocol (TCP) connection failure rate. The Commission's CalSpeed application measures network reliability in terms of the rate at which devices fail to establish a connection with an Internet protocol address, i.e. the TCP connection failure rate.³⁷ In the past, the Commission found TCP connection failure rates demonstrate the inadequacy of some wireless broadband services, in particular mobile wireless services in rural areas.³⁸

To ensure that the CASF program supports high-quality services, the Commission should adopt standards similar to the FirstNet specifications, which require service to first responders to have at least 95 percent reliability.³⁹ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, a TCP connection failure rate of less than five percent.

4. Packet Loss

Packet loss measures the amount of data packets that do not reach the intended destination or are discarded by a network device due to congestion. Packet loss is measured as a percentage of packets lost divided by total packets sent. Most real-time applications, such as voice and video teleconferencing, are sensitive to packet loss. High packet loss will cause users to experience gaps in call audio and teleconferencing video feeds that will make telecommunications services difficult to use. Industry standards aim to have networks perform with a packet loss of less than one percent.⁴⁰ The Commission

³⁷ CalSPEED: California Mobile Broadband, Spring 2017 at p. 5.

³⁸ CPUC Comments to the FCC, GN Docket No.15-191, September 15, 2015 at p. 19.

³⁹ FirstNet Solicitation No. D15PS00295 – Section J, Attachment J-1, Coverage and Capacity Definitions at pp. J 1–2.

⁴⁰ The FCC recognized in its Copper Retirement Program that a packet loss ratio of 1% or less was required for automatic grant of an application. *In the Matter of Technology Transitions and Policies and Rules Governing Retirement of Copper Loops by Incumbent Local Exchange Carriers*, Declaratory

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should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, packet loss rates of less than one percent.

5. Jitter

Jitter measures the variation in latency experienced by individual packets in a data transmission. Jitter is typically represented in either one-way or round-trip and measured in ms. High jitter will cause high latencies and will lead to inconsistency in connection speed, video quality, and audio quality. Industry standards aim to have networks perform with a jitter of less than 50 ms.⁴¹ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, jitter of less than 50 ms.

It must be acknowledged that satellite broadband service does not meet the above service quality metrics as satellite service tends to have high latency issues among other service quality issues. Therefore, setting these service quality standards would mean effectively cutting out satellite providers as few could meet the service quality standards. However, it should be noted that companies are developing and testing new satellite technology like “low-earth orbit” satellites with latencies comparable to cable and fiber technology.^{42 43} Satellites could well meet the service quality metrics in the near future.

The Ruling also asks whether a satellite provider can be considered an “existing facility-based provider” and if so, whether the area served by a satellite provider should be considered served. If a satellite provider meets the definition the Commission has adopted for a facility-based provider, “which is generally defined as any entity providing

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Ruling and Order on Reconsideration, July 15, 2016. FCC 16-90A1 at p. 36 para. 95.

⁴¹ See ITU-T – Rec. G.1050: Network model for evaluating multimedia transmission performance over Internet Protocol – Table 6: Impairment level per service test profile at p. 16.

⁴² See <https://arstechnica.com/information-technology/2018/02/spacexs-satellite-broadband-nears-fcc-approval-and-first-test-launch/>

⁴³ See <https://www.wired.com/story/can-these-small-satellites-solve-the-riddle-of-internet-from-space/>

internet access service or middle mile transport, over its own fixed or wireless facilities to residence, businesses, or other institution,” then a satellite provider should be considered facilities-based.⁴⁴ However, the area served by such a satellite provider should only be considered served if the service meets the CASF service quality standards such as minimum broadband speeds. The Commission, for now, should continue to consider only those areas served by satellite and funded by CASF grants as served.

III. CONCLUSION

The Commission must ensure that the CASF achieves its statutory mandates by carefully establishing program rules and processes. This will guarantee ratepayer funds support only eligible projects and benefit the intended recipients. The recommendations set forth above will assist the Commission in meeting the program goals.

Respectfully submitted,

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⁴⁴ Ruling, Appendix C, p. 7, states, “The Commission uses the National Telecommunications and Information Administration’s (NTIA) definition of a facilities-based broadband service provider,

ATTACHMENT

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(Filed October 25, 2012)

**REPLY COMMENTS OF THE OFFICE OF RATEPAYER ADVOCATES
ON THE AMENDED SCOPING MEMO AND RULING OF ASSIGNED
COMMISSIONER REQUESTING COMMENTS ON THE IMPLEMENTATION
OF PROGRAM CHANGES TO THE CALIFORNIA
ADVANCED SERVICES FUND**

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I. INTRODUCTION

Pursuant to the February 14, 2018 Amended Scoping Memo and Ruling of Assigned Commissioner (“Amended Scoping Memo”) in Rulemaking 12-10-012 setting forth implementation of program changes to the California Advanced Services Fund (“CASF”), the Office of Ratepayer Advocates (“ORA”) submits the following reply comments on the Phase II Staff Proposal appended to the Amended Scoping Memo as Appendix C.

II. DISCUSSION

A. **The Commission Must Ensure High-Quality Service is Provided by Projects Funded by the Infrastructure Account.**

The North Bay North Coast Broadband Consortium (“NBNCBC”) states in Opening Comments, “[T]he CPUC should be the regulator of the quality of service provided by any projects utilizing funding from the CASF and Infrastructure Account.”¹ Indeed, Public Utilities (“P.U.”) Code § 281, as amended by Assembly Bill (“AB”) 1665, directs the California Public Utilities Commission (“Commission” or “CPUC”) to deploy *high-quality* advanced communication services.² In order to ensure high-quality services, the Commission should set benchmark standards for key service quality metrics – as further discussed below. The Commission should require applicants to certify in their application that retail broadband services (in CASF project areas) will meet the benchmarks. Then, in order to verify the quality of services after completion of CASF projects, the Commission should require grantees to submit data on the service quality metrics discussed below and in Attachment A for a period of at least 2 years.³ Attachment A includes details on the following service quality metrics: network trouble tickets,

¹ NBNCBC Opening Comments at p. 3.

² P.U. Code § 281(a).

³ The Commission should expand the requirements included within the Phase II Staff Proposal on reporting of project take rates and adoption to also include reporting on the following service quality metrics: data transfer speeds, latency, transmission control protocol (“TCP”) failure rates, jitter, network trouble tickets, service outages, service orders, service installations, and customer complaints. The Commission should consider utilizing the CalSpeed application to standardize the reporting of the aforementioned service quality metrics for Infrastructure account grantees.

service outages, service orders, service installations, and customer complaints. The sections below include details on more technical service quality data, including: data transfer speeds, latency, TCP failure rates, and jitter.

1. Speed

The Commission should not adopt AT&T's recommendation to remove speed from the scoring criteria and not award points for bandwidth speed.⁴ P.U. Code § 281 includes requirements on the minimum data transfer speeds that Broadband Infrastructure Grant Account ("Infrastructure Account") grantees must provide. The Commission must require Infrastructure Account grantees to deploy networks capable of providing at least 10 Mbps download and 1 Mbps upload ("10/1 Mbps").⁵ While 10/1 Mbps is a minimum threshold, faster speeds can provide increased levels of service quality. For example, the Federal Communications Commission's ("FCC") current definition for wireline (fixed) broadband services with advanced telecommunications capabilities requires speeds of at least 25 Mbps download and 3 Mbps upload (25/3 Mbps).⁶ The Commission should give preference to projects that deploy faster speeds to facilitate the deployment of high-quality broadband service.

2. Latency

AT&T recommends the CPUC add a latency factor⁷ to the scoring criteria for applications to the Infrastructure Account.⁸ The Commission should adopt AT&T's recommendations that the CPUC require applicants to specify the latency of their

⁴ AT&T Opening Comments at p. 22.

⁵ P.U. Code § 281(f)(5)(A).

⁶ *In the Matter of 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*, 2016 Broadband Progress Report, GN Docket No. 15-191, FCC 16-6, (rel. Jan. 29, 2016) (hereinafter, "2016 Broadband Progress Report") at p. 3.

⁷ Latency is a measurement of the time it takes a packet of data to travel from one point in the network to another, and can be measured as one-way or round-trip time in milliseconds. Lower latency values are desirable, as networks with high latencies can experience audio distortions and a decreased network quality. High latency causes websites to load slowly and video to lag and distort which can negatively impact real-time applications such as video conferencing services, teleworking, and telemedicine.

⁸ AT&T Opening Comments at pp. 4, 14.

proposed service as part of their applications and include latency in scoring applications for ranking purposes.² In comments submitted to the FCC, the CPUC recommended the inclusion of latency as part of the criteria defining “advanced telecommunications capability” for wireline and mobile data services.¹⁰ In other comments to the FCC, the CPUC stated, “[L]atency is a key impact that determines whether the network can support real-time services like VoIP services.”¹¹ Therefore, in order to ensure that CASF broadband services are high-quality, the CPUC should add a latency factor to scoring criteria for applications to the Infrastructure Account.

Industry standards aim to have networks perform with a round-trip latency of less than 100 milliseconds (ms).¹² The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will meet a latency threshold of 100 ms or less, which is a maximum threshold suitable for real-time applications, including VoIP.¹³

3. Network Reliability

The Commission should also assess CASF broadband services using a reliability metric called TCP connection failure rate. The Commission’s CalSpeed application measures network reliability in terms of the rate at which devices fail to establish a connection with an Internet protocol address, i.e. the TCP connection failure rate.¹⁴ In the past, the Commission found TCP connection failure rates demonstrate the inadequacy of some wireless broadband services, in particular mobile wireless services in rural areas.¹⁵ To ensure that the CASF program supports high-quality services, the Commission should

² AT&T Opening Comments at p. 14.

¹⁰ CPUC Comments to the FCC, GN Docket No.15-191, September 15, 2015 at p. 3.

¹¹ CPUC Comments to the FCC, GN Docket No.14-126, September 4, 2014 at p. 18.

¹² The FCC recognized in its Copper Retirement Program that a round-trip latency of 100ms was required for automatic grant of an application. *In the Matter of Technology Transitions and Policies and Rules Governing Retirement of Copper Loops by Incumbent Local Exchange Carriers*, Declaratory Ruling and Order on Reconsideration, July 15, 2016. FCC 16-90A1 p. 34.

¹³ 47 C.F.R. § 54.309(a)(2)(iii).

¹⁴ CalSPEED: California Mobile Broadband, Spring 2017 at p. 5.

¹⁵ CPUC Comments to the FCC, GN Docket No.15-191, September 15, 2015 at p. 19.

adopt standards similar to the FirstNet specifications, which require service to first responders to have at least 95 percent reliability.¹⁶ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, a TCP connection failure rate of less than five percent.

4. Packet Loss

Packet loss measures the amount of packets that do not reach the intended destination or are discarded by a network device due to congestion. Packet loss is measured as a percentage of packets lost divided by total packets sent. Most real-time applications, such as voice and video conferencing, are sensitive to packet loss. High packet loss will cause users to experience gaps in call audio and teleconferencing video feeds that will make telecommunications services difficult to use. Industry standards aim to have networks perform with a packet loss of less than one percent.¹⁷ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, packet loss rates of less than one percent.

5. Jitter

Jitter measures the variation in latency experienced by individual packets in a data transmission. Jitter is typically represented in either one-way or round-trip and measured in ms. High jitter will cause high latencies and will lead to inconsistency in connection speed, video quality, and audio quality. Industry standards aim to have networks perform with a jitter of less than 50 ms.¹⁸ The Commission should require applicants to certify in their application that their broadband services (in CASF project areas) will have, on average, jitter of less than 50 ms.

¹⁶ FirstNet Solicitation No. D15PS00295 – Section J, Attachment J-1, Coverage and Capacity Definitions at pp. J 1–2.

¹⁷ The FCC recognized in its Copper Retirement Program that a packet loss ratio of 1% or less was required for automatic grant of an application. *In the Matter of Technology Transitions and Policies and Rules Governing Retirement of Copper Loops by Incumbent Local Exchange Carriers*, Declaratory Ruling and Order on Reconsideration, July 15, 2016. FCC 16-90A1 at p. 36 para. 95.

¹⁸ See ITU-T – Rec. G.1050: Network model for evaluating multimedia transmission performance over Internet Protocol – Table 6: Impairment level per service test profile at p. 16.

B. The Commission Should not Adopt CCTA’s Proposal to Limit Pricing Commitments.

The California Cable and Telecommunications Association (“CCTA”) recommends the Commission limit the two-year price freeze to applicants that only provide retail broadband service within CASF projects and exempt applicants that provide broadband services in areas that are not CASF projects. Instead, CCTA recommends that the Commission require applicants that offer service outside of CASF projects to offer CASF project areas the same rates, terms, and conditions the provider offers to other customers in the State.¹⁹

The Commission should not adopt CCTA’s recommendation because pricing commitments are necessary to protect customers and ensure prudent use of ratepayer funds. Two-year pricing commitments are reasonable given the Legislatures intent to facilitate the “adoption of broadband technology and... [ensure] quality universal access for all residents.”²⁰ Pricing commitments play an important part in encouraging adoption of broadband services by guaranteeing stable and affordable rates. The Commission should continue to require Infrastructure Account grantees to make pricing commitments for *at least* two years, if not longer.

By limiting the pricing commitment, the Commission would risk applicants gaming the system by presenting favorable prices to the Commission during the application process and then changing prices upon completion of the project. Without the constraints of competition, and with significantly reduced capital costs, a provider might seek to maximize profits by raising prices to levels that are unaffordable to many customers. Such action could adversely affect subscribership rates in the project area and substantially reduce the benefits of the project. Inadequate adoption rates can even jeopardize the viability of projects. Currently, CASF applicants must submit an “analysis of the viability of the project and the assumptions used in the analysis such as the funding

¹⁹ CCTA Phase II Comments at p. 8.

²⁰ Internet for All Now Act, Section 2 (b).

sources, the adoption rates, subscriber data, and adoption rates [sic].”²¹ The Phase II Staff Proposal also requires applicants to submit a viability analysis of the project based on a five-year forecast that takes into account projected revenues from customers “showing changes in subscriptions and service rates and charges through the pricing commitment period and the period thereafter, years three through five, as applicable.”²² This information would be unhelpful and unreliable if companies could change prices at-will upon completion of a project.

CCTA claims that the two-year pricing commitment is a disincentive to companies interested in the CASF grants; however, approved CASF applications show that companies have actually committed to pricing periods longer than the required two-year period. For example, Race Communications agreed to a five year period for the Race-Gigafy Phelan project,²³ CalNeva Broadband agreed to a three year period in the Coalinga-Huron Gigabit Project,²⁴ and Cal.net agreed to a three to five year period in the Amador Calaveras and Alpine Project.²⁵ Grantees’ willingness to make commitments beyond the requisite two years further demonstrates the reasonableness of the requirement.

C. The Commission Should Accept Applications to the Infrastructure Account Once per Year.

Several parties oppose the Commission adopting a one-time annual application deadline and encourage the Commission to accept CASF applications on a rolling basis or multiple times per year.²⁶ The Commission should not adopt these recommendations and should, instead, accept applications once per year. Accepting applications on a

²¹ Resolution T-17443 at p. 13.

²² Phase II Staff Proposal at p. 13.

²³ Resolution T- 17525 at p. 6.

²⁴ Resolution T-17563 at p. 5.

²⁵ Resolution T-17501 at p. 7.

²⁶ See, Frontier Communications, *et al.*, Opening Comments at p. 16. See also, California Center for Rural Policy, *et al.*, Opening Comments at p. 17. See also, California Emerging Technologies Fund (“CCTA”) Opening Comments at p. 6.

rolling basis impairs staff's ability to score and rank applications relative to other applications. It is necessary for the Commission to compare and rank applications in order to select the best projects and ensure prudent use of ratepayer funds.

D. The Commission Should Not Allow Multiple Extensions for Providers to Meet Right of First Refusal Commitments.

CCTA encourages the CPUC to allow multiple extensions to meet right of first refusal ("ROFR") commitments;²⁷ however, this would allow incumbent companies to unfairly keep CASF funded projects out of unserved and underserved areas. Companies that have committed to broadband deployment in their ROFR filings must be held accountable to those commitments. This would be difficult if the companies could apply for multiple extensions to meet those commitments. The Commission should not adopt CCTA's recommendation to allow multiple extensions for meeting ROFR commitments. The Commission should continue the process adopted in Resolution T-17590 which allows one six month extension for companies that encounter a) permitting issues; b) compliance issues with the California Environmental Quality Act; or c) weather or other acts of God.²⁸ If a company is unable to meet its ROFR commitments, the company should lose the ability to file a ROFR for the area in the future.²⁹

E. The Commission Should Not Establish a Separate Phase III to Consider Line Extension.

Frontier proposed that the line extension provision in AB 1665 be addressed in a separate Phase III of this proceeding. The Commission should not establish a separate Phase III of this proceeding. This would only lead to delays in implementing a Line Extension Program and meeting the goals of the CASF program. AB 1665 specifically directs the Commission to determine program elements including income eligibility, an overall per-household maximum grant amount, and required contribution by the

²⁷ CCTA Phase II Comments at p. 10.

²⁸ Resolution T-17590 at p. 1.

²⁹ ORA Opening Comments at p. 12.

household or property-applicant. The staff proposal and parties' comments are sufficient for the Commission to establish program elements.

III. CONCLUSION

The Commission must ensure that the CASF achieves its statutory mandates by carefully establishing program rules and processes to guarantee ratepayer funds support only eligible projects and benefit the intended recipients. The recommendations set forth above will assist the Commission in meeting the program goal.

Respectfully submitted,

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ATTACHMENT A

Broadband Network Service Quality

The following service quality data should be reported by Infrastructure Account grantees for CASF project areas on an annual basis for a period of two years, with the first submission due one year after the completion of the project.

- a) Monthly broadband trouble ticket totals for the previous 12 months. The trouble-tickets should include trouble tickets opened by the service provider. Additionally, the service provider should report the monthly total of broadband subscriber accounts.
- b) Annual broadband network availability. The percentage of the service provider's network availability for broadband services, for its entire broadband network. Broadband network availability may also be reported for each zip code and/or census block, if that information is available.
- c) Annual data on broadband service outages. For each service outage, the data should include:
 - i. Number of customers affected
 - ii. Type of customers affected: residential, small business, or large business
 - iii. Incident date
 - iv. Incident time
 - v. Duration of outage in total minutes
 - vi. Outage restoration time
 - vii. Location of outage: County, City and Census Block(s)
 - viii. Type of equipment that failed
 - ix. Network involved
 - x. Description of the cause
 - xi. Description of the root cause
 - xii. Description of the incident
 - xiii. Methods used to restore the outage
 - xiv. Steps taken to prevent the outage from re-occurring
- d) Service installation intervals (per month) for orders for new broadband service installations received during the previous 12 months. Service installation intervals should be expressed as the number of business days between the date the service order was placed and the date the service becomes operational. This data should exclude all orders with customer requested appointments later than the provider's offered commitment date.
- e) Provide the total number of broadband service orders received and the number of those orders completed, per month, during the previous 12 months.

- f) Customer-initiated complaints regarding the Applicant's broadband service in the project area. This data should include:
- i. Type of complaint: billing (identify type of billing complaints, such as unauthorized charges, disconnection, rate protest), delayed orders/missed appointments, customer service, refusal to service, availability/service outages, equipment, interference, privacy, speed.
 - ii. Type of customer: residential, small or large sized business.
 - iii. Date of complaint
 - iv. Resolution time for a complaint
 - v. Customer location: county, city and census block
 - vi. Frequency of complaint by the same customer