



REDACTED—FOR PUBLIC INSPECTION

January 7, 2014

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

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JAN - 7 2014  
Federal Communications Commission  
Office of the Secretary

Katie King  
Telecommunications Access Policy Division  
Wireline Competition Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

Re: *Connect America Fund*, WC Docket No. 10-90

Dear Ms. Dortch and Ms. King:

As required by paragraph 5 of the *Third Protective Order*<sup>1</sup> and paragraph 9 of the *Third Supplemental Protective Order*,<sup>2</sup> we submit: (a) one copy of these comments containing Confidential Information to the Secretary's Office along with a cover letter; (b) two copies of these comments in redacted form to the Secretary's Office along with this cover letter; and (c) two copies of these comments containing Confidential Information to Katie King along with a cover letter. We will also file a copy of the redacted version via ECFS. As required by paragraph 9 of the *Third Supplemental Protective Order*, we will also serve a confidential copy upon Margaret Avril Lawson, CostQuest's counsel of record.

Sincerely,

John T. Nakahata  
Counsel to General Communication, Inc.

<sup>1</sup> *Connect America Fund, et al.*, Third Protective Order, DA 12-1418, 27 FCC Rcd. 10,276 (2012).

<sup>2</sup> *Connect America Fund*, Third Supplemental Protective Order, DA 12-1995, 27 FCC Rcd. 15,277 (2012).

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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*In the Matter of* )  
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Connect America Fund )  
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WC Docket No. 10-90

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Federal Communications Commission  
Office of the Secretary

COMMENTS OF GENERAL COMMUNICATION INC.  
ON CACM VERSION 4.0

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)	WC Docket No. 10-90
Connect America Fund )	
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COMMENTS OF GENERAL COMMUNICATION, INC.  
ON CACM VERSION 4.0

INTRODUCTION AND SUMMARY

General Communication, Inc. (“GCI”) hereby comments on CACM Version 4.0, pursuant to the Commission’s December 2, 2013 Public Notice.<sup>1</sup> In version 4.0, the Bureau and CostQuest have made important changes, such as basing middle-mile routing on existing road networks and beginning to incorporate intrastate undersea cables as a mode of middle-mile transport. Overall, however, the model remains unsuited to use in areas that lack roads, including all those parts of remote Alaska that lack road links to the National Highway System. In addition, incorporation of intrastate undersea cables seems haphazard and does not correspond with existing networks. Moreover, it is not clear that the network being modeled could actually be constructed in Alaska, given various environmental and operational issues. Accordingly, the model likely imputes the specific cost characteristics of fiber, particularly scalability with increasing demand, when that fiber may not be practicable. Incorporating a microwave option could help to address this flaw. Nor does the model reflect the costs of serving communities

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<sup>1</sup> *Wireline Competition Bureau Announces Availability of Version 4.0 of the Connect America Fund Phase II Cost Model and Seeks Comment on Adopting Current Default Inputs in Final Version of Model*, Public Notice, DA 13-2304, WC Docket No. 10-90 (2013) (“Public Notice”).

reached only through satellite middle mile at the reduced performance requirements for those communities. Accordingly, CACM 4.0 cannot reasonably be used to estimate costs outside of Alaska's road areas and, at least in Alaska, should not be used to set reserve prices for any auctioned areas, or for any other purpose than calculating the amount of support that ACS would be permitted to elect with respect to its service areas statewide.

GCI also comments on certain changes that Alaska Communications Systems Group ("ACS") requests, but that the Bureau has not incorporated into Version 4.0. GCI agrees with ACS that the model should reflect the reality that Alaska generally has a higher operating and deployment costs than elsewhere in the country. For instance, no other part of the country has permafrost; Alaska has to import much of the seasonal labor necessary to construct networks; and Alaska telecommunications providers compete with high-paying entities such as oil drilling companies for an extremely limited labor pool. But none of those factors support ACS' request to utilize a 40% take-rate. The fact that GCI receives limited, legacy high-cost support that is being phased out should not logically affect the take-rate for the purposes of modeling the overall cost of providing supported services. Likewise, the Commission should reject ACS' requested change to the allocated amount of traffic carried by submarine cable from Alaska to Oregon. The model estimates the cost of a hypothetical single network, not ACS' specific costs. ACS' requested changes would, primarily, inflate estimated costs for areas that predominantly already have access to 4 Mbps down and 1 Mbps up broadband services, and could have the effect of distorting competition in the provision of transport services to the Lower 48. These unique competitive factors can be better addressed through competitive bidding, than through the model.

In addition, GCI's proportions of aerial and buried/underground plant differ significantly from those provided by ACS and that are reflected in the model inputs, with a lower percentage of buried/underground plant. Moreover, GCI anticipates that the percentage of aerial will increase as the area becomes more rural. GCI provides its mix for the Bureau's consideration.

Finally, the model should permit the "Extremely High Cost" threshold (known in the CACM as the "Alternative Technology Cutoff") to be configured separately, at least for the non-contiguous areas. Just incorporating undersea cable costs to connect Alaska to Internet POPs in the Lower 48 alone adds \$5.40 per location, at the Model 3.2 levels, and Alaska's many other unique factors drive costs still higher.

**I. CACM 4.0 DOES NOT ADEQUATELY REFLECT MIDDLE MILE DEPLOYMENT IN OFF-ROAD AREAS.**

CACM 4.0 takes further steps forward in modeling middle mile deployment, which is a substantial component of Alaska broadband costs, both because of long distances across inhospitable terrain and because of the need to connect from an Alaska fiber aggregation point to a Tier 1 Internet POP in Washington or Oregon. Version 4.0 makes a substantial improvement by modeling middle mile along roads, rather than as an increment based on air miles—although even the utility of this improvement is limited by the imposition of a cap of 3.04 times the air miles. The CACM, however, still does not adequately address network deployment in areas without roads, and its allowance for intrastate submarine cable transport, while a step forward, fails to bear any resemblance to existing networks. Overall, the CACM remains inadequate for modeling the costs of Alaska networks outside those areas predominantly served by roads.

**A. The CACM Creates Anomalous Results for Alaska's Off-Road Areas.**

While it is a substantial improvement to model middle mile fiber deployment along roads, since these are the predominant sources of rights of way, the CACM does not adequately

model middle mile deployment outside of areas interconnected by roads. According to the CACM Model Methodology for Version 4.0, the CACM connects multiple Central Offices in a LATA to the nearest LERG-based Regional Tandem in the same state.<sup>2</sup> The model adopts the shortest distance to connect the Central Offices and the associated Regional Tandem. Regional Tandems in the same LATA are routed in a ring.

There are, however, several notable problems in applying this methodology to Alaska, even if one assumes that there will be a submarine cable connection from Anchorage to the actual Internet POP in the Lower 48. First, Alaska has only a single LATA and it has no actual regional tandems. Thus, it is unclear what CACM 4.0 is modeling for transport between the cable landing point to the Lower 48 and the rest of Alaska. This is especially true because the Middle Mile Feeder Audit Report indicates all middle mile being homed to a **\*\*BEGIN HIGHLY CONFIDENTIAL\*\*** as the Regional Tandem.<sup>3</sup> Even more perplexing is that this location is not close to the Lower 48 cable terminus in Anchorage.

Furthermore, much of Alaska is not located on an interconnected road system, nor does it have road access to the National Highway System. Alaska's largest communities of Anchorage and Fairbanks are on that system, and roads from that system connect to the communities of the Kenai Peninsula. But many other Alaska areas are not on any road system, and thus lack a ready source of rights-of-way for telecommunications infrastructure. CACM 4.0 apparently models submarine cable to Kodiak Island, but it also models a peculiar, circuitous, and largely terrestrial

<sup>2</sup> Connect America Cost Model (CACM), Model Methodology, CACM Version 4.0 at 53 (Appendix 2, § 8.1) (revised Dec. 11, 2013), *available at* [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2013/db1218/DOC-324783A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db1218/DOC-324783A1.pdf).

<sup>3</sup> This can be seen by running the Middle Mile Feeder Audit Report for LATA 832, which is Alaska's LATA number.

route between Anchorage and Juneau.<sup>4</sup> This differs significantly from the actual Anchorage to Juneau route, which connects Juneau as a spur from the north-south submarine cables connecting Alaska to the Lower 48.

The middle mile routing between Anchorage and Juneau highlights another flaw in CACM 4.0. Because the model assumes that all Alaska traffic is backhauled to Anchorage prior to being sent to the Lower 48, it assumes duplicative and unnecessary middle-mile transport. In fact, traffic exchanged between Juneau and the Lower 48 would be routed directly to the Lower 48 from Juneau, by means of the spur connecting to the north-south submarine cable. The only traffic that would potentially be backhauled to Anchorage would be traffic to be exchanged within Alaska (such as Alaska-based peering or phone calls between Alaska destinations). This duplicative middle-mile transport does not comport with the objective of modeling an efficient, modern broadband-capable network.

Even more significant, it is not clear from the documentation how CACM 4.0 addresses middle-mile connections to terrestrial communities, particularly in the Alaska Bush. For ACS, this may be less significant, particularly to the extent that many of the Alaska Bush communities that ACS serves may breach the extremely high-cost threshold and, thus, fail to receive support under CAF Phase 2. But this cautions against use of the model for any purpose other than the price cap LEC “statewide” election. For example, how does CACM 4.0 estimate the middle-mile costs of connecting the regional centers of Nome or Kotzebue (neither of which are in ACS’ service area)? These communities lie, respectively, 541 and 549 air miles from Anchorage, but to get there, GCI’s TERRA middle-mile network must traverse over 1600 (Nome) and 1800

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<sup>4</sup> See Exhibit A (Highly Confidential).

(Kotzebue) miles. A cost estimate for constructing 550 air miles of fiber (which would require a routing that cannot be done) would be very different than constructing 1600-1800 miles.

None of this provides much confidence for any use of the CACM in Alaska other than developing a support amount to offer to ACS for its “statewide” election.

**B. CACM 4.0 Hypothesizes Both Terrestrial and Submarine Cable Routes that May Not be Feasible, Particularly Outside of the Road Areas.**

A significant shortcoming of the model when applied to off-road Alaska is that predicates its estimates on hypothesized fiber routes that may not be feasible. Laying fiber requires extensive permitting, particularly when it is not deployed along existing rights of way, such as roads, railroads, or pipelines. GCI had to undergo extensive permitting for its TERRA microwave network, which only required intermittent towers, rather than laying fiber on or in the ground. One of the reasons why GCI elected to use microwave was because of the difficulty of obtaining the necessary permits for fiber, especially on Alaska’s many state and federally protected lands. Yet CACM 4.0 estimates costs assuming that fiber facilities can be permitted and laid along these routes.

The same is true for the new intrastate submarine cable. Few of the hypothesized 37 intrastate submarine cable routes are in areas where cables actually exist.<sup>5</sup> Thus, placing cables in those areas would require clearing environmental assessments and other permitting hurdles. This is in addition to the operating realities in these areas, many of which are extremely remote and thus difficult to reach if repairs are needed, particularly in winter.

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<sup>5</sup> See Exhibit B (Highly Confidential).

Because the ACS study areas—with the exception of ACS of the Northland–Sitka—are all predominantly located along roads with access to the National Highway System or, in the case of Juneau, served by an existing fiber spur, the model may be adequate to calculate the amount of support ACS is offered for its election for all its service areas. However, these deficiencies currently make the model unusable for any other purposes, such as estimating the costs of providing voice and broadband services in the off-road areas, or middle mile serving predominantly or exclusively off-road areas. Given these deficiencies, with respect to Alaska, it would also not be appropriate to use the model to set a reserve price for high cost support auctions, should ACS decline the offer of CAF Phase 2 support for all its Alaska study areas.

## **II. CACM 4.0 DOES NOT MODEL THE COSTS AND REDUCED DEMAND FOR AREAS SERVED ONLY BY SATELLITE MIDDLE MILE.**

It is notable that the model also lacks any means of calculating the costs of serving off-road areas reachable only by satellite middle mile, although the rules specifically contemplate that such areas would have a reduced broadband performance requirement of 1 Mbps down and 256 Kbps up. Many of Alaska's remote rural areas, including approximately 50 locations served by ACS, are reachable only by satellite middle mile. For these communities, CACM 4.0, however, only estimates costs using fiber-based terrestrial or submarine cable.

By excluding satellite middle mile, with reduced broadband performance requirements, CACM 4.0 effectively pushes these areas into the Remote Areas Fund, even when it may be possible to provide the mandated 1 Mbps/256 Kbps broadband service with costs and attendant support below the extremely high-cost threshold. This shifts support from the CAF Phase II to the much more limited Remote Areas Fund.

**III. THE COMMISSION SHOULD NOT ADOPT ACS’ PROPOSED 40% TAKE RATE FOR ALASKA, NOR SHOULD IT INCREASE THE AMOUNT OF SUBMARINE CABLE COSTS ALLOCATED TO SUPPORTED VOICE AND BROADBAND SERVICES.**

ACS proposes two changes based on GCI’s competitive presence—to reduce the projected take rate from 80% to 40% and to increase the amount of submarine cable costs allocated to supported voice and broadband services. The Commission should adopt neither proposal, as they do not make sense in the context of what the model is estimating and they could skew both existing and future unsubsidized competitive markets.

In the first instance, ACS continues to make much of the fact that GCI receives sunseting legacy high-cost support—which will phase out two to four years after the completion of the Mobility Fund (including Tribal Mobility Fund) Phase II implementation. For the purposes of determining where ACS will be able to receive support if it makes the “statewide” election, ACS wants the Commission to ignore GCI’s competitive presence, even though GCI already provides and will continue to provide at least 4 Mbps down / 1 Mbps up to the vast majority of the census blocks, locations and population that would be supported under CACM 4.0’s illustrative results.

**Table 1  
Number and Percentage of Census Blocks, Locations and Population Served  
By Provider for Census Blocks Supported Under CACM 4.0 Illustrative  
Results Using the \$48 Benchmark**

ACS Study Area	Providers	Number of Supported Census Blocks @ \$48	Number of Model Locations	Population	% of Blocks	% of Model Locations	% of Population
Anchorage	Total	903	16,999	71,907	100.0%	100.0%	100.0%
	ACS Only	32	324	177	3.5%	1.9%	0.2%
	Both				66.7%	78.0%	80.0%

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		602	13,261	57,492			
	GCI Only	216	2,782	13,242	23.9%	16.4%	18.4%
	Neither	53	632	996	5.9%	3.7%	1.4%
Fairbanks	Total	745	15,468	34,992	100.0%	100.0%	100.0%
	ACS Only	79	3,358	6,402	10.6%	21.7%	18.3%
	Both	386	8,486	21,002	51.8%	54.9%	60.0%
	GCI Only	156	2,060	4,506	20.9%	13.3%	12.9%
	Neither	124	1,564	3,082	16.6%	10.1%	8.8%
Northland - Glacier State	Total	1,888	43,896	84,707	100.0%	100.0%	100.0%
	ACS Only	370	12,227	20,067	19.6%	27.9%	23.7%
	Both	655	19,612	42,759	34.7%	44.7%	50.5%
	GCI Only	255	3,490	8,039	13.5%	8.0%	9.5%
	Neither	608	8,567	13,842	32.2%	19.5%	16.3%
Alaska - Juneau	Total	127	2,317	9,658	100.0%	100.0%	100.0%
	ACS Only	1	8	-	0.8%	0.3%	0.0%
	Both	99	1,973	8,889	78.0%	85.2%	92.0%
	GCI Only	23	303	708	18.1%	13.1%	7.3%
	Neither	4	33	61	3.1%	1.4%	0.6%
Northland - Sitka	Total	252	4,355	9,623	100.0%	100.0%	100.0%
	Both	49	1,373	4,888	19.4%	31.5%	50.8%
	ACS Only	-	-	-	0.0%	0.0%	0.0%
	GCI Only	26	273	618	10.3%	6.3%	6.4%
	Neither	177	2,709	4,117	70.2%	62.2%	42.8%

Alaska - Greatland	Total	53	1,108	6,267	100.0%	100.0%	100.0%
	Both	38	1,011	6,054	71.7%	91.2%	96.6%
	ACS Only	-	-	-	0.0%	0.0%	0.0%
	GCI Only	14	96	213	26.4%	8.7%	3.4%
	Neither	1	1	-	1.9%	0.1%	0.0%

At the same time, ACS asks the Commission to adjust the model to reflect GCI’s competitive presence, by using a 40% rather than 80% take rate—ostensibly because GCI continues to receive phased-down high-cost support. But this makes no sense in the context of the model. The model is supposed to estimate “the full average monthly cost of operating and maintaining an efficient, modern network.”<sup>6</sup> To reach its estimate, the model hypothesizes a single modern network, on a “green-field” basis, that serves all customer locations, including those served by competitors.<sup>7</sup> Having taken into account the costs of building a network to all locations, the only approach that yields the average monthly cost of operating and maintaining a single efficient, modern network is one that includes all locations in the assumed demand. Otherwise the model is modeling not the cost of a single efficient network, but the costs of one competitor among multiple competitors in a given area.

Put differently, the CACM does not adjust the take-rate input in areas in which cable companies never received high-cost support, but yet provide broadband and voice services. To calculate the average monthly cost of service, the CACM includes all those customer locations, and it utilizes an 80% take-rate. It does not cut the take rate to be an estimate of the number of

<sup>6</sup> *Connect America Fund, High-Cost Universal Service Support*, Report and Order, DA 13-807, 28 FCC Rcd. 5301, 5307 ¶ 11 (2013) (emphasis omitted).

<sup>7</sup> *Id.* ¶ 12.