

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Connect America Fund)	WC Docket No. 10-90
)	
ETC Annual Reports and Certifications)	WC Docket No. 14-58
)	
Rural Broadband Experiments)	WC Docket No. 14-259

REPLY COMMENTS OF VIASAT, INC.

Christopher J. Murphy
Associate General Counsel,
Regulatory Affairs
ViaSat, Inc.
6155 El Camino Real
Carlsbad, CA 92009

John P. Janka
Jarrett S. Taubman
LATHAM & WATKINS LLP
555 Eleventh Street, NW, Suite 1000
Washington, DC 20004-1304

August 5, 2016

Summary

The record in this proceeding establishes that satellite broadband is one of the most cost-effective and efficient means of extending broadband service to those households that the Commission deems unserved within the very limited budget for Phase II of the Connect America Fund (“CAF”). The record also reflects widespread consumer acceptance of satellite broadband services, which: (i) currently offer speeds as high as 25/3 Mbps and will scale up to speeds of 100 Mbps and higher in the next few years and (ii) have user satisfaction ratings on par with those of leading cable service providers. The *Report and Order* adopted in this proceeding on May 25, 2016 itself recognizes that satellite broadband providers offer quality services to consumers.

ViaSat’s initial comments urged the Commission to ensure that any bidding weights employed as part of the CAF II reverse auction reflect the actual needs of consumers, as ascertained through an impartial evaluation of market data. If the Commission engages in weighting competing bids, objective weights of this type are critical to enable satellite broadband bidders to compete effectively to serve the remaining CAF II households and provide the public with the most “bang for the buck.”

Unfortunately, several commenters eschew this approach and instead suggest bidding weights that are transparently designed for a different purpose—effectively excluding satellite broadband providers from participating in the reverse auction—based only on the latency inherent in providing service from the geostationary arc. As an initial matter, the efforts of certain terrestrial providers to head off satellite participation in the auction indicates that they view satellite providers as a competitive threat, and that the Commission’s technology-neutral decision to use broad and inclusive auction participation to drive efficient outcomes is working.

More fundamentally, these anticompetitive responses, which are not grounded in *any* relevant and objective data, ignore both: (i) the more-than-offsetting impact that high levels of broadband speed and effective network engineering have on customer satisfaction and (ii) the quality-of-service requirements that satellite broadband services must meet under existing CAF II rules. In fact, the high level of customer satisfaction with ViaSat's existing broadband services demonstrates how satellite-based broadband solutions meet the needs of consumers when engineered properly, and how competing terrestrial broadband offerings can fail in the marketplace, even when they satisfy a different latency standard. The Commission should not countenance proposals to handicap the bids of satellite providers, which would undermine the Commission's efforts to extend service to the remaining CAF II households.

Nor should the Commission impose interim deployment milestones on satellite providers that are any different than those imposed on terrestrial providers. No party has supported the use of such discriminatory milestones, which would: (i) violate the principles of competitive and technological neutrality; (ii) ignore the significant costs that satellite broadband providers would incur in dedicating capacity to areas deemed unserved by the Commission; and (iii) deter satellite broadband providers from participating in the CAF II reverse auction.

Assuming that the CAF II reverse auction is structured in a manner that enables meaningful participation by satellite broadband providers under objective evaluation criteria, ViaSat remains committed to helping to achieve the Commission's goals of: (i) reaching the households that terrestrial incumbents intentionally have left behind; (ii) extending broadband service to all of the remaining households that the Commission deems unserved; and (iii) serving the maximum number of households within the very limited CAF II budget.

TABLE OF CONTENTS

I.	THE COMMISSION SHOULD REJECT EFFORTS TO EXCLUDE SATELLITE BROADBAND PROVIDERS FROM MEANINGFULLY PARTICIPATING IN THE CAF II REVERSE AUCTION	2
A.	The Commission Should Disregard Unsubstantiated and Subjective Assertions about Satellite Broadband by Its Competitors	2
B.	Any Numerical Weighing of Bids Should Not Undermine the Ability of Satellite Broadband to Participate Meaningfully in the Reverse Auction	8
II.	THERE IS NO BASIS FOR SUBJECTING SATELLITE BROADBAND PROVIDERS TO DIFFERENT DEPLOYMENT MILESTONES	10
	CONCLUSION	11

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Connect America Fund)	WC Docket No. 10-90
)	
ETC Annual Reports and Certifications)	WC Docket No. 14-58
)	
Rural Broadband Experiments)	WC Docket No. 14-259

REPLY COMMENTS OF VIASAT, INC.

ViaSat, Inc. hereby replies to certain comments filed in this proceeding in response to the *Further Notice of Proposed Rulemaking* adopted by the Commission on May 25, 2016 (the “*FNPRM*”).¹ The *FNPRM* sought comment on (among other things) the weights that the Commission should use to compare bids received as part of the reverse auction to be conducted during Phase II of the Connect America Fund (“CAF”). In particular, the *FNPRM* asks how the Commission should compare bids across: (i) each of the four performance tiers in which reverse-auction participants would submit their bids; and (ii) the two latency-based variants within each such tier, corresponding to (a) latency of less than 750 ms with a Mean Opinion Score (“MOS”) of four or better and (b) latency of less than 100 ms.²

In its comments, ViaSat raised concerns about weighting bids based on the different characteristics of the performance tiers and their variants, and specifically urged that any weighting be grounded in empirical data. ViaSat explained that this approach would help to mitigate subjectivity in the weighting process, avoid bias, and allow consumer needs to drive the selection of auction winners. Unfortunately, several commenters eschew this approach and

¹ See *Connect America Fund*, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-64, WC Docket No. 10-90 (May 25, 2016) (“*R&O*” or “*FNPRM*”).

² *Id.* ¶ 15.

instead suggest weights that are transparently designed for a different purpose—excluding satellite broadband providers from participating meaningfully in the reverse auction and returning to the previously rejected, technology-based preference scheme.

As the Commission is well aware, satellite broadband is one of the most cost-effective and efficient means of: (i) reaching the households that terrestrial incumbents intentionally have left behind; (ii) extending broadband service to all of the remaining households that the Commission deems unserved; and (iii) serving the maximum number of households within the very limited CAF II budget.³ For these reasons, the Commission should reject the efforts of terrestrial service providers to preclude meaningful satellite broadband participation in the reverse auction; instead, competing bids should be weighted, if at all, using objective, empirical data.

I. THE COMMISSION SHOULD REJECT EFFORTS TO EXCLUDE SATELLITE BROADBAND PROVIDERS FROM MEANINGFULLY PARTICIPATING IN THE CAF II REVERSE AUCTION

A. The Commission Should Disregard Unsubstantiated and Subjective Assertions about Satellite Broadband by Its Competitors

In its comments, ViaSat urged the Commission to ensure that any weights assigned as part of the CAF II reverse auction are technology neutral and grounded in empirical data that reflect the actual needs of consumers. ViaSat explained that using market-driven, objective data to guide decision-making would help to mitigate subjectivity in the weighting process, allow consumer preferences to drive the selection of auction winners, and provide a basis for determining the relative importance of different broadband performance criteria.⁴

³ See, e.g., Dr. Charles L. Jackson, *Satellite Service Can Help to Effectively Close the Broadband Gap* (Apr. 18, 2011), attached as Exhibit A to Comments of ViaSat, Inc., WC Docket No. 10-90 (Apr. 18, 2011).

⁴ Comments of ViaSat, Inc. WC Docket No. 10-90, at 4-5 (July 21, 2016) (“ViaSat Comments”).

Several commenters appear to endorse a data-driven approach to the derivation of numeric weights. For example, the Fiber to the Home Council (“FTTH Council”) suggests that auction weights “should be based primarily on consumer preferences and needs for broadband service throughout the duration of the program.”⁵ Unfortunately, the lip service those commenters pay to objectivity soon gives way to efforts to bias the weighting process in favor of their own technologies based on unsubstantiated and subjective claims.

ViaSat has previously submitted record evidence showing that: (i) consumer broadband preferences are multidimensional⁶ and evolve over time; and (ii) latency levels associated with geostationary satellite broadband service do not have any significant impact on consumer perceptions of quality when offset by higher speeds and efficient network engineering.⁷ ViaSat has explained that the relative unimportance of latency to consumers is reflected in the advertising strategies of leading broadband providers—including Verizon.⁸ ViaSat also has demonstrated that its satellite broadband service—which currently offers speeds as high as 25/3

⁵ Comments of the Fiber to the Home Council Americas, WC Docket No. 10-90, at 4 (July 21, 2016) (“FTTH Council Comments”).

⁶ See Mark D. Dankberg, Thomas E. Moore, and Girish Chandran, *Toward a National Broadband Plan: Ensuring a Meaningful Understanding of Broadband Capabilities and Facilitating Competitive Choices* (Aug. 31, 2009) (filed on Aug. 31, 2009 in GN Docket No. 09-47). That multidimensionality is reflected in how: (i) different users place different values and weights on the various dimensions or capabilities of “broadband” services; (ii) different applications have varying performance requirements; and (iii) network operators establish varying performance objectives and optimization goals in designing and implementing their networks and service offerings, and in pricing their services.

⁷ See, e.g., ViaSat Comments at 4-5.

⁸ See, e.g., <http://www.verizon.com/home/fios-fastest-internet/#plans> (last visited Aug. 4, 2016) (listing Verizon FIOS plans and emphasizing, in bold type, speeds and prices associated with each offering).

Mbps⁹ and will scale up to offer speeds of 100 Mbps and higher in the next few years when newer satellites are launched¹⁰—now has a user satisfaction rating on par with that of leading cable-based broadband service providers with its current offerings.¹¹ This can only be expected to improve as newer, even more advanced satellite broadband networks are brought into service.

The Commission, for its part, has emphasized that the requirement for geostationary satellite services to satisfy a MOS of four “can be used to help ensure quality voice service performance for bids with [more than 100 ms of latency].”¹² Notably, a MOS of four indicates “High” speech transmission quality that the vast majority of users classify as “Good or Better.”¹³

Nevertheless, several commenters seek to impose substantial penalties on bids to provide satellite broadband services, based solely on the latency level associated with the geostationary arc. For example, Verizon asks the Commission to assign “significant negative weight” to bids to provide such services.¹⁴ Other parties broadly assert that satellite broadband service generally is inferior and should be penalized due to alleged “limitations” that ViaSat has disproven at length, on multiple occasions.¹⁵ Tellingly, none of those parties explains why the

⁹ See *ViaSat Unveils Fastest Home Satellite Internet Service in the U.S. with the New Exede WiFi Modem and a 25 Mbps Plan* (Nov. 18, 2015), available at <http://investors.viasat.com/releasedetail.cfm?ReleaseID=943346>.

¹⁰ See *infra* n.15.

¹¹ See ViaSat Comments at 5-6.

¹² *R&O* ¶ 33.

¹³ See ITU-T Rec. G.107, Annex B, Table B.1.

¹⁴ Comments of Verizon, WC Docket No. 10-90, at 5 (July 21, 2016) (“Verizon Comments”).

¹⁵ For example, NTCA’s assertion that satellite broadband service is not “future proof” due to alleged capacity constraints, Comments of NTCA—The Rural Broadband Association,

performance requirements adopted by the Commission—including that geostationary-satellite-based service meet a MOS of four—do not ensure that end users will receive quality service.¹⁶

Significantly, most of those commenters eschew the use of empirical support entirely. In the few cases in which a party does cite data that supposedly support its position, it is readily apparent that the relevant data do nothing of the sort. For example, USTelecom asserts that consumers do not view satellite broadband services as reasonably comparable to terrestrial voice services because satellite broadband subscribers “constitute far less than 1 percent of all voice subscribers in the United States.”¹⁷ The American Cable Association (“ACA”) similarly suggests that satellite-based services should receive a negative weight because consumers in urban areas predominantly select services based on other technologies.¹⁸ Those arguments unjustifiably

WC Docket No. 10-90, at 7-8 (July 21, 2016), ignores the demonstrable facts that satellite networks are just as scalable as their terrestrial counterparts, and even more so because existing capacity can be leveraged alongside new satellites to allocate capacity in a manner that best responds to the needs of the market and consumers. *See, e.g.*, Letter from ViaSat to FCC, WC Docket No. 10-90 (May 19, 2016). Notably, ViaSat’s latest spacecraft design provides over seven times the capacity of its first-generation broadband satellite design, and future generations will accelerate this trend. ViaSat-2, which will enter into service in 2017, will support peak speeds of 100-plus Mbps. ViaSat-3, which will be deployed in 2019, will provide over 1 terabit per second (1,000 Gbps) of throughput and burst in the 1 Gbps range. Each of those spacecraft will have more capacity than all communications satellites in existence today, combined. This will more than keep pace with the improvements implemented over time by ViaSat’s competitors. *See ViaSat Announces Third Quarter Fiscal Year 2016 Results* (Feb. 9, 2016), available at <http://investors.viasat.com/releasedetail.cfm?ReleaseID=954130>.

¹⁶ Verizon, the only party to discuss the MOS requirement at all, asserts without explanation that end users of satellite-based services satisfying the MOS requirement still would be precluded from the “use of VoIP and other interactive and highly interactive applications.” *See Verizon Comments* at 5 n.14. As explained above, a MOS of four indicates “High” speech transmission quality that the vast majority of users classify as “Good or Better.”

¹⁷ Comments of the United States Telecom Association, WC Docket No. 10-90, at 7 (July 21, 2016) (“USTelecom Comments”).

¹⁸ Comments of the American Cable Association, WC Docket No. 10-90, at 7-8 (July 21, 2016) (“ACA Comments”).

assume that a consumer’s decision to purchase terrestrial service is based on a comparison with satellite service. In reality, in any given circumstance, a consumer’s preference for terrestrial service could have many explanations—including but not limited to: (i) price considerations (particularly given the universal service subsidies that terrestrial incumbents currently receive to the exclusion of satellite providers); (ii) the relatively recent introduction of high-quality satellite-based voice services; and (iii) false assumptions about the quality of newer satellite services based on the perception of *first-generation* satellite services. In any event, one significant fact is undisputed on the record: About one-third of ViaSat’s broadband customers have switched to satellite from terrestrial broadband alternatives. Stated differently, the USTelecom and ACA arguments simply do not justify casting aside *today’s* satellite broadband service as a viable and competitive option for efficiently extending broadband service to areas deemed unserved by the Commission.

For its part, the FTTH Council cites a survey purporting to show that consumers in rural areas: (i) use broadband frequently and find it “very important” to their communities; and (ii) use multiple devices at the same time.¹⁹ These conclusions are hardly surprising, and do not contradict market data showing clear and broad consumer acceptance of satellite broadband service. The one-third of ViaSat’s customers who have chosen satellite broadband over their previous terrestrial service providers undoubtedly find their satellite broadband service very important as well. Moreover, ViaSat’s broadband customers can use multiple devices at the same time. By way of example, the same type of broadband connection that ViaSat can provide to CAF households is being employed today on hundreds of aircraft, and about one million personal electronic devices each month, to provide an “at home” internet experience to many passengers on

¹⁹ FTTH Council Comments at 5.

the same flight using the same wireless access points and modems²⁰—providing those passengers with the ability to stream movies, videos, television and music, as well as surf the web, upload pictures to social media, email large files, and more on each device.

Notably, numerous independent publications have recognized ViaSat’s best-in-class “Wi-Fi in the Sky” service²¹—an achievement that is particularly relevant to this proceeding because one of ViaSat’s competitors in the provision of broadband service to airplanes uses terrestrial technology with a lower inherent latency. The significantly higher customer adoption rate for ViaSat’s service²² demonstrates how satellite-based broadband solutions meet the needs of consumers when engineered properly, and how terrestrial broadband offerings can fail in the marketplace, even when they satisfy a 100 ms latency standard.

The FTTH Council’s attempt to portray satellite broadband as somehow inferior is not grounded in data, but rather is based on an entirely subjective white paper authored by its “Technology Committee,” which asserts that satellite-based communications solutions are not suited to certain applications.²³ Notably, the white paper provides no objective, data-driven basis for concluding that satellite-based services do not meet the needs of consumers. And, tellingly, the principal source that the FTTH Council invokes to support its position (ITU-T Rec. G.107) explains that latency need not drive either perceived quality of service or customer satisfaction:

²⁰ See ViaSat, *Freedom to Stream for All: Best Wi-Fi in the Sky*, at 2 available at https://www.viasat.com/sites/default/files/media/documents/inflight_internet_brochure_v1_2_web.pdf (last visited Aug. 3, 2016) (noting that “[e]ach passenger gets high-speed internet regardless of how many connect”).

²¹ *Id.* at 6.

²² *Id.* at 2.

²³ FTTH Council Comments, Att. at 2.

Based on several conversation tests, it has been shown that even long delay values may not affect the perceived speech quality, that is, in terms of the attribution of the delay effect to the system. In such cases, the predictions by previous versions of the E-model may be more pessimistic than actual user opinion. As a consequence, in specific cases speech quality predictions may be sought that are better tailored to some less stringent delay requirements.²⁴

In short, nothing in the FTTH Council’s comments, or the record more generally, undermines the conclusion that: (i) satellite providers *currently are delivering* high-quality broadband services to consumers that compete effectively with terrestrial alternatives; (ii) satellite providers *have minimized* any impact of latency on customer satisfaction by offering higher speeds and utilizing efficient network engineering; and (iii) consumers, and the market, *readily accept* those satellite broadband services as viable, high-quality options.

B. Any Numerical Weighing of Bids Should Not Undermine the Ability of Satellite Broadband to Participate Meaningfully in the Reverse Auction

As noted above, the *R&O* recognizes that satellite broadband providers *can* support quality end-user services—including with respect to real-time applications like voice—and *should* be permitted to participate fully in the CAF II reverse auction. It follows that any weighting should *not* preclude satellite broadband providers from meaningfully participating in the reverse auction. Yet, this is *precisely* the result that several parties advocate through proposed weighting criteria.

Several parties have proposed specific, numerical “negative weights” that transparently attempt to prevent satellite broadband providers from competing in the reverse

²⁴ ITU-T Rec. G.107, at 20 (2015). A MOS of 4.03 corresponds to a “GoB%” of 89. *See id.* at Annex B, Table B.1. That ITU Recommendation also explains that it was developed “for transmission planning purposes and not for actual customer opinion prediction (for which there is no agreed-upon model recommended by the ITU-T).” *Id.* at 1.

auction against comparably inefficient terrestrial technologies. For example, USTelecom proposes a “negative weight” of 75 percent for bids proposing geostationary-satellite broadband service.²⁵ Similarly, the Wireless Internet Service Providers Association suggests a “minus 75 percent adjustment” for such bids.²⁶ As a practical matter, these weights likely would preclude satellite broadband providers from competing meaningfully in the reverse auction—a result that Verizon expressly endorses despite the clear decision of the Commission in the *R&O* to enable full and equal satellite participation in the CAF for the very first time.²⁷

The ACA takes another approach in attempting to foreclose meaningful satellite participation, suggesting that satellite bids should be numerically increased (what ACA euphemistically calls “normalized”) because ACA claims that, in rural areas, satellite broadband providers have favorable cost structures compared to many of their terrestrial competitors.²⁸ The ACA claims this treatment is justified because “fixed wireless costs are roughly 100 times greater than satellite costs, brownfield DSL costs are roughly 160 times greater than satellite costs, and fiber-to-the-home is roughly 450 times greater than satellite.”²⁹ Any such cost differentials certainly do not justify imposing penalties on satellite broadband bids through some ill-defined

²⁵ USTelecom Comments at 7.

²⁶ Comments of the Wireless Internet Service Providers Association, WC Docket No. 10-90, at 7 (July 21, 2016); *see also* Comments of ITTA—The Voice of Mid-Size Communications Companies, WC Docket No. 10-90, at 11 (July 21, 2016) (suggesting that a negative weight for “high latency” would be appropriate because such latency *may* substantially impede application performance).

²⁷ *See* Verizon Comments at 5 (suggesting that the FCC “should set the weights such that a high latency bid will be awarded support only in exceptional circumstances . . .”).

²⁸ ACA Comments at 8-9.

²⁹ *Id.* at 9.

“normalization” scheme.³⁰ To the contrary, the relative cost efficiency of satellite broadband service demonstrates vividly why the Commission should fully leverage the valuable contribution that satellite broadband providers can make in achieving the objectives of the CAF by: (i) reaching the households that terrestrial incumbents intentionally have left behind; (ii) extending broadband service to all of the remaining households that the Commission deems unserved; and (iii) serving the maximum number of households within the limited CAF II budget.

The vulnerability of the weighting process to this sort of manipulation is precisely why ViaSat has urged that any weighting of bids be grounded in empirical data and driven by consumer needs. The Commission should not countenance proposals of the type discussed above, and should instead ensure that any numerical weights assigned through the reverse auction are designed to: (i) approximate a demonstrable differential in quality associated with a given technical characteristic; and (ii) allow bidders to offset that differential through investments in other salient service characteristics (such as greater speed).

II. THERE IS NO BASIS FOR SUBJECTING SATELLITE BROADBAND PROVIDERS TO DIFFERENT DEPLOYMENT MILESTONES

The *FNPRM* questions whether the interim deployment milestones adopted in the *R&O* are appropriate “for non-terrestrial providers or other providers that have already deployed the infrastructure they intend to use to fulfill their Phase II obligations.”³¹ In its comments, ViaSat explained that subjecting satellite broadband providers to shorter implementation deadlines than other types of bidders would: (i) violate the principles of competitive and technological neutrality that have guided universal service policy for decades; (ii) ignore the significant costs that satellite

³⁰ *See id.* at 8-9.

³¹ *FNPRM* ¶ 229.

broadband providers would have to incur in dedicating existing and future capacity to areas deemed “unserved” by the Commission; and (iii) deter satellite broadband providers from participating in the CAF II reverse auctions.³² No party supports subjecting non-terrestrial providers to more aggressive interim milestones than terrestrial providers. Accordingly, the Commission should abandon that proposal.

CONCLUSION

For the reasons provided above, any weighting of CAF II auction bids based on the different performance characteristics of competing service packages should be grounded in empirical data. Such an approach would help to mitigate subjectivity in the weighting process, avoid bias, allow consumer needs to drive the selection of auction winners, and ensure that all technologies (including satellite broadband) can participate meaningfully in the CAF II reverse auction. Any weighting that the Commission may assign to a particular bid should be designed to: (i) approximate a demonstrable differential in quality associated with a given technical characteristic; and (ii) allow bidders to offset that differential through investments in other salient service characteristics (such as greater speed). Moreover, given the absence of any record support, the Commission should abandon further consideration of any proposal to impose interim deployment milestones on satellite providers that are any different from the deployment milestones with which terrestrial providers must comply.

Assuming that the CAF II reverse auction is structured in a manner that enables meaningful participation by satellite broadband providers under objective evaluation criteria, ViaSat remains committed to helping to achieve the Commission’s goals of: (i) reaching the households that terrestrial incumbents intentionally have left behind; (ii) extending broadband

³² ViaSat Comments at 4.

service to all of the remaining households that the Commission deems unserved; and (iii) serving the maximum number of households within the very limited CAF II budget.

Respectfully submitted,

Christopher J. Murphy
Associate General Counsel,
Regulatory Affairs
ViaSat, Inc.
6155 El Camino Real
Carlsbad, CA 92009

/s/ John P. Janka
John P. Janka
Jarrett S. Taubman
LATHAM & WATKINS LLP
555 Eleventh Street, NW, Suite 1000
Washington, DC 20004-1304

August 5, 2016