

PUBLIC VERSION

**Before the
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

In the Matter of)
)
VIASAT CARRIER SERVICES, INC.) Docket No. P-2018-3004983
)
)
Petition for Limited Designation as an)
Eligible Telecommunications Carrier)
to Receive Connect America)
Fund Phase II Auction (Auction 903))
Support for Voice and Broadband Services)
And Request for Expedited Consideration)

VIASAT CARRIER SERVICES, INC. SUPPLEMENTAL RESPONSES

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VIASAT CARRIER SERVICES, INC. SUPPLEMENTAL RESPONSES

Viasat Carrier Services, Inc., ("Viasat") by its counsel, hereby respectfully submits its Supplemental Responses to Pennsylvania Public Utility Commission ("Commission") staff requests for information. On January 30, 2019, Viasat submitted its response to an initial set of data requests. Following Viasat's response, Commission staff requested additional information. Included herein are responses to written additional questions of Commission staff, to the Bureau of Consumer Services requests for information, and to questions that arose during a meeting with staff on February 22, 2019. Viasat will supplement this response with additional information as it is available.

Concurrently, Viasat is submitting a request for confidential treatment of portions of this response, which are identified as confidential.

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Docket No. P-2018-3004983, ViaSat CAF II ETC Petition
Additional Questions

1. **In its Jan. 30, 2019, data request response, Item No. 12, p. 3, ViaSat states that it will have “to provide at least one service offering that provides at least 25 Mbps downstream and 3 Mbps upstream (25/3 Mbps) and a minimum usage allowance of 150 GB per month, or that reflects the average usage of a majority of fixed broadband customers, whichever is higher.” (Citation omitted).**

- a. **Does ViaSat have the requisite satellite capacity to accommodate simultaneous broadband downloads and uploads at the required FCC speeds by its intended number of locations and subscribers in Pa. (45,100 locations)? For example, assuming that all locations in Pa. simultaneously request content downloads at a 10 Mbps broadband speed, that will impose a total demand of 451,000 Mbps or 451 Gbps on ViaSat’s satellite network. The ViaSat-1 satellite system has a total capacity of at least 140 Gbps, while ViaSat-2 “has a maximum potential capacity of approximately” 260 Gbps. Petition at 10-11.**

To be provided in a further supplement.

- b. **Does ViaSat have the requisite satellite capacity to accommodate simultaneous broadband downloads and uploads at the required FCC speeds by its intended number of locations and subscribers in Pa. during times of peak usage without any degradation in the available speed and latency standards? What are the typical daily times of peak usage in ViaSat’s system?**

Yes. The statistical modeling and traffic engineering calculations described above show that Viasat will have the required satellite capacity to accommodate the FCC speed requirements during the peak periods of usage for 70% of the PA locations. Viasat’s data shows that the utilization daily peak times occur during the hours of 8pm to 11 pm local time.

2. **ViaSat will be obtaining \$1.994 MM of CAF II auction support for a 10-year horizon. What capital investments will ViaSat be implementing in Pa. and in what types of network equipment with this CAF II support and its own investment capital? Please indicate the types of satellite and terrestrial network and customer premises equipment involved in this capital investment.**

Viasat notes that the CAF II support of \$1.994MM per year is to provide service to 45,100 locations in Pennsylvania, which is approximately \$44.00 per year per location (or less than \$4.00 per location per month). Viasat, Inc. (“VSI”) currently incurs several hundred dollars in costs to activate each customer, including the costs of equipment and installation. Viasat anticipates that its costs to activate customers will be approximately the same.

Viasat does not have specific capital expenditures earmarked for a particular location, service area, or state. Viasat does not need to install additional facilities in order to be able to provide service; however, Viasat will be required to implement modifications to VSI’s existing back office (ordering, customer care, billing) and other systems to address FCC and state commission CAF II and ETC requirements. Viasat intends to use CAF II funding to reduce the per-location costs associated with the provision of supported service in each state, including Pennsylvania. For example, Viasat would use funding to offset costs of acquisition of network capacity, provision and installation of CPE, and service delivery functions. However, the CAF II support is, on

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average, less than \$4.00 per month per location in Pennsylvania and is, therefore, not sufficient to cover all of these costs.

- 3. Does ViaSat plan to allocate any portion of the \$1.994 MM of the CAF II support that is designated to Pa. locations for the launch of additional satellite vehicle capacity within the 10-year time frame of support and is this permitted under the applicable FCC rules?**

Viasat does not have specific capital expenditures earmarked for a particular location, service area, or state. In order to achieve the CAF II service and build out requirements, Viasat will leverage existing satellites, and VSI is launching a new satellite that may be utilized to facilitate providing service in Oregon and elsewhere. CAF II support will be used to reserve capacity on existing and, potentially, new satellites; however, Viasat does not currently plan to allocate its Pennsylvania CAF II support directly to an additional satellite vehicle.

- 4. What latency intervals do ViaSat subscribers experience for ordinary voice communications? Do these latency intervals vary between on-peak and off-peak usage periods of ViaSat's network and what are the corresponding quantitative values and differences of these latency intervals?**

As stated, the latency on Viasat's network is primarily the result of the fact that signals travel to and from space. It is a consequence of the speed of light and is constant. Under normal circumstances, there is no need to prioritize voice traffic over other types of traffic on VSI's network; however, to ensure the best possible experience for customers, VSI prioritizes voice and other latency-sensitive traffic over other Internet traffic in all situations, *i.e.*, during periods of no congestion and periods of congestion. VSI has also developed traffic shaping and other tools to mitigate any potential effects of latency on voice quality. Viasat will utilize these same practices and technology and also plans to develop additional upgrades to its network to further improve voice quality for its CAF II services.

- 5. Does ViaSat use any technological solutions to prioritize voice communications relating to 911/E911 emergency calls? To the extent that ViaSat's voice service will rely on the Voice over the Internet Protocol (VoIP), please explain whether 911/E911 VoIP call packets will be prioritized in ViaSat's network with a corresponding reduction in the latency characteristics that are addressed in Item No. 3 above. Please provide numerical values of the corresponding reductions in latency involving 911/E911 emergency voice calls as compared to ordinary voice calls.**

To be provided in a further supplement.

- 6. Please provide the following requested information, explanations and material regarding ViaSat's planned handling of emergency 911/E911 call traffic within Pa.:**
- a. In its Jan. 30, 2019 data request response (Item No. 7, p. 8), ViaSat indicated that it "will partner" with another company "to provide VoIP service" and that "company has already arranged for the provision of 911 emergency service in the areas it has been awarded CAF II funds." Please disclose the identity of this "company" with which ViaSat will partner for the provision of VoIP call services and 911/E911 emergency call capabilities. Please state whether this**

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"company" is another telecommunications carrier that already operates in Pennsylvania.

Viasat will partner with Alianza Inc. for its VoIP service and West Safety Communications Inc. (fka Intrado Communications Inc.) (Utility Code: 319921) for 911 service.

- b. Please provide an explanation of the ViaSat terrestrial network and 911/E911 emergency call network flows and connectivity of such calls with the appropriate public safety answering point (PSAP). Please include such information and materials as indicated below:**

- (1) Whether there are ViaSat satellite access network nodes (SANs) within Pennsylvania that will utilize terrestrial network facilities (owned or leased circuits, switching and routing facilities and capabilities), for interconnecting with the public switched telecommunications network (PSTN) and terminating a 911/E911 call to the appropriate PSAP.**

To be provided in a further supplement.

- (2) In the event that there are no ViaSat SANs within Pennsylvania, please describe the network movement of a 911/E911 call that will originate at a Pa. location that will be served by ViaSat and where that call may have to travel outside Pa. before transiting back to the appropriate PSAP within Pa.**

To be provided in a further supplement.

- (3) Please provide an explanation on how ViaSat will provide accompanying automatic number identification (ANI) and automatic location identification (ALI) for 911/E911 emergency calls that will reach the appropriate PSAP.**

Viasat will transmit the user's phone number and/or location to the PSAP once the VoIP 911 is connected to the PSAP. Viasat will rely on Viasat, Inc.'s existing 911 capabilities. Viasat, Inc. provides 911 services to all of its United States based voice customers. This is accomplished by routing 911 calls to a PSAP based upon a customer's ANI (automated number identification) and transported through a wireline 911 network. The PSAP, designated state default answering point, or emergency authority is able to identify the voice caller's primary registered location through an ALI (automated location information) database.

Viasat obtains physical location from each customer as part of the voice ordering process. This information will be passed on to VSI as Viasat will be utilizing VSI's 911 capabilities. During order entry, customer care agents will ask the customer to provide their 911 address, making the distinction between service address, specifically asking customers in the event of an emergency which address is associated with their voice number for emergency services to respond to. As part of order entry, an automated real time verification of the address will be performed by a third party against the MSAG (master street address guide). Within two business days a final detailed verification will be performed by another third party agency, Intrado, to ensure service addresses are valid

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for emergency services to respond to. At any point where a discrepancy is found, customers will be contacted to update street address information for 911 services.

Viasat's VoIP service is not nomadic. It is a fixed service tied to the customer's existing broadband Internet access service at the customer's residence. Thus, a customer will not be able to "move" the service to another location without first notifying Viasat and having the service installed at the customer's new location. Viasat customers can always update their 911 address information by contacting Viasat.

- (4) Please provide a diagram that indicates ViaSat's 911/E911 emergency call network flows to the appropriate PSAP, including the interaction with appropriate ALI address data bases.**

To be provided in a further supplement.

- (5) To the extent that the ViaSat flows of emergency 911/E911 emergency call traffic depend on terrestrial routing and switching functionalities and network nodes that serve a regional geographic footprint (i.e., more than one state), please provide an explanation whether there is appropriate redundancy in such nodes, i.e., whether an alternative node can handle 911/E911 call traffic volumes if a certain node becomes incapacitated.**

To be provided in a further supplement.

- 7. ViaSat's Petition states that various "[c]ontrol and management functions... are hosted in the *public cloud*." Petition at 11 (emphasis in the original). Please provide a short description of the cybersecurity measures that ViaSat has undertaken in order to safeguard such "control and management functions" and related data including appropriate safeguards for the personal customer data. Please indicate whether ViaSat experienced any customer data breaches within the last three (3) years and if such an event took place, please indicate how ViaSat dealt with such a data breach.**

To be provided in a further supplement.

- 8. Please indicate the states where ViaSat's corresponding ETC designation petitions have been granted and indicate whether the state regulatory agency granting such petition has imposed state-specific conditions and obligations. Please indicate the states where such corresponding ETC designation petitions are still pending.**

As of April 16, 2019, four petitions or applications for ETC designation remain pending before state commissions. In addition to the Petition for ETC designation pending before this Commission, Viasat's applications remain pending in Louisiana, Mississippi and Oregon.

Four states – Alabama, California, Florida, and West Virginia – did not review the petitions/applications and issued affirmative statements allowing Viasat instead to apply directly to the FCC for ETC designation in those states.

Twelve states have granted Viasat's requests for ETC designation: Arizona, Colorado, Georgia, Idaho, Kentucky, Maine, Montana, New Mexico, Utah, Washington, Wisconsin, and Wyoming.

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Orders from those states that imposed state-specific conditions or obligations are available on each commission's website as follows:

Arizona

<http://docket.images.azcc.gov/0000195893.pdf>

Colorado

https://www.dora.state.co.us/pls/efi/EFI_Search_UI.Show_Decision?p_session_id=&p_dec=26041

Georgia

<http://www.psc.state.ga.us/factsv2/Document.aspx?documentNumber=175851>

Kentucky

https://psc.ky.gov/PSCSCF/2018%20Cases/2018-00330/20190225_PSC_ORDER.pdf

Montana

<http://psc2.mt.gov/Docs/ElectronicDocuments/pdfFiles/D2018959FO.pdf>

Utah (including Stipulation and Settlement Agreement)

<https://pscdocs.utah.gov/telecom/18docs/18261001/30665718261001oasasa2-13-2019.pdf>

<https://pscdocs.utah.gov/telecom/18docs/18261001/306328JtSettlStip1-22-2019.pdf>

In addition, during the onsite meeting on February 22, 2019, Commission staff requested the following information:

Number of Pennsylvania customers

Viasat's parent company, Viasat, Inc., currently has **CONFIDENTIAL** **CONFIDENTIAL** active subscribers in Pennsylvania, **CONFIDENTIAL** **CONFIDENTIAL** of whom subscribe to voice (VoIP).

Summary of the latency, testing and other requirements from FCC orders, including cites

With respect to voice performance, bidders placing high latency bids must also commit to demonstrate a score of four or higher using the Mean Opinion Score (MOS).¹ All of Viasat's awards are for high latency bids. Therefore, Viasat will be required to maintain a MOS score of four or higher and certify its compliance each year. In addition, as Viasat explained, its service provides priority for latency-sensitive applications, like voice and video streaming, to ensure the highest quality service to customers.

In addition to the information provided above, Viasat provides the following links to and summaries of relevant FCC orders:

Service tiers, speed, data caps (paras. 2, 14-16, 24-25); latency (paras. 28-37); service quality (para. 163) <https://docs.fcc.gov/public/attachments/FCC-16-64A1.pdf>

¹ Auction 903 Procedures Public Notice, at para. 12, n. 17.

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Service tiers, speed, data caps, latency (paras. 14-18)
<https://docs.fcc.gov/public/attachments/FCC-17-12A1.pdf>

Latency (paras. 14-17) <https://docs.fcc.gov/public/attachments/FCC-18-5A1.pdf>

Service tiers, speed, data caps, latency (paras. 12-13)
<https://docs.fcc.gov/public/attachments/FCC-18-6A1.pdf>

Performance testing (paras. 9-46); speed testing (paras. 50-67)
https://docs.fcc.gov/public/attachments/DA-18-710A1_Rcd.pdf

Consumer protection and service quality (pp. 4-5)
<https://docs.fcc.gov/public/attachments/DA-18-714A1.pdf>

Public interest and service obligations (paras. 36-37); modification of service areas (para. 38) <https://docs.fcc.gov/public/attachments/DA-18-887A1.pdf>

Additional information is available on the FCC's CAF II website:
<https://www.fcc.gov/auction/903>.

Written response to the question from Labros Pilalis addressing outages at the spot beam level

In the rare instance of a spot beam outage, Viasat can transition customers to overlapping spot beams provided that Viasat has overlapping spot beams in the affected area. If such overlapping spot beam happens to be on another satellite, Viasat would need to send a service technician to the customer's location to repoint the satellite antenna. Note, this is not Viasat's primary redundancy plan. This would only be for exceptional circumstances. To date, we have not had a "sudden" spot beam outage. We have only had rare instances of slow degradation (over several years) of a spot beam, which allowed Viasat time to make contingency plans to address affected customers.

Additional information about battery backup power options, including whether battery backup will be automatic or require customer action (turning on the battery backup) and whether the 8-hour and 24-hour backup intervals are for powering just voice or voice and data and whether the time is total duration or usage, e.g., would a customer watching Netflix use the battery faster.

The battery backup option we are looking at would be an automatic failover to the battery backup (this is not final). The 8-hour or 24-hour backup is for voice and data, both in standby mode (i.e., non-active users). If a user is actively watching Netflix, the battery would drain faster.

Contacts for emergencies/911, customer complaints, and PUC inquiries

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Attachment A

How We Do It

- Optimize end-to-end network to extract maximum efficiencies
- Reduces unit cost of bandwidth and promotes higher reliability.
- Results in best-in-class service and greater customer satisfaction

