Advocates for Rural Broadband
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BEAD@NTIA.gov
National Telecommunications and Information Administration
United States Department of Commerce
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Attention: Evan Feinman, BEAD Program Director

RE: Proposed BEAD Alternative Broadband Technology Guidance

Dear Mr. Feinman:

WTA – Advocates for Rural Broadband ("WTA") hereby submits its comments with respect to NTIA's Proposed Guidance for Eligible Entities with respect to the choice of Alternative Broadband Technologies for the BEAD Program. WTA understands that the alternative broadband technologies under consideration are predominately unlicensed fixed wireless ("ULFW") and low earth orbit ("LEO") satellite broadband services.

WTA is a national trade association that represents approximately 400 rural local exchange carriers ("RLECs") that provide voice and broadband services to some of the most rural, remote, rugged, sparsely populated and expensive-to-serve areas of the United States. WTA members have long constructed and operated rural voice and broadband networks – very often as providers of last resort – in high-cost farming, ranching, mining, mountain, forest and desert areas, as well as on Native American reservations and other Tribal Lands. Many WTA members are considering applying for BEAD grants to provide high-speed broadband service to the relatively few remaining unserved and/or underserved portions of their existing rural service areas and/or to extend their existing broadband networks into unserved and/or underserved portions of adjacent or nearby rural areas. The typical WTA member is far along in the process of deploying and extending fiber-optic trunks and drops to upgrade its former copper voice network in order to provide most or all of its rural customers with scalable fiber-to-the-home ("FTTH") facilities capable of meeting their evolving broadband service needs during the foreseeable future at minimal incremental cost. However, even though FTTH facilities constitute a viable solution for most rural customer locations during the next 20-to-30 years, WTA members recognize that distance, rugged topography and right-of-way issues may render it unduly expensive or impossible to extend FTTH facilities to a relatively small number of remote and isolated locations. WTA presumes that these latter locations are the subject of NTIA's Proposed Guidance.

BEAD Funding Hierarchy

WTA fully agrees with and supports the hierarchy that NTIA has established for awarding BEAD grants – specifically: (1) first to Priority Broadband Projects (FTTH); (2) then to Reliable Broadband Service Projects (hybrid fiber-coaxial, digital subscriber line (DSL) and licensed fixed wireless); and (3) finally to Alternative Technologies (ULFW and LEO satellites).

However, there is a threshold question whether the remaining portion of the $42.45 billion in appropriated BEAD funding will be sufficient to accomplish the deployment of affordable 100/20 Mbps service to all of the eligible unserved and underserved locations in all three classes of NTIA's technology hierarchy. WTA is aware of estimates that several hundred billion dollars in grants will be needed to accomplish the goal of 100/20 Mbps broadband for all United States locations. If it is determined that the available BEAD funding is not sufficient, the next question is how such funding can be most effectively distributed to meet the long-term broadband needs of as many customer locations as economically reasonable. Will BEAD funding be used first to fully fund Priority Broadband Projects, with any remaining funds then used to fully fund Reliable Broadband Service Projects, and any still remaining amount used to fund some or all Alternative Technologies locations. Or, instead, would NTIA or certain states try to spread BEAD funding over all three tiers of projects by reducing the funding of Priority Broadband Projects and Reliable Broadband Service Projects (for example, by increasing the required matching percentages) and by trying to fund most or all remote unserved or underserved Alternative Technologies locations (for example, by adjusting the Extremely High Cost Per Location Threshold ("EHCPLT")).

Effective Distribution of Available BEAD Funding

WTA strongly supports the approach of fully funding Priority Broadband Projects and then Reliable Broadband Service Projects before funding Alternative Technologies locations if BEAD resources prove insufficient to deploy universal 100/20 Mbps service. The FTTH facilities deployed in Priority Broadband Projects are a future-proof technology that will be sufficient to meet the growing and evolving broadband data needs of the served locations for the next 20-to-30 years with relatively minimal additional capital investment. In other words, if scalable Priority Broadband Project locations are fully funded and deployed, they can provide reliable, evolving and affordable broadband service for decades with continuing support for above-average rural operating and maintenance costs but without the need for further major construction grant programs like BEAD. On the other hand, if BEAD funding for FTTH projects is significantly reduced – for example by increasing the matching requirement well above the current 25 percent level – in order to fund more Reliable Broadband Service Projects and/or more Alternative Technologies locations, potentially interested entities may decide not to apply for Priority Broadband Project grants. The result would likely be reduction in the number of superior quality and scalable networks that will be able to meet evolving customer demands with minimal additional capital funding during the foreseeable future.

In stark contrast, ULFW and LEO alternatives, plus Reliable Broadband Service Projects, have service shortcomings and less evident costs that render them far less effective as long-term solutions. For example, the history of broadband deployment shows a rapid and constant increase in consumer broadband usage and demand from Kilobit to Megabit to Gigabit per second speeds. In fact, there is substantial evidence that the 100/20 Mbps service targeted by the BEAD Program is already being surpassed by demands for Gigabit and symmetrical services by many customers in many areas. Whereas scalable FTTH services can be readily upgraded to higher speeds by a modest incremental investment in the electronics at the ends of circuits, most non-FTTH networks require substantial new construction, reconfiguration and/or additional new equipment in order to meet customer demands for higher and higher broadband speeds. In other words, whereas Priority Broadband Projects are not likely to require major future capital expenditures to keep up with consumer broadband service demands during the next 20-to-30 years, other technologies are likely to continue to require substantial post-BEAD capital expenditures to upgrade their broadband networks and services as consumer usage and demands continue to increase.

Unlicensed Fixed Wireless Issues

All fixed wireless technologies are prone to incentives that encourage some service providers to overstate their actual broadband speeds and coverage areas. Theoretical service contours cannot accurately predict whether specific locations therein can actually receive reliable and continuous fixed wireless service at the required 100/20 Mbps broadband speeds. Rather, factors such as terrain obstructions, line-of-sight issues and foliage can preclude or adversely impact the actual service available at specific locations within a service contour. Many fixed wireless service providers claim coverage within their theoretical service contour but do not actually know whether they can provide 100/20 Mbps or other service at specific locations therein unless and until they send a technician to install service there. Other fixed wireless providers appear to claim much higher broadband speeds than they actually advertise and furnish to their customers. One WTA member reports a situation where a fixed wireless provider reported to the Fabric that it was providing 100/100 Mbps service throughout much of the member's service area when the member knew that was not the case and the provider's website indicated that 40 Mbps was the maximum speed it could offer. It is very difficult and expensive for WTA members to challenge questionable fixed wireless service claims because they have to send technical personnel and monitoring equipment to large numbers of potential locations. WTA believes that requiring certifications of fixed wireless service and speeds by professional engineers would help to resolve many potential coverage disputes, but such certification requirements have not been widely implemented.

In addition, congestion can adversely impact the broadband speeds actually available to fixed wireless customers. Whereas a fixed wireless provider may be able to provide 100/20 Mbps service to a single customer location situated relatively close to one of its transmitting locations, its available broadband speed may decrease as more and more customers try to use its transmitting and receiving facilities at the same time. WTA notes that requiring fixed wireless service providers to furnish minimum capacities or monthly usage allowances does not address congestion issues because such capacities and usage allowances may be utilized at different times. The most effective way to study and measure potential adverse impacts of congestion on actual broadband speeds is to require speed performance testing during typical busy hours.

ULFW adds substantial additional problems and uncertainties to the fixed wireless alternative. ULFW lacks the protection of an FCC radio license: (a) to keep out other entities that may want to use the ULFW provider's frequencies in the same area for similar or other purposes; and (b) to safeguard the ULFW provider's operations from harmful interference from the operations of other entities using co-channel or adjacent channel frequencies in the same area or in adjacent areas. ULFW operations depend upon voluntary agreements and arrangements with other entities which may or may not be entered into and/or enforced.

ULFW projects have the advantage of easy and inexpensive entry but also the countervailing disadvantage of easy and inexpensive exit. If it has been able to lease tower space and purchase middle mile service without constructing its own towers and/or fiber/microwave connections, a ULFW provider that has not attained its desired market share or profits can readily remove or abandon its unlicensed transmitting equipment, terminate its ULFW service, and move on to other business opportunities or markets. Even if NTIA or the affected state can use a letter of credit to claw back some or all of its BEAD grant funds, the fact remains that customers within the abandoned ULFW service area will not have access to the broadband service they need.

Finally, if the predominant use of ULFW is expected to be in locations where distance, terrain or other conditions meet a national or state Extremely High Cost Per Location Threshold ("EHCPLT"), it makes little economic sense to fund ULFW locations as independent, stand-alone operations. Isolated single or small clusters of ULFW locations are unlikely to enjoy economies of scale or any other characteristics that would enable them to generate a reasonable profit or return on investment. In addition, it would not appear practicable for the states, or feasible for providers, to require stand-alone broadband providers serving EHCPLT areas to offer low-cost service options

to low-income customers. Rather, the only ULFW alternative that makes business sense is to use ULFW facilities in conjunction with Priority Broadband Projects and Reliable Broadband Service Projects. Specifically, in order to allow BEAD projects to reach as many unserved and underserved locations as possible, Priority Broadband Project and Reliable Broadband Service Project grantees should be permitted and encouraged to use limited numbers of funded ULFW facilities to achieve 100 percent deployment by serving remote or otherwise difficult-to-reach locations that cannot be reached economically by their primary FTTH, hybrid fiber-coax and/or DSL facilities.

Low Earth Orbit Satellite Issues

LEO satellite service has congestion problems similar to those of fixed wireless. WTA members are well aware of rural customers who signed up for Starlink service, who were very happy with it during their initial weeks or months of service, but who became less and less satisfied as their service speeds and quality declined with increases in the number of customers using the service.

LEO satellite services are also subject to substantial continuing capital costs in the long term that need to be included in any evaluation. It is WTA's understanding and belief that LEO satellites have a useful life of approximately five (5) or so years. This means that each of the multiple LEO satellites that circle the Earth to provide Alternative Technology service must be replaced four (4) to six (6) times during the expected life of a FTTH network. WTA does not have enough information to estimate the appropriate long-term costs of launching, locating in the proper orbit, testing, synchronizing, monitoring and replacing multiple LEO satellites, but expects that such costs are substantial. These continuing capital costs must be considered in evaluating the economic feasibility of LEO use as an Alternative Technology.

Finally, WTA notes that LEO satellites circle the Earth, including flying over countries that may not be current or future friends of the United States. To what extent does the potential approval of LEO satellites as Alternative Technologies require NTIA to consider the security of such satellites from attack or sabotage by state and non-state enemies of the United States?

Conclusion

WTA urges NTIA to use its remaining BEAD funds to fully fund Priority Broadband Projects and then Reliable Broadband Service Projects before funding Alternative Technologies locations if BEAD resources prove insufficient to deploy universal 100/20 Mbps service. Moreover, those Alternative Technologies locations that are funded should predominately be those remote or otherwise difficult-to-reach locations that cannot be reached economically by Priority Broadband Projects and Reliable Broadband Service Projects and that can be funded as part of such Priority Broadband Projects and Reliable Broadband Service Projects in order to enable them to achieve service deployment to 100 percent of their eligible locations.

Respectfully submitted,
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