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

In the Matter of	)
	)
Connect America Fund: A National Broadband Plan for Our Future High-Cost Universal Service Support	) WC Docket No. 10-90
	)
	)
ETC Annual Reports and Certifications	) WC Docket No. 14-58
	)
Telecommunications Carriers Eligible to Receive Universal Service Support	) WC Docket No. 09-197
	)
	)
Connect America Fund – Alaska Plan	) WC Docket No. 16-271
	)
Expanding Broadband Service Through the ACAM Program	) RM-11868
	)

COMMENTS
OF
WTA – ADVOCATES FOR RURAL BROADBAND
REGARDING
NOTICE OF INQUIRY

WTA – ADVOCATES FOR RURAL BROADBAND

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Summary

As the current Commission high-cost Universal Service Fund ("USF") mechanisms and federal-state broadband grant programs increase 100/20 Mbps broadband deployment, the Commission should supplement the existing Section 254 statutory mandates and principles to include a "full service network" definition that will efficiently and effectively determine and distribute the future USF support required to sustain the deployed networks in the long term.

WTA believes that scalability constitutes the critical element of such "full service networks" and the resulting future USF support. In particular, scalable Fiber-to-the-Home ("FTTH") broadband networks in high-cost rural areas can be sustained in the long term with operating expense support and some additional capital investment, and can do so successfully and economically in the face of virtually certain customer demands for higher speeds and greater reliability.

In addition to sufficient support to sustain "full service networks," WTA believes that USF programs should include additional mechanisms for: (1) the completion of the construction and deployment of broadband networks in remaining unserved and underserved areas; and (2) the repair and recovery of broadband networks destroyed or severely damaged by natural disasters.

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COMMENTS
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WTA – ADVOCATES FOR RURAL BROADBAND
REGARDING
NOTICE OF INQUIRY

WTA – Advocates for Rural Broadband ("WTA") submits its comments with respect to the Notice of Inquiry (*"NOI"*) portion of the Commission's Report and Order, Notice of Proposed Rulemaking, and Notice of Inquiry (*Connect America Fund et al.*), WC Docket Nos. 10-90, 14-58, 09-197 and 16-271 and RM-11868, FCC 23-60, released July 24, 2023 ("*Order/NPRM/NOI"*).

WTA is a national trade association that represents more than 370 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.

The basic statutory mandates and principles for Universal Service Fund ("USF") support mechanisms for high-cost rural areas require that they be explicit, predictable and sufficient so as

to give consumers in such areas access to telecommunications and information services that are reasonably comparable to the services provided in urban areas and that are available at rates that are reasonably comparable to the rates charged for similar services in urban areas. 47 U.S.C. §§254(b)(2), (b)(5) and (e).

As the Commission looks ahead to the time when its high-cost USF support mechanisms and various federal and state broadband grant programs have substantially increased the portion of Rural America that has access to 100/20 Mbps or better broadband speeds, these fundamental Section 254 requirements and principles will remain in full force. At the same time, the Commission's mission will be transformed significantly by increased focus upon the sustainability and upgrade of the deployed 100/20 Mbps or better broadband networks as broadband services continue to evolve and demands for higher broadband speeds increase. In addition, the Commission will continue to need to provide support for broadband deployment in high-cost areas that remain unserved and underserved, as well as support for the repair and recovery of broadband networks damaged by natural disasters.

WTA urges the Commission to emphasize scalability as it defines the "full service networks" that will be at the core of its sustainability efforts. Whereas some capital investment will continue to be necessary, scalable broadband networks in high-cost rural areas can be sustained technically and economically in the long term largely with operating expense support even as they successfully meet evolving customer demands for higher speeds and greater reliability. In addition to providing sufficient support to sustain the reasonably comparable service and rates of "full service networks," WTA believes that future rural USF programs should also include mechanisms for: (1) the construction and deployment of broadband networks in remaining

unserved and underserved areas; and (2) the repair and recovery of broadband networks destroyed or severely damaged by natural disasters.

I. Definition of "Full Service Network"

WTA believes that "full service networks" should be defined to maximize the efficiency and effectiveness of sustainable USF support by emphasizing and preferring scalability. In most rural areas, scalable broadband networks will be able to meet evolving customer needs for higher broadband speeds and greater reliability with relatively limited additional capital investment so that USF support in the long term can focus largely on above-average operating costs. In areas with unique service challenges where scalability may not be achievable at this time, a "full service network" can be defined alternatively as one that employs the technology that is best suited in the long term to an area's demographics, topography and customer characteristics.

Scalability is by far the most important feature of a sustainable "full service network" because the broadband speeds needed and demanded by customers are certain to continue to increase at a significant pace during the foreseeable future. Supported broadband speeds have increased rapidly during recent years from 4/1 Mbps to 10/1 Mbps to 25/3 Mbps to 100/20 Mbps. No informed observer expects the rapid upward trend in broadband speeds to slow or plateau at the 100/20 Mbps level, and in fact some service providers are already offering Gigabit or Multi-Gigabit download speeds as well as faster and (in increasing cases) symmetrical upload speeds. New applications, enhanced distance medicine and education services, increased Internet of Things ("IoT") monitoring, Artificial Intelligence ("AI") advances and a host of other imagined and not-yet-imagined uses will keep broadband speed demands increasing significantly for the foreseeable future.

What broadband technology is the most scalable? The clear answer now and in the foreseeable future is fiber-to-the-home ("FTTH") technology. Once FTTH is deployed throughout a network, the broadband speed provided to each FTTH customer can be increased and/or made symmetrical readily, rapidly and at much reduced incremental cost by changing the electronics at both ends of the customer's line. Some speed upgrades require capital investments in new electronic equipment at the customer's location and a truck roll to install it; others can be implemented by remote adjustment of the customer's existing electronic device. The critical factor is that the basic fiber optic trunk, branch line and drop configuration of a FTTH broadband distribution network does not require modification, reconstruction or other significant upgrade in order to provide increased speeds as broadband service demands evolve. Rather, scalability means that the incremental capital and installation expenses of the electronic equipment needed to increase the broadband speeds offered on a deployed FTTH network are relatively limited, and comprise only a small fraction of the capital costs of constructing the initial network, much less a wholly new wireline network or a new or reconfigured wireless network. For example, one WTA member that has deployed a substantial amount of FTTH facilities throughout its network reports that approximately 95 percent of its FTTH construction costs were for the basic fiber optic facilities and only approximately 5 percent for the electronics.

The importance and long-term advantages of scalability require the Commission to take another look at its principle of "technological neutrality" and to update it to include consideration of long-term differences in the advantages and disadvantages of various technologies. Specifically, it is not good public policy to interpret "technological neutrality" to require a non-scalable or less scalable technology to be treated "equally" vis-à-vis a readily scalable technology for USF support or other purposes if there are significant future upgrade, construction, reconfiguration, speed,

capacity and/or congestion differences. Rather, the public interest and USF stewardship focus should be on determining what technology can meet the evolving broadband needs of a particular area most effectively, efficiently and economically in the long-term.

For example, most WTA members and other RLECs have deployed or will need to deploy FTTH networks in order to offer and provide the currently targeted 100/20 Mbps level of supported broadband service to their rural customers. Once their initial FTTH networks are completed, they can economically and efficiently be upgraded to increase download speeds well above 100 Mbps to Gigabit levels and to increase upload speeds to higher and symmetrical levels. Therefore, unless and until fixed wireless technology becomes equally scalable, it makes no policy sense to deny or reduce USF support to a FTTH network because an alleged "competitive" fixed wireless carrier can currently provide 100/20 Mbps service to some locations in a FTTH service area. The key questions are whether a fixed wireless "competitor" can provide the Gigabit and symmetrical speeds that will be required in the foreseeable future; and, if so, whether it can do so without major capital investments in the reconfiguration, augmentation and upgrade of its existing basic distribution network.

While scalability is the predominant FTTH feature and value, WTA notes that FTTH technology is also very reliable and high quality. FTTH networks can handle large amounts and substantial surges of traffic without experiencing major congestion delays and quality degradation. FTTH networks are also not susceptible to service quality reductions or losses due to atmospheric, foliage and line-of-sight problems. Finally, buried fiber is much better able to withstand hurricanes, tornadoes, and snow and ice storms than aerial fiber, wireless towers and other above-ground technologies.

WTA is not advocating that any particular existing or future technology should be prohibited or excluded from seeking customers in any particular area. In fact, in some areas, fixed wireless and satellite services may qualify for high-cost support because they are the only technology able to meet the broadband needs of the area's residents. For example, there are some areas where customer locations are so remote or located in such rugged terrain that FTTH service is prohibitively expensive and fixed wireless or satellite technology is the only reasonably affordable alternative. In other areas, significant numbers of customers may reside in mobile homes and move locations regularly, with the result that fixed wireless and satellite technologies make more economic sense than FTTH drops that can become stranded investment.

Rather, WTA urges that the "technological neutrality" principle should not be interpreted to assert that "all technologies are equal" and used to deny support to technologies that have substantial scalability and other material advantages in the long term. The critical fact is that technologies are not "equal," but rather have different advantages and disadvantages in providing reasonably comparable broadband services to specific rural areas. Some technologies are complementary with each other in an area both in the long run and the short run – for example, FTTH service combined with Wi-Fi service that allows mobile smartphones to access the Internet without encountering substantial additional charges or data caps. Other technologies are competitive with each other to varying degrees in the short run, but are not likely to remain competitive in the long run unless they are scalable.

Hence, the critical element of the definition of a "full service network" is that it should be scalable so that it can be sustained in the long term with USF support largely for above-average operating costs as customer needs for higher broadband speeds and greater reliability evolve. In those limited instances where distance, topography and other factors render FTTH and any future

scalable technologies prohibitively expensive, a "full service network" can be defined, in the alternative, as one that employs the technology that is best suited in the long term to an area's demographics, topography and customer characteristics. However, in the great majority of rural service areas, FTTH is the technology not only that is scalable but also that is best suited in the long term to an area's demographics, topography and customer characteristics.

II. Future Support Methodology

Whereas the focus of this *NOI* phase of the proceeding is on support for "full service networks" after they are initially constructed and deployed, the following two other situations will require continuing future high-cost support: (1) completion of the construction and deployment of broadband networks in unserved and underserved areas; and (2) repair and recovery of broadband networks destroyed or severely damaged by earthquakes, hurricanes, tornados, ice storms, floods, fires and similar natural disasters.

A. Support for Broadband Construction and Deployment in Remaining Unserved and Underserved Areas

Significant strides are being made or expected to be made in the deployment of 100/20 Mbps and higher broadband speeds by the Commission's Enhanced Alternative Connect America Cost Model ("Enhanced ACAM") program; the Rural Utilities Service ("RUS") ReConnect programs; the National Telecommunications and Information Administration's ("NTIA's") Broadband Equity, Access, and Deployment ("BEAD") Program and other federal and state broadband deployment programs. However, when all of these programs complete the distribution of their broadband deployment funding, it is likely that there will still be some areas that remain unserved or underserved.

It is not possible to determine the identity and number of these remaining areas at this time. However, it is reasonably likely that a substantial portion of such areas will be remote, rugged, sparsely populated and very high-cost areas that have not previously been attractive to recipients of model-based support or bidders in reverse auctions. Hence, unless Congress appropriates more money for grant programs to deploy broadband in the remaining unserved and underserved areas, the responsibility will fall to the Commission to provide sufficient capital investment support and continuing operating expense support to induce providers to deploy broadband in those remaining unserved and underserved areas that are otherwise unlikely to present an attractive business case to potential service providers.

WTA believes that a cost-based mechanism like CAF-BLS is the most flexible and effective mechanism that the Commission could use to bring high-speed broadband to these last and likely least attractive service areas. Most of these areas are likely to be very high-cost and low-density outliers that fall far outside the support parameters of model-based mechanisms. Likewise, the high costs and low profit potentials of these areas are unlikely to attract reverse auction bidders or, if they do, are susceptible to imprudent "winning bidders" that ultimately default or seek waivers when they subsequently realize that they underestimated the support they needed to provide their promised broadband service.

B. Support for Repair and Recovery of Damage from Natural Disasters

WTA recommends that the Commission design and implement a specific USF program or mechanism to provide the funding necessary to repair broadband networks and restore services when such networks are destroyed or severely damaged by earthquakes, hurricanes, tornados, ice storms, floods, fires and similar natural disasters. This program would recognize that there will be

some instances where a constructed and deployed "full service network" or other broadband network will need to be partially or fully rebuilt due to damage from natural disasters that are no fault of the service provider or its customers. In fact, prompt and sufficiently funded reconstruction of broadband facilities and restoration of broadband services are likely to be critical to the recovery of a disaster area and its residents.

WTA understands that the proposed program could duplicate some of the assistance traditionally provided by private insurance companies and by federal and state emergency relief programs. However, it is an unfortunate fact of life that insurance policy coverage for damage from certain natural disasters becomes unavailable or extremely expensive when such disasters become relatively frequent or likely in a particular area. Likewise, federal and state disaster relief programs have multiple functions and priorities, and often cannot focus promptly and primarily on broadband network recovery.

A Commission broadband disaster recovery program would have the advantage of being able to directly contact the broadband service providers in an area struck by a natural disaster, and to begin immediately to assess the damage to their networks and the funding necessary to repair facilities and restore service. The Commission program could also determine whether the repairs could be made in a manner that could limit or prevent damage from future occurrences. For example, recovery funds in some areas could be used to bury facilities that were formerly above ground in order to minimize future wind damage and recovery support amounts.

The proposed broadband disaster recovery program should be a separate mechanism and have a separate budget. At the time that the program is established, the fund size, contribution amounts and any budget mechanisms can be established on the basis of recent disaster damage trends and insurance principles.

C. Sustainability Support for "Full Service Networks"

Even after scalable FTTH "full service networks" are constructed and deployed in rural areas, continuing support for above-average per-customer rural operating expenses and some additional capital investment will be necessary to sustain their broadband services and keep their broadband rates at affordable levels. Due to the smaller customer bases, greater distances, lower population densities and rugged terrain, per-customer rural operating expenses and additional capital investments are virtually always going to be substantially greater than those of their urban counterparts. Moreover, rural broadband expenses are much greater than rural voice expenses due to the impacts of middle and second mile costs, and increased cybersecurity expenses.

Outside plant maintenance, and customer installations and service calls are major operating expenses in most rural areas. Line cuts and storm and animal damage can take substantial time to locate and repair when trunk and branch lines extend for 20-to-30 miles or more into rugged terrain and/or sparsely-populated areas. Even customer "drops" are frequently measured more in miles than in feet as farm and ranch buildings are rarely built right along the side of state and county roads. Hence, truck rolls for outside plant maintenance and repairs, and customer installations and trouble calls often require long drives to and from a location and can be limited to 1-to-4 a day per technician.

Middle mile transport is a substantial operating expense that is imposing a growing financial burden upon many RLECs as broadband usage and traffic increase. Whereas some RLECs have access to statewide and regional fiber optic rings, many must obtain middle mile transport from unrelated carriers to at least two different Internet access points in order to ensure that their customers have continuous and reliable broadband service. Many RLECs are facing increasing demands by large Internet backbone carriers that they deliver their broadband traffic to

distant urban hubs such as Chicago and Atlanta at their own expense. Increasingly, RLECs are finding that present and prospective middle mile costs are rendering their broadband services unprofitable. Without relief from these operating expenses, many RLECs will be forced to recover their middle mile costs via customer broadband rate increases that will adversely impact affordability and adoption.

Another substantial rural broadband operating expense is the cost of upgrading, operating and maintaining second mile facilities.[1] These are within the service areas and control of RLECs, but their costs are increasing substantially as broadband usage and traffic volumes grow.

Cybersecurity is yet another substantial and increasing rural broadband operating expense. WTA members recognize the importance of cybersecurity practices and monitoring to their customers and to the national broadband network. However, it is very difficult and expensive for many small RLECs to hire and retain qualified and experienced cybersecurity professionals. It is also expensive to retain cybersecurity consultants, and to pay for their training, monitoring, incident recovery and other services. Cybersecurity monitoring hardware and software, plus cybersecurity publications and training materials, constitute another significant investment and operating expense. Finally, cybersecurity insurance premiums are increasing significantly, while the cybersecurity insurance policies themselves require the implementation of training, practices and procedures that constitute substantial additional operating expenses.

Whereas the focus of the foregoing operating expenses is on the direct costs of running rural networks and providing actual broadband services, there are also significant indirect operating expenses associated with the management of broadband networks that are substantial on

[1] By "middle mile" facilities, WTA means the lines that connect last mile (i.e., local exchange) networks to the Internet or other high-speed trunks comprising the national broadband network. By "second mile" facilities, WTA means the lines that connect a service providers first points of aggregation (e.g., RLEC exchanges) to a point of connection with a middle mile transport provider.

a per-customer basis in most rural areas. These operating expenses include such matters as personnel and training costs, regulatory reporting and compliance costs, accounting costs, privacy protection costs, customer service costs, and office and vehicle costs.

Some regulatory compliance costs entail both increased capital investment and increased operating costs. For example, Next Generation 911 and STIR/SHAKEN compliance require both investment in new equipment and facilities as well as increased monitoring, operating and training costs. Also, whereas fiber optic facilities have relatively lengthy useful lives (an estimated 20-to-30 years), they ultimately need to be replaced while the some of the associated electronic equipment may need to be replaced at 3-to-5-year intervals.

Hence, even after scalable FTTH "full service networks" are constructed and deployed in rural areas, continuing explicit, predictable and sufficient high-cost USF support for operating expenses and additional capital investment will be necessary to sustain the availability of reasonably comparable broadband services and to keep rural broadband rates at reasonably comparable and affordable levels.

III. Conclusion

As the current Commission high-cost USF mechanisms and federal-state broadband grant programs result in increased 100/20 Mbps broadband deployment, the Commission's existing sufficiency, reasonable comparability and other statutory mandates can and should be supplemented by a "full service network" definition that looks to efficiently, effectively and economically determine and distribute the future USF support necessary to achieve sustainable networks and evolving services and speeds. WTA believes that scalability constitutes the critical element of such "full service networks" and the resulting future USF support. FTTH and any other

scalable broadband networks in high-cost rural areas can be sustained in the long term with operating expense support and some additional capital investment, and can do so successfully and economically as broadband demands and services evolve. In addition to sufficient support to sustain "full service networks," WTA believes that USF programs should include additional mechanisms for: (1) the completion of the construction and deployment of broadband networks in unserved and underserved areas; and (2) the repair and recovery of broadband networks destroyed or severely damaged by natural disasters.

Respectfully submitted,
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