

**U.S. Department of Commerce
National Telecommunications and Information Administration
Broadband Equity, Access, and Deployment (BEAD) Program:
Alternative Broadband Technology Policy Notice (v 1.0)**

**COMMENTS OF
ACA CONNECTS—AMERICA’S COMMUNICATIONS ASSOCIATION AND NTCA—
THE RURAL BROADBAND ASSOCIATION ON
PROPOSED BEAD ALTERNATIVE BROADBAND TECHNOLOGY GUIDANCE**

ACA Connects—America’s Communications Association (“ACA Connects”) and NTCA—The Rural Broadband Association (“NTCA”) herein provide comments on the Proposed Alternative Broadband Technology Policy (“AT Policy”) Notice (“Notice”) issued by the National Telecommunications and Information Administration (“NTIA”) on August 26, 2024.¹ At its core, and as a statutory mandate, the Broadband Equity, Access, and Deployment (“BEAD”) program seeks to fund robust, reliable, and affordable broadband infrastructure, and it is within that context that NTIA has drafted its proposed AT Policy and that we respond.²

In brief, various technologies will of course have a place in ensuring “Internet for All,” but NTIA and Eligible Entities should pursue all avenues in prioritizing the deployment of fiber infrastructure to as many locations as possible, before turning to other reliable broadband technologies to eligible locations where necessary and then finally looking to the use of

¹ See NTIA, “Proposed BEAD Alternative Broadband Technology Guidance,” (Aug. 26, 2024) available at <https://www.ntia.gov/sites/default/files/publications/bead-alternative-broadband-technology-policy-notice-for-public-comment-final.pdf>.

² See NTIA, “Policy Notice: BEAD Selecting the Most Robust, Affordable, Scalable Technology”, at 6-8 (June 26, 2024) available at https://broadbandusa.ntia.gov/sites/default/files/2024-06/BEAD_Selecting_Technology_Policy_Notice_0.pdf. (“Selecting Technology Guidance”). In this Notice, NTIA set forth a hierarchy of technologies, which Eligible Entities are to use in awarding support – end-to-end fiber, then other reliable broadband technologies, and then alternative technologies.

alternative (*i.e.*, non-reliable) technologies in very limited circumstances. Where non-reliable technologies are supported, Eligible Entities should first fund those that bring fiber closest to eligible locations, and then, only as a last resort, turn to providers using low-earth orbiting satellite (“LEO”) systems. Otherwise, BEAD runs the risk of repeating the failures of past broadband funding programs that aimed to deliver incrementally better service to as many locations as possible, only to find several years later that better infrastructure was needed after all to keep pace with the demands of American consumers and businesses.

When it comes to the use of LEO systems within BEAD, many questions remain. We are concerned that NTIA’s proposed mechanism for using LEO systems – reserving capacity – would be unworkable and would fail to meet the public interest objectives of the BEAD program. A preferable alternative would be for NTIA to negotiate a master agreement with a LEO provider that an Eligible Entity would then use and that would enable consumers at eligible locations to purchase terminal equipment on a supported basis (using BEAD funds with a provider match) and, on an unsupported basis, broadband service with ten-year performance assurances at reasonable rates, terms, and conditions. That said, given the many complex questions that remain unanswered, we believe the most thoughtful course would instead be for NTIA to issue a separate follow-on notice seeking more focused comment on how subsidizing shared connectivity on LEO systems could work as a practical matter and fit within a statutory construct intended by its terms to promote “infrastructure investment.”

I. INTRODUCTION

The Infrastructure Investment and Jobs Act (“IIJA”) includes unprecedented investments to build out broadband infrastructure and service across the United States. The law could not be clearer that, with the historic level of funding provided, it seeks deployment of projects and technology that will represent lasting success and not require revising in just a few years’ time. Congress directed NTIA, as the expert agency, to require states to “prioritize funding for deployment of broadband infrastructure for priority broadband projects.”³ While the IIJA does not define a “priority broadband project” based on a particular technology, it makes clear that as NTIA develops the parameters for a priority broadband project, the technology must meet certain speed and service quality metrics that can scale over time.⁴ The service must also be “reliable,” meaning the technology must meet performance criteria “other than upload and download speeds,” including “adaptability to changing end-user requirements,” and “length of serviceable life.”⁵

In its Notice of Funding Opportunity (“NOFO”),⁶ NTIA indicated that an eligible deployment project shall provide a location with qualifying broadband service, defined as reliable broadband service of at least 100/20 Mbps speed and up to 100 milliseconds latency (*i.e.*, latency sufficiently low for real-time, interactive applications).⁷ NTIA considered all available

³ Infrastructure Investment and Jobs Act of 2021, Division F, Title I, Section 60102, Public Law 117-58, 135 Stat. 429 (Nov. 15, 2021).

⁴ *Id.* at (a)(2)(I).

⁵ *Id.* at (a)(2)(L).

⁶ NTIA, Notice of Funding Opportunity, Broadband Equity, Access, and Deployment Program (2022) available at <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>.

⁷ *Id.* at 37.

technology and defined reliable broadband service as being provided by the following: fiber-optic, cable modem, hybrid fiber-coaxial, digital subscriber line, terrestrial fixed wireless utilizing licensed or a hybrid of licensed and unlicensed spectrum. However, when selecting awardees among competing eligible deployment proposals, NTIA defined priority broadband projects as those that provide service via end-to-end fiber technology.

NTIA rightly chose end-to-end fiber as the “priority” broadband technology because it can deliver speeds to end user premises that not only consistently meet, but far exceed, the baseline of 100/20 Mbps – speeds necessary to meet the “changing end-user requirements.” Unlike alternative technologies, speeds delivered over end-to-end fiber are unaffected by issues such as the number of customers using the service simultaneously or an end user’s distance from an antenna. In contrast, the speeds delivered to customer locations by non-fiber technologies such as fixed wireless can vary, depending on weather and other environmental conditions, resource capacity limitations, foliage, topography, distance of transmission lines, and other location-specific conditions. As the agency concluded:

A project that will rely entirely on fiber-optic technology to each end-user premises will ensure that the network built by the project can easily scale speeds over time to meet the evolving connectivity needs of households and businesses and support the deployment of 5G, successor wireless technologies, and other advanced services.⁸

It is not a technological bias to create a preference for a proven, more capable, and widely deployed and adopted transmission method. Good policy is based on evidence, and available technologies have very different and measurable real-world track records. NTIA Chief Alan Davidson reiterated this point to Congress during a June 2022

⁸ *Id.*, n. 9.

Senate Hearing, stating, “We were required by the statute to define what a priority broadband project is, and in such a way that we felt the most logical and consistent way to do that was to talk about fiber.”⁹

While we recognize that Eligible Entities may grapple with how to achieve an “Internet for All” mandate, the IJA’s mandate is clear. Too often in the past, as federal broadband programs have moved from concept to implementation, there has been a tendency to support broadband infrastructure that is “just good enough” to offer an improvement over what is available today, but that will not satisfy consumer demands now or in the future – this, in turn, leads only to more programs to address gaps that other programs failed to close and to duplicative funding. NTIA should learn from the pitfalls and problems with previous federal funding programs, and should ensure that Eligible Entities do not fall into the same trap.

For example, after less than robust participation in the Connect America Fund (“CAF”) I program and succumbing to pressure from certain providers, the Federal Communications Commission (“FCC”) established a speed threshold of 10/1 Mbps for the CAF II model program, rather than establishing a higher service threshold that met the benchmark for “advanced” broadband connectivity in place at the time.¹⁰ Thereafter, a large number of the largest winners in the CAF II auction planned to use fixed wireless

⁹ “NTIA Chief Defends Broadband Rules in Senate Hearing,” LightReading (June 10, 2022) available at <https://www.lightreading.com/optical-networking/ntia-chief-defends-broadband-rules-in-senate-hearing>.

¹⁰ See, *Connect America Fund, et. al.*, WC Docket No 10-90, *et. al.*, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration and Further Notice of Proposed Rulemaking, FCC 14-54 (rel. June 10, 2014).

technology to build out service in rural areas. At the end of the extended construction period, 93% of locations received the minimum service of only 10/1 Mbps, most not even receiving this until 2019 or later. FCC data show that hundreds of thousands of CAF II funded locations still have no reliable internet infrastructure.¹¹ Given the lackluster level of service delivered via this program, many of the CAF II funded areas were then targeted with more federal money for broadband deployment. In 2020, the FCC put areas with broadband speeds below 25/3 Mbps, including those served by CAF II recipients, up for a reverse auction process.¹² The \$20 Billion Rural Digital Opportunity Fund (“RDOF”) program had speed and latency requirements consistent with the definition of broadband, and most RDOF winning bidders committed to deploy fiber-optic cable. However, satellite providers received nearly \$2.5 billion in support, and the FCC wound up clawing back more than two-thirds of that award and in doing so noting that higher capacity and more affordable (for users) fiber deployments should take funding priority.¹³ Put plainly, funding incremental builds over and over again has a terrible track record – wasting time and money alike. NTIA and Eligible Entities should learn from those expensive and avoidable broadband funding missteps, rather than repeat them.

¹¹ A study released in May 2024 found discrepancies comparing ISP-reported information with ISP-advertised broadband plan details and found a serviceability rate of only 55.45%, indicating that a significant number of addresses certified as served are still unserved and a significant fraction of served addresses receive download speeds that are non-compliant with the FCC’s 10 Mbps threshold for CAF-served addresses. Manda, Haarika, *et. al.*, *The Efficacy of the Connect America Fund in Addressing US Internet Access Inequities*, (July 2024) available at <https://arxiv.org/pdf/2405.18657>.

¹² *Rural Digital Opportunity Fund*, WC Docket No. 19-126, *Connect America Fund*, WC Docket NO. 10-90, Report and Order, FCC 20-5 (rel. Feb. 7, 2020).

¹³ *See, e.g., Application for Review of Starlink Services, LLC*, File No. 0009395128, Order on Review, FCC 23-105 (rel. Dec. 12, 2023).

II. THE IIJA AND THE NOFO PROPERLY VIEWED ALTERNATIVE TECHNOLOGIES AS MEANS OF REACHING ISOLATED LOCATIONS WHERE MORE SCALABLE BROADBAND MAY BE COST-PROHIBITIVE, AND THEIR USE SHOULD BE SCRUTINIZED TO ENSURE THEY WILL INDEED SATISFY THE STANDARDS AND ULTIMATE OBJECTIVES OF THE BEAD PROGRAM.

NTIA's alternative technologies guidance to Eligible Entities in connection with their use and distribution of BEAD funds should neither be seen nor taken as an excuse to water down the strong priority for scalable networks established by the IIJA and articulated further in the NOFO. The narrow role of alternative technologies is to fill gaps where it is too costly or impractical to deploy scalable networks, not to provide "an easy button" for reaching entire swaths of rural America. The latter approach would be shortsighted because the service that these alternative technologies provide is likely in just a few years' time to fall short of meeting evolving consumer expectations and increasing demands on the capacity of broadband networks. It is also unclear how procuring connectivity on a network where capacity is not dedicated to eligible locations (or even just to Eligible Entity jurisdictions or domestic customers) – and where such capacity may already be in place, rather than in need of deployment – fits within the statutory construct of the IIJA.

In considering allowable use cases for alternative technologies within BEAD, it is essential for NTIA and Eligible Entities to consider their inherent limitations. To ensure that the BEAD program has a lasting impact on un/underserved consumers' access to broadband, NTIA should require Eligible Entities to consider where a location(s) can only be reached efficiently (as measured over the economic life of the network that NTIA ultimately is paying for) via such technologies, and to take an objective view of these technologies' ability to provide reliable broadband service rather than viewing them as a panacea for a widespread lack of broadband

availability. Unfortunately, without targeted modifications to the AT Policy along the lines of those recommended in Section III hereof, the guidance as currently drafted could result in the priority that is at the heart of the BEAD program being swallowed up by the ostensible exception intended to address only the hardest-to-reach areas.

As an objective technical matter, NTIA was correct in excluding broadband services delivered via unlicensed spectrum or via LEOs from the definition of “reliable broadband service.” With respect to broadband services delivered via unlicensed spectrum, factors beyond even the most capable provider’s control can render connections unreliable for consumers. As a 2023 white paper commissioned by NTCA found, “much of the unlicensed spectrum available to fixed wireless operators is in the high-band, which lacks propagation characteristics that can overcome the distances needed in rural areas, cannot penetrate buildings or trees, and is susceptible to weather interference.”¹⁴ The same is true for much of the mid-band spectrum available for unlicensed service.¹⁵ In addition to these inherent and immutable limitations with respect to utilizing unlicensed spectrum, operators choosing this technology share these bands with other providers – the interference from other operations in the same band that can degrade the quality or even availability of service to consumers connected via this spectrum all but eliminates any attempt to characterize service offered to consumers as “reliable.”

¹⁴ Letter from NTCA–The Rural Broadband Association to The Honorable Alan Davidson Assistant Secretary of Commerce National Telecommunications and Information Administration, June 27, 2023, p. 2. (attaching the White Paper entitled “Unlicensed Wireless Networks Should Not be Considered Reliable for Purposes of BEAD Funding,” Vantage Point Solutions, Inc.) (“NTCA White Paper”), available at: <https://www.ntca.org/ruraliscool/newsroom/filings/ex-parte/ntca-responds-wispa-white-paper-and-urges-ntia-hold-firm>.

¹⁵ *Id.*

Service offered via LEO technology is constrained by similar, inherent limitations. For instance, the spectrum available to these services is limited, and thus the ability to add capacity to serve additional consumers is limited as well. As a Fiber Broadband Association White Paper (“FBA White Paper”) found, “U.S. subscribers using Space X’s Starlink LEOS broadband service experienced median download speeds between 40 and 93 Mbps in the first quarter of 2021, according to tests conducted using Ookla’s speed test technology.”¹⁶ As that paper went on to note, when analyzing Starlink’s plans for the FCC’s RDOF program, a “detailed analysis by Cartesian of the SpaceX RDOF proposal revealed that if SpaceX commits all of its capacity to only the 642,925 locations in 35 States for which it received a tentative award to serve, 56% - 57% of locations will experience service degradation during peak times and not meet the RDOF public interest requirements.”¹⁷ Moreover, the bandwidth density of LEO services are highly limited and, when compared to fiber-to-the-home, striking. The FBA White Paper determined that while Starlink “claims to provide up to 20 Gb/s (20,000 Mb/s) of capacity to cover 28,000 km², or 56,000 subscribers,” fiber technology “would have 1000 OLT ports each providing 10,000 Gb/s (10,000,000 Mb/s), 500 times higher than provided by LEOS in this example.”¹⁸ Ultimately, the paper concludes that “[e]ven assuming over subscription, and only one stream per household, 1.5 million streams would cover a mere 1% of US households by 2026, while FTTH

¹⁶ *Fiber-to-the-Home vs. Emerging LEOS Broadband Networks Capability Assessment*, Fiber Broadband Association Technology Committee, at 5 (July 2021) available at <https://fiberbroadband.org/resources/page/30/>.

¹⁷ *Id.*

¹⁸ *Id.* at 4.

in 5 years is expected to cover over 60% of US households.”¹⁹ Thus, LEOs are no more than a very small piece of the overall broadband connectivity puzzle.

Even worse, each of these technologies has long-term sustainability considerations, making investment in these technologies unreliable in the long-term and thus appropriate only as a matter of last resort. Any fixed wireless system will require reinvestment within years of deployment to keep up with consumer demand.²⁰ LEO platforms will require similar reinvestment cycles.²¹ Fiber networks present a stark contrast – fiber technology can support both existing and future applications for many decades without infrastructure changes and with far less additional investment as compared to alternative technology platforms.²² Consistent with the unmistakable priority articulated by the IIJA, the BEAD program should aim high and specifically for what fiber can deliver in this regard, ensuring that progress toward closing the digital divide is more than transitory. Investment in platforms that require reinvestment in the short-term runs counter to the clear expectations set by Congress and runs the risk that, absent sustainability funding emerging from some other source, BEAD funded connections will be of little value to consumers in the very near term.

This again highlights the need for NTIA to adopt an AT Policy that directs Eligible Entities to scrutinize the use of unlicensed fixed wireless and LEO-based service at a granular,

¹⁹ *Id.*

²⁰ See e.g., NTCA White Paper at 16.

²¹ See e.g., *Starlink satellites: Facts, tracking and impact on astronomy*, Space.com (Aug. 29, 2024) available at: <https://www.space.com/spacex-starlink-satellites.html>.

²² See e.g., Fiber Broadband Association Technology Committee, “Fiber Broadband Scalability and Longevity,” (Feb. 2024) available at https://fiberbroadband.org/wp-content/uploads/2024/02/FBA-0018E_ScalabilityLongevity_WhitePaper_1v2.pdf.

localized level to make sure they will in fact perform as promised if hundreds of millions or even billions of dollars might be invested in them. For instance, as discussed below, the proposed guidance enabling Eligible Entities to “reserve capacity” on LEO networks is flawed. And, above all, NTIA must avoid making missteps in adopting an AT Policy that could turn what was meant to be a narrow exception to the fiber priority into the general rule instead, representing a too-easy fallback should an Eligible Entity with large project area sizes fail to attract proposals for fiber-based projects. Indeed, this risk cannot be ignored or overstated. Where Eligible Entities establish overly large project areas, even as the vast majority of locations within those might be readily connected with fiber if the focus were on them alone, to the extent that these locations are tethered to the most outlying locations that are in fact very difficult to serve, this runs a substantial risk of having the entire area – all of these locations – falsely identified as too expensive to serve and resigned to service by an alternative technology as a result.²³

III. RECOMMENDED REQUIREMENTS TO ADDRESS USE OF ALTERNATIVE BROADBAND TECHNOLOGIES

In providing recommendations on the Notice, NTCA and ACA Connects appreciate that it “elaborates on, but does not replace” the robust network technology requirements in the NOFO. Further, the Notice builds upon NTIA’s recently issued Selecting Technology Notice, which provides “comprehensive guidance on obtaining applications during subgrantee selection” and highlights the “clear hierarchy for awarding unserved and underserved projects.”²⁴ NTCA and

²³ “BEAD Program: Defining Project Boundaries,” ACA Connects White Paper (Aug. 29, 2024) available at <https://acaconnects.org/press-releases/aca-connects-urges-tailoring-of-bead-project-areas-to-maximize-fiber-deployment/>.

²⁴ “Understanding the Policy Notice: Selecting Technology, Broadband Equity, Access, and Deployment (BEAD) Program,” (July 2024) available at https://broadbandusa.ntia.gov/technical-assistance/Understanding_the_Policy_Notice_Selecting_Technology. (“Selecting

ACA Connects largely support the guidance in the Selecting Technology Notice, including its recommendation that an Eligible Entity that does not receive a proposal to serve one or more eligible locations consider subdividing project areas, engaging directly with providers, and leveraging additional resources to increase the odds of bringing fiber or other reliable broadband technology to such locations.²⁵ We are concerned, however, by the Selecting Technology Notice’s direction encouraging Eligible Entities to “bundle” very high-cost locations into project areas,²⁶ which would tend to narrow rather than broaden the pool of applicants and thereby reduce competition for funds and the overall efficiency of the program.²⁷ We urge NTIA to reconsider that aspect of its prior guidance and to build on other aspects, as we outline below. Our recommendations seek to best ensure that eligible locations first receive broadband service via fiber technology, then other reliable technology, and then as a last resort non-reliable technology consistent with the aim of providing broadband connectivity to all unserved and (where feasible) underserved locations.

In addition, in awarding funds to providers using non-reliable technologies, we urge NTIA and Eligible Entities to proceed deliberately. Not only is the process for awarding funds to such providers novel, but it is fraught with many challenges. First, Eligible Entities need to determine whether “non-reliable” providers already serve or have commitments to “serve” an eligible location, in which case they should not award BEAD program funding. This will require

Technology Notice”). The “clear hierarchy” is first end-to-end fiber projects then projects using reliable broadband services and finally projects using alternative technologies.

²⁵ Selecting Technology Guidance at 6-7.

²⁶ *Id.* at 5 (“NTIA encourages Entities to explore ways to bundle or aggregate harder-to-serve locations into project areas with more economically desirable locations.”).

²⁷ *Id.* at 4.

considerable due diligence to evaluate coverage and performance. Second, assuming there is no “service,” Eligible Entities will need to evaluate applications from “non-reliable” providers to determine whether they can serve the locations and have the financial, technical, and operational capabilities to do so over the term of the program – and hopefully beyond. Third, Eligible Entities will need to determine the amount and terms and conditions of the award – including a sufficient security interest - which will prove especially difficult in the case of LEOs. Fourth, Eligible Entities will need to ensure they have in place robust systems to monitor performance.

Against this backdrop, we provide recommendations on implementing an AT Policy for NTIA’s consideration:

1. Remove any doubt that the current availability of an “alternative technology” does not make an unserved or underserved location ineligible for funding

The IIJA deems a location “unserved” or “underserved” and thereby eligible for support if it lacks “reliable broadband service” meeting certain requirements. Because alternative technologies are by definition not “reliable,” their presence has no bearing on whether a location is unserved or underserved; in other words, if a location has the ability to receive broadband from an alternative technology but no other source, it remains “unserved” and eligible for support.

We urge NTIA to clarify language in the Notice that could be read to suggest otherwise. In particular, the Notice states that funds are “not necessary” and “will not be allowed” for locations “where Alternative Technology service is already meeting BEAD requirements.” Read strictly, this language conflicts with the IIJA as explained above. More likely, NTIA intended the narrower suggestion that it will not fund providers of alternative technology service to make such service available to locations where a provider of such service already does so. This sensible approach is consistent with IIJA, which does not contemplate use of BEAD funds to deliver a level of broadband service that a location is already capable of receiving. This approach would also advance the BEAD program’s chief aim of maximizing robust, reliable, and affordable connectivity to all locations that do not receive qualifying broadband service from a provider using reliable technologies.

2. Ensure that Eligible Entities maximize opportunities for eligible locations to receive service from providers using fiber and other reliable technologies

Eligible Entities are required to conduct competitive processes to award funds to serve eligible locations and “must seek the highest-priority technology feasible at each location.”²⁸ To give effect to this guidance, NTIA should encourage Eligible Entities to permit applicants maximum geographic flexibility in defining project areas, such as by enabling applicants to select their own service locations or select locations in a census block or in an aggregation of census blocks. Regardless of the approach taken to define project areas, an Eligible Entity should be further encouraged, consistent with the Selecting Technology Notice, to permit providers to submit “back-up” applications to serve subsections of eligible locations within a project area with “priority” or other “reliable” service. The back-up applications would come into play when an Eligible Entity is unable to award funding for a “priority” or “reliable” service project covering an entire project area. Where an Eligible Entity is unable to fund a “priority” or “reliable” provider to serve one or more eligible locations after back-up applications have been exhausted, it should reach out to – and negotiate with – all qualified providers in the relevant areas that use “priority” or “reliable” technologies to determine whether any would be willing to serve any of the remaining eligible locations on a reasonable basis, consistent with the terms of the NOFO.

3. Take reasonable steps, as contemplated in the Notice, to ensure that funds are not awarded for Alternative Technologies at locations already slated to receive service from such technologies

We agree with NTIA’s proposal in the Notice to prohibit Eligible Entities from using BEAD support to bring service leveraging alternative technologies to locations that “are subject to an enforceable commitment, with ongoing network performance monitoring, to provide Alternative Technology service that meets the BEAD performance requirements” or “are already served with Alternative Technologies that meet the BEAD performance requirements.” (These restrictions are further defined in the notice as “Case 1” and “Case 2”, respectively.) These are sensible restrictions that will ensure that BEAD funds are not used wastefully. We urge NTIA to adopt them, along with a restriction on funding alternative technologies at locations where a provider in this category plans to bring service within a reasonable period of time.²⁹

²⁸ *Id.* at 4.

²⁹ This would be analogous to the approach taken with respect to reliable broadband technologies; NTIA’s Challenge Process Policy Guidance provides that “planned service” is an “allowable” basis for challenging the status of a location as “unserved” or “underserved.” See “BEAD Challenge Process Policy Notice at 15, last updated February 2024, available at https://broadbandusa.ntia.doc.gov/sites/default/files/2024-02/BEAD_Challenge_Process_Policy_Notice_v1.3.pdf (“NTIA will permit challenges where a broadband provider offers convincing evidence that they are currently building

We believe that the primary enforcers of these restrictions should be NTIA and the Eligible Entities, rather than alternative technology service providers themselves. While the notice suggests that providers would readily identify locations where they already provide alternative technology-based service to avoid overbuilding, there may be countervailing incentives not to identify such locations so that they remain eligible for support. In any event, an Eligible Entity should conduct its own determination about whether a provider using non-reliable technologies serves or has a commitment to serve an eligible location.

In particular, each Eligible Entity that contemplates awarding support for alternative technologies should conduct a challenge process to ensure it obtains an accurate list of locations eligible for such support. Because Alternative Technologies do not bear on whether a location is “unserved” or “underserved,” Eligible Entities would likely not have included in their original BEAD challenge processes any examination of whether an alternative technology provider actually serves, has committed to serve, or otherwise plans to serve any given location.

NTIA and Eligible Entities should not underestimate the difficulty in determining whether a “non-reliable” provider “serves” or has committed to “serve” an eligible location. The FCC’s Broadband Data Collection experience is telling. In numerous instances, the Commission has had to reverse the “availability” claims of many fixed wireless providers.

Additionally, for LEOs, these challenges in determining service availability are compounded because LEO satellites continuously orbit the earth and are part of a system that shares capacity around the world. Thus, for instance, while Starlink advertises that its service is available throughout the entire U.S., in about a dozen States, it currently appears to deliver service at speeds of less than 100/20 Mbps.³⁰ Moreover, Starlink’s performance can vary when there is significant usage in a limited area. At the same time, Starlink continues to enhance its capabilities by launching additional satellites and otherwise upgrading its system. Because of all of these variables, Eligible Entities should proceed cautiously in assessing LEO availability.

4. Encourage Eligible Entities, when awarding funds for Alternative Technologies, to prioritize applicants that will bring fiber the closest to the funded locations.

While alternative technologies have a limited role to play in BEAD, they are stopgap solutions at best. Accordingly, when resorting to funding these technologies, Eligible Entities should be encouraged to take a “forward-looking” approach that puts locations in the best possible position to receive reliable broadband service – ideally fiber – in the future. Eligible Entities can advance this goal by prioritizing alternative

out broadband to challenged locations without government subsidy or are building out broadband offering performance beyond the program requirements.”).

³⁰ See <https://www.starlink.com/map>.

technology projects that bring fiber as close as possible to the locations being funded.³¹ Only when an Eligible Entity is unable to bring service to a location from a provider that would deliver partial fiber connectivity should it consider other non-reliable providers. As discussed below, in the case of such providers using LEO technology, NTIA should either eschew its proposed “reserved capacity” proposal and seek further comment or adopt our recommended proposal.

5. **NTIA’s “reserve capacity” proposal for supported service from LEOs is flawed. Accordingly, NTIA should seek further comment on the issue. If NTIA does not, it should not adopt the proposed guidance; rather, NTIA should negotiate directly with the LEO provider to obtain a master agreement that would enable an Eligible Entity to use BEAD funds (with a match from the LEO provider) to subsidize the purchase of terminal equipment by consumers at eligible locations and that would permit these consumers to purchase service at rates, terms, and conditions and with a ten-year performance guarantee set in the agreement.**

The primary aim of the BEAD program is to support last-mile broadband deployment to eligible locations. While implementing this objective for providers using terrestrial fixed technologies is relatively straightforward, it is anything but that for LEO providers. In light of the unique characteristics of LEOs, NTIA proposes a novel construct for this technology alone: “[U]se BEAD funds for the reservation of network capacity to meet the capacity requirement.”³² In other words, Eligible Entities would not procure last-mile capabilities from providers using LEO technology by supporting the deployment of infrastructure; rather they would procure a reservation of LEO network capacity over a ten-year term and pay only for the amount of capacity used.³³

While we agree that LEOs require a unique approach, we believe NTIA’s proposed approach is unworkable for multiple reasons:

- First, negotiating and enforcing an agreement to reserve LEO capacity to serve eligible locations would be enormously complex. Customers have long

³¹ In particular, NTIA should require Eligible Entities to comply by conducting a competitive award process, accepting applications from providers using any non-reliable technology and selecting “non-reliable” terrestrial fixed providers are technically, operationally, and financially qualified and agree to comply with all requirements in the NOFO. In addition, for each remaining eligible location, the Eligible Entity should first select “non-reliable” providers that will deploy fiber close to that location – and will prefer those that deploy fiber closest to that location – and that offers the best overall package of matching funds and service performance, capacity, and quality. As set forth in the Notice (at 11), Eligible Entities should ensure the subgrantee makes service available to all eligible locations within a four-year period and continue to offer service through the period of performance.

³² *Id.* at 13.

³³ *Id.*

reserved capacity on geostationary satellites, but reserving long-term capacity on a LEO is a far different matter. As discussed above, LEO systems share capacity dynamically as each of the thousands of satellites orbits the earth approximately every 90 minutes. In theory, one could develop a mathematical framework to ensure service over certain areas, but the eligible locations receiving LEO service would almost certainly be scattered geographically – not in neat project areas as the Notice suggests. Further, as discussed below, any funds an Eligible Entity spends on LEO capacity could almost certainly be used to serve non-eligible locations, including in other States and even in other countries.

- Second, to the best of our knowledge, no entity has reserved LEO capacity under the type of construct that NTIA envisions. At minimum, this would be a novel procurement for NTIA or any Eligible Entity, and given the shared nature of LEO service, it is questionable whether any Eligible Entity would have the ability to negotiate and enforce (audit) a reservation of and payment for such capacity for the many locations that may need to be served.
- Third, it is difficult to see how a procurement of capacity would mesh with the many requirements in the NOFO, which, among other things, requires the provider to match government support, the government to have a security interest in the reserve capacity, and the provider to certify the equipment is compliant with the Build America Buy America statute.
- Fourth, given the global reach of a LEO system, it would be inefficient and impractical to have each Eligible Entity negotiate its own service agreement with a LEO provider.

In sum, the risk that Eligible Entities, both individually and in aggregate, would overpay for LEO capacity or not obtain what is expected is substantial – resulting in the provider making excessive profits and/or subsidizing service to non-eligible locations or even in non-U.S. geographies. As discussed above, LEO systems share infrastructure around the world, and capacity is added not by installing a new drop from nearby fiber, but by reconfiguring the system or launching new satellites. Thus, it is likely that the capacity an Eligible Entity “procures” from a LEO system to serve one or more eligible locations could and would also be used to serve other locations in that State, in neighboring States, and in non-U.S. locations. This may even provide incentives for States to “lay back” and wait for adjoining States to subsidize LEO capacity.

The Notice provides no answers to these difficult questions. In fact, the many questions it asks is telling; the “reserved capacity” proposal needs to be fleshed out much further. We thus urge NTIA to step back, recraft its proposal, and seek additional comment. There is time to assess these questions and get them right, as Eligible Entities only need to reach the question of whether and to what degree alternate technologies may be useful to fill gaps where no applications have been received leveraging reliable technologies.

Should NTIA believe it needs to adopt guidance immediately, we propose it adopt a framework to provide connectivity using LEOs that is more straightforward, easier to

implement and audit, and consistent with the NOFO – and that will facilitate service to the very hardest to serve locations.

- First, NTIA, and not Eligible Entities, would negotiate a master agreement with a LEO provider for the acquisition of terminal equipment by consumers at eligible locations where a LEO provider wins support. Eligible Entities then would use BEAD funds to subsidize the procurement of this equipment, which the LEO provider would then provide (or sell at a discount, if the equipment cost is not fully subsidized) to consumers who take service at the eligible locations. The NOFO requirements would apply to such a procurement.
- Second, as part of the master agreement, NTIA would negotiate a bulk service agreement, which would include monthly service prices, terms, and conditions – and importantly, a service level agreement to guarantee performance over the ten-year period. However, as with other program awards, consumers at eligible locations would pay for the service.

Under this approach, each Eligible Entity would still conduct its own competitive process and make its own decisions regarding project awards. However, Eligible Entities awarding support to a LEO provider would be required (or at least expected) to incorporate the terms of the master agreement into the award rather than negotiate separately with the provider over terms and conditions. NTIA could further clarify that it will look unfavorably on any Final Proposal from an Eligible Entity that includes an award for LEO service that is inconsistent with the terms of the master agreement.

IV. CONCLUSION

The primary purpose of the BEAD program is to connect unserved and underserved locations with scalable, future-proof broadband service that will stand the test of time. Because Alternative Technologies have inherent limitations that make them, by definition, not “reliable,” they should be used sparingly within BEAD and only as a last resort. We urge NTIA to adopt our recommendations for maximizing the number of eligible locations that receive reliable broadband service, especially fiber, and for ensuring that any expenditures on Alternative

Technologies – especially LEOs – are consistent with the public interest objectives of the program. We appreciate the opportunity to comment on the Notice and would welcome the opportunity to answer any questions or discuss our recommendations further.

Respectfully submitted,

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