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BEAMing Into BEAD: LEO Satellite Constellations and Their Role in Closing the Digital Divide

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INTRODUCTION

As modern life becomes increasingly reliant on access to the Internet, closing the digital divide is crucial to addressing economic inequality. The digital divide refers to the gap between those who have access to the Internet and those who do not. Increasingly, that divide severely limits economic opportunities for people in rural areas, resulting in many feeling left behind by today's economy.[1]

Recognizing this, Congress created the Broadband Equity, Access, and Deployment (BEAD) Program as part of the Infrastructure Investment and Jobs Act (IIJA), which was signed into law in late 2021. IIJA authorized over $42 billion to connect all Americans to the internet and promote the adoption of this technology.[2] The Biden Administration acted quickly to establish a notice of funding opportunity, which went out in May 2022.[3]

Unfortunately, due to the extensive bureaucracy and unrelated criteria instituted around the program, not a single American has been connected via the BEAD program for broadband access nearly four years after Congress passed legislation directing the program to be established. For instance, companies participating in the program must meet a host of labor and climate resiliency requirements despite those requirements having no direct benefit to the goal of the program: closing the digital divide. This has opened debate around how to get Americans connected faster.

Congressional Republicans and Commerce Secretary Howard Lutnick have pushed for a variety of reforms for the program. This paper will focus on examining the debate around one key fix: making LEO satellite broadband an option for states to include in their plans without the roadblocks that are currently in place.

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[1] https://ctu.ieee.org/blog/2023/02/27/impact-of-the-digital-divide-economic-social-and-educational-consequences/#:~:text=The%20digital%20divide%20can%20seriously,face%20challenges%20to%20economic%20development.
[2] https://www.congress.gov/bill/117th-congress/house-bill/3684/text
[3] https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

Democrats — along with some Republicans in the Senate — have pushed back on the idea of modifying the BEAD program in light of where states are in the process of finalizing their implementation plans and with concerns that further opening the program to LEO satellite broadband equates to a giveaway to special government employee and SpaceX CEO Elon Musk.

These issues are valid, and any modification to the program needs to be done with an eye towards mitigating any delays resulting from requirement changes, ensuring states retain the flexibility to select the technologies that are the best fits for given areas, and maintaining competition within the nascent LEO satellite broadband market. However, appropriately addressing these items and further inclusion of LEO satellite broadband in the program are not mutually exclusive.

BACKGROUND

Digital Divide

The conversation around the digital divide as it relates to the Internet came about in the 1990s.[4] The Internet had rolled out to the general population earlier in the decade and it was clear that the roll out was occurring unevenly, as well as perpetuating existing economic positions. For example, generally speaking, folks who were richer were able to harness the Internet to become more so while the inverse was also true.

There have been a variety of programs aimed at closing the digital divide in the United States over the years across agencies, ranging from the E-Rate program to the Rural Utilities Service. Each has made some progress towards closing the digital divide, but there are still roughly 24 million Americans who lack broadband access at sufficiently fast levels as of December 2022.[5]

BEAD Program

Congress created the Broadband Equity, Access, and Deployment (BEAD) Program as part of the Infrastructure Investment and Jobs Act (IIJA), which was signed into law in late 2021. IIJA authorized over $42 billion to connect all Americans to the Internet and promote the adoption of this technology. The legislation did not specify what kinds of technology should be encouraged as part of the program, though it did establish a minimum performance standard.[6] The Biden Administration put out a notice of funding opportunity in May 2022.[7]

BEAD has four phases that states need to progress through to unlock funding with 14 substeps within those phases. The phases are:

[4] https://www.britannica.com/topic/digital-divide
[5] https://www.route-fifty.com/digital-government/2024/04/new-fcc-broadband-standard-increases-number-underserved-households-america/395486/
[6] https://www.congress.gov/bill/117th-congress/house-bill/3684/text
[7] https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

1. A letter of intent, which was due in 2022;
2. A five-year action plan that will inform the initial proposal, which states had about nine months to complete after receiving planning funds;
3. An initial plan for funding, which was due about six months after they received notice of how much they would receive in funding; and
4. A final proposal, which was due a year after their initial plan was approved.

At this time, most states are developing their final proposals. Three already have their final proposals approved.[8]

The notice of funding opportunity also laid out requirements participating broadband providers needed to meet. This includes a host of climate resiliency and labor requirements that added complexity and expense to the program without aiding in the primary mission of BEAD.[9] These requirements were not statutorily required.

In August 2024, NTIA released draft guidance for states to follow on the utilization of alternative technologies, including LEO satellite broadband.[10] This marked official notice that LEO satellite broadband providers would be eligible for BEAD funding. Final guidance, which included modifications responsive to public comments from LEO satellite broadband providers, went out in January 2025.[11]

Discussion

While the January 2025 final guidance was responsive to points raised by LEO satellite broadband operators and allowed for more inclusion of the technology than the draft guidance, the final guidance still limited usage of the technology to areas that otherwise were not feasible for fiber. There are mixed opinions on whether that is appropriate. The arguments of both sides are laid out below.

Proponents of prioritizing fiber connections, including former Biden administration official Evan Feinberg, expressed that this is appropriate. From their perspective:

- **LEO satellite broadband is slower than fiber**, which is objectively true at this time.[12] Rural Americans deserve access to the best broadband possible given this once-in-a-lifetime opportunity to get connected is unlikely to repeat any time soon;
- **Changes stand to substantially benefit SpaceX's Elon Musk**, a key figure within the Administration, inappropriately. It is unclear whether he has pushed Commerce

[8] https://www.costquest.com/ntia-bead-program-dashboard/
[9] https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf
[10] https://www.ntia.gov/sites/default/files/publications/bead-alternative-broadband-technology-policy-notice-for-public-comment-final.pdf
[11] https://www.ntia.gov/other-publication/2025/final-bead-alternative-broadband-technology-policy-notice
[12] https://www.holightoptic.com/comparing-optical-fiber-with-satellite-internet-which-is-better/

Secretary Howard Lutnick to open the program for his company's technology, which would be a blatant conflict of interest;
- Changes **could harm the progress states have made to date** by sending states back to earlier phases of the program to rework their proposals. It has taken about three years for states to get to where they are within the program and many of them are close to either submitting their final proposal or having it approved. The nominee to be NTIA director has declined to commit to not sending states back to square one when changes are made to the program; and
- LEO satellite broadband **could be more expensive long-term despite up-front cost savings for the taxpayer** with one state official sharing that internal data shows a 53% higher cost to consumers over 30 years.[13] This concern is likely somewhat addressed by the low-cost plan cost cap all broadband providers participating in the program must commit to.

Proponents of making the program technology neutral remain concerned. From their perspective:

- There is **already a LEO satellite broadband provider that is meeting BEAD program performance standards** for speed.[14] Meeting the performance standard means subscribers can carry out modern activities like video calls. It is unclear what benefit faster broadband would provide for most Americans who don't currently have access, though that may change in the future as technology further advances.
- While Musk's Starlink service is likely to benefit, **there are other providers coming online to serve as competition**, like Amazon Kuiper. As long as care is taken to ensure multiple LEO satellite broadband providers can participate in BEAD, there is no reason Musk's company should get an inappropriately large slice of the pie;
- BEAD requires that participating service **providers adhere to state-set price caps on low-cost plans to ensure affordability**.[15] These caps do not apply to all plans offered as part of the program — and these caps have an expiration date — but they do constitute protections for low-income Americans.
- LEO satellite broadband can be **deployed substantially faster with less public funding**,[16] getting Americans connected — which is the point of the program. They argue that taxpayers should not be on the hook for more expensive broadband infrastructure if options that require less taxpayer investment upfront can meet performance requirements. Speed is also advantageous as the economic, academic, and other benefits of a broadband connection are growing rapidly.

[13] https://www.bloomberg.com/news/articles/2025-03-25/musk-s-broadband-satellites-have-long-term-costs-states-say
[14] https://broadbandbreakfast.com/spacex-in-talks-with-ntia-to-deploy-starlink-for-bead/#:~:text=During%20the%20fireside%20chat%2C%20Shotwell,areas%20that%20are%20densely%20urban.
[15] https://www.cagw.org/thewastewatcher/rate-setting-bead-funds-forcing-states-consider-impact-inflation
[16] https://broadbandbreakfast.com/jessica-dine-so-you-want-bead-to-be-tech-neutral/

Part of the disagreements stems from a lack of clarity on what changes to the program will look like or when they will be released. Even Senate Republicans like Senator Dan Sullivan has raised concerns that his state could be forced to solely rely on SpaceX' Starlink, which is not a good fit for Alaska given the satellites' orbit. States still must retain the ability to allocate funds that are the best fit for their constituents. Other Senators from both parties have noted it would be completely unacceptable to send states back to step one of the BEAD process given how many years they have spent working on their proposals.[17] To date, Trump's nominee to run the agency has declined to commit to allowing states to maintain their funding allocations.[18] Until there is a proposal, stakeholders are stabbing in the dark at problems with potential solutions that may or may not be under discussion, derailing focus on optimizing the program for the benefit of the American people.

CONCLUSION

At the end of the day, the policy conversation around the BEAD program needs to remain focused on its purpose — giving all Americans access to broadband services so they can thrive. LEO satellite broadband needs to be part of that conversation just as much as streamlining extraneous requirements does. That doesn't mean LEO satellite broadband is the best fit for every unserved household, but rather that, at a minimum, the arbitrary cost gate states need to prove a given location exceeds should be removed to provide state officials maximum flexibility in employing the best broadband solutions for their state.

At the end of the day, the best path forward with regard to the BEAD program will require a creative approach that finds an appropriate middle ground to allow states to serve their constituents best without artificial barriers to the utilization of effective technologies — whether those technologies are fiber, LEO satellite broadband, or other technologies — while minimizing disruption to the existing process and promoting competition amongst providers. That means Congress and the Trump Administration need to address BEAD's approach to LEO satellite broadband with a scalpel rather than a DOGE-sized jackhammer.

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[17] https://broadbandbreakfast.com/some-red-states-dont-want-too-much-satellite-for-bead/
[18] https://www.commerce.senate.gov/2025/4/executive-session-8