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Maximizing BEAD's Broadband Reach

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Executive Summary

The National Telecommunications and Information Administration (NTIA) is beginning an epic effort to implement the broadband provisions of the Infrastructure Investment and Jobs Act (IIJA). Congress allocated \$42.45 billion to build rural broadband through the Broadband Equity, Access, and Development (BEAD) Program, and these resources have the potential to provide internet access to most if not all households that do not currently have access.

NTIA states in its Notice of Funding Opportunity (NOFO) that its focus is to provide service to unserved and underserved areas. To better achieve that overriding goal, it can make changes across five broad areas to reduce costs and expand access:

- **Competition:** Maximize competition to provide service
- **Evaluation:** Incorporate standardized metrics, data gathering, evaluation, and feedback
- **Pricing Rules:** Ensure that grant recipients cannot set monopoly prices where they are the first and only provider
- **Administration:** Help states and territories keep administrative costs down
- **Secondary Objectives:** Estimate the cost of secondary objectives and set thresholds above which NTIA believes it is not worth sacrificing resources for broadband buildout

Following these guidelines will increase the impact of public spending on broadband service.

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Introduction

The National Telecommunications and Information Administration (NTIA) is beginning an epic effort to implement the broadband provisions of the Infrastructure Investment and Jobs Act (IIJA). Congress allocated \$42.45 billion to build rural broadband through the Broadband Equity, Access, and Development (BEAD) Program, and these resources have the potential to provide internet access to most if not all households that do not currently have access.

NTIA's Notice of Funding Opportunity (NOFO) states its primary objective early on:

The Program's principal focus will be on deploying broadband service to unserved locations (those without any broadband service at all or with broadband service offering speeds below 25 megabits per second (Mbps) downstream/3 Mbps upstream) and underserved locations (those without broadband service offering speeds of 100 Mbps downstream/20 Mbps upstream). (p. 7)¹

This clear, concise statement should be the lodestar for considering all other components of the NOFO and related rules. Every requirement and additional objective should be weighed against its effect on this objective. That is, it is important to acknowledge that other objectives come with costs, including less broadband deployment. NTIA should estimate the cost of every requirement and objective so that it is possible to make informed decisions about whether the benefits of that condition are worth the cost of less deployment resulting from spending BEAD funds to meet those conditions. Some might pass such a test easily, but others might not.

Congress included many conditions in the IIJA that detract from the primary objective, and NTIA must work within those constraints. Even within the constraints, however, NTIA has wide latitude to enhance or degrade BEAD's ability to maximize its ability to deploy new broadband.

Following a few straightforward principles can help maximize BEAD's ability to meet its primary objective of deploying broadband:

- Maximize competition to provide service
- Incorporate data gathering, evaluation, and feedback
- Ensure that grant recipients cannot set monopoly prices where they are the new, only provider
- Help states and territories keep administrative costs down
- Estimate the costs of secondary objectives and set some threshold above which NTIA believes it is not worth sacrificing resources for broadband buildout

As it stands, BEAD leans away from those activities, likely significantly reducing the amount of money available for broadband, but it needn't.

¹ <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

In this piece, we describe the ways the IIJA law and the NTIA's NOFO impose conditions that drain money from BEAD and make BEAD less effective. We discuss ways to make the best of what we have given timelines and the efforts by the states and NTIA in the months ahead.

Competition

The best way to get the biggest bang for the broadband subsidy buck is to make providers compete for the available funds. Both the IIJA and NOFO implicitly acknowledge this truism by requiring states and territories to award grants competitively. Unfortunately, as it stands, the NOFO reduces potential benefits by limiting approved technologies and, therefore, competition. Eliminating technology mandates would significantly improve the competitive process.

Problem: The NOFO Reduces Possible Competition by Approving Only Particular Technologies, Increasing Costs

The Biden Administration campaigned on and [has pushed](#) competition policy as an integral piece of its economic policy. Competition can provide huge benefits and should be incorporated into the BEAD program. NTIA's NOFO incorporates some degree of competition when it requires a "fair, open, equitable, and competitive selection process" (p. 35) and lists "Minimal BEAD Program Outlay" as its first selection criterion (p. 43). However, restricting the types of entities and technologies eligible for BEAD grants may reduce substantially competition for the grants.

The minimum bandwidth throughput and maximum latency necessary to be fully useful are subject to intense and ongoing debate, as they should be. The IIJA selected certain thresholds for service to be eligible for subsidies. Traditionally, we accept a technology-neutral approach: set the criteria and let any technology that can provide it compete. But NTIA banned unlicensed-only technologies and satellite by explicitly excluding them from the category of "reliable broadband."

NTIA provided no justification for this decision, let alone even the most rudimentary cost-benefit analysis. The result is to exclude many wireless ISPs (WISPs) that may be able to provide high-speed service, and all satellite technologies, including low-earth orbit satellite which offer much lower latency than geostationary satellite. Every excluded potential entrant may drive up the cost to BEAD in the competitive bidding process, especially in higher wireline cost areas.

Similarly, NTIA declared that only fiber can be used for "Priority Broadband Projects." NTIA states that

"Priority Broadband Projects" are those that use end-to-end fiber-optic architecture. Only end-to-end fiber 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." End-to-end fiber networks can be updated by replacing equipment attached to the ends of the fiber-optic facilities, allowing for quick and relatively inexpensive network scaling as compared to other technologies. (p. 42)

Again, NTIA provides no explanation for these conclusions. The right technology to use is the one with the largest expected net present value of benefits. NTIA does not appear to have estimated the net present value of the costs of different technologies, let alone net benefits. What does “quick and relatively inexpensive” mean? Did NTIA do cost modeling here? If so, over what time period and using what discount rate? Excluding, for example, 5G wireless, seems paradoxical since one of NTIA’s justifications for promoting fiber is to support the deployment of 5G. If 5G providers can provide service without end-to-end fiber, then NTIA’s rationale loses its appeal.

These apparently arbitrary decisions will drive up costs by excluding potential entrants.

Solution: Set Performance, not Technology, Requirements

The goal of the BEAD program should be to connect unconnected locations to broadband, regardless of the technology. It makes sense to value higher quality broadband (higher speed, lower latency, lower jitter, faster time to connection, etc.) higher. If different technologies can meet NTIA’s threshold of 100 MBs each direction, then NTIA should encourage entities to pick the least cost method for meeting the standard.

Grant-makers need not naively accept all comers, but it is possible to include only serious providers without eliminating entire classes of technology. One approach is to transfer more of the risk to entity that wins a grant. The grant could be structured so that the entity does not receive its first payment until it has some portion of the network up and running. Such a rule would cause people who do not believe in their technology to pause before trying to win a grant because they would not be reimbursed unless they show they can make good on their promise. And with the promise of a payout with a working network they should be able to raise capital to build their network.

Excluding technologies is short-sighted, unjustified, and will do little more than increase costs by lining the pockets of those whose technologies are approved, yielding less broadband than the program otherwise could.

Evaluation

Evaluation is key to success. Not only is evaluation important for accountability, it generates lessons that can be applied in the future, and, when built in from the program’s beginnings, it can increase the chances of success. Well-designed evaluation plans can harness the old axiom that “what gets measured gets done” in a productive way.

Problem: The NOFO Does Not Set up or Require Evaluation

NTIA does not appear to have any plans to evaluate the states’ programs. Independent evaluation should be a core component of any large program. The BTOP program did not provide any mechanism or a full-fledged evaluation so that learning from that program is limited. (And the limited learning is not being fully applied here). Program evaluation allows learning for the

future and possible mid-course corrections to improve outcomes. Without evaluation, money is likely to be wasted now and in the future. With clear goals and metrics, participants are more likely to meet the objectives of the program and program administrators can learn the most effective mechanisms

Solution: Build Evaluation Into the Grant Process

NTIA should provide a clear set of standardized metrics to enable reporting and comparisons across state programs. Standardized metrics should shed light on what works and what does not, or even what works and what works better. As a result, NTIA should ensure clear, consistent, and comparable metrics and require states and grantees to report regularly on the outcomes and costs. In addition, there should be quarterly audits of a random sample of the reports.

Additionally, NTIA should not abdicate evaluation responsibility to the states. States should build reporting requirements into their programs, but NTIA has the advantage of being able to compare the different approaches states use while also being a step removed from actual implementation, somewhat reducing the incentives to show only positive outcomes and possibly increasing competition between states to do the best job.

If metrics and clear reporting requirements are set in advance, it should not require excessive amounts of administrative funding. Grantees will know that these reporting requirements are part of the terms of accepting BEAD funds, which should, in turn, promote higher quality proposals and estimates of costs and timelines.

And the evaluation process must begin now to ensure that the necessary data is collected along the way. It's imperative that the data collection program is designed before the funds are distributed.

Pricing Rules

BEAD is not intended to be a vehicle for price regulation. Even those who favor it generally should acknowledge that price regulation can be a complicated process at best, and at worst distorts the market and reduces investment incentives and innovation. However, it is also true that BEAD is supposed to create new broadband service in areas without any. Because, by definition, it is creating monopolists in those locations, it makes sense to set some pricing rules for grant winners. These rules, however, must be set carefully and thoughtfully.

Problem: The NOFO Imposes Arbitrary Price Regulation by a Single Person

How NTIA is supposed to address “affordability,” as the law instructs it to and how to avoid monopoly pricing in areas with a single provider, are complicated questions. Any proposal NTIA puts forward is likely to be contentious regardless of the approach. However, NTIA offers just a few vague sentences to address a complicated question with potentially wide-ranging effects.

Perhaps the biggest problem is that the NOFO leaves the power to decide whether an ISP's pricing is acceptable to a single person:

In determining whether to approve an Eligible Entity’s proposed definition of “low-cost broadband service option,” the Assistant Secretary will consider, among other factors, (1) whether prospective subgrantees will be required to participate in the Affordable Connectivity Program, any successor program, and/or any other household broadband subsidy programs; (2) the expected cost (both monthly and non-recurring charges) to an Eligible Subscriber for a typical broadband internet access service plan after the application of any subsidies; and (3) the performance characteristics of the proposed options, including download and upload speeds, latency, data caps, and reliability commitments. (p. 67)

Price regulation, even if theoretically necessary due to monopoly provision, must be considered carefully. It must take into account costs, demand, investment incentives, and more. Price regulation must be done transparently, with clear processes, and clear-headed thinking about its potential effects. Leaving it to one person with vague guidance is unlikely to provide good results.

Second, NTIA has decided that it is responsible for setting reasonable prices available to the “middle class.” The NOFO specifies that “each Eligible Entity must submit a plan to ensure that high-quality broadband services are available to all middle-class families in the BEAD-funded network’s service area at reasonable prices.” (p. 66) NTIA does not explain what it means by “middle-class” families nor what prices would be considered “reasonable” or a framework for states to ascertain the reasonableness of prices.

Solution: Look to USF for a Vetted Approach

The Connect America Fund, part of the Universal Service program run by the FCC, faces similar statutory objectives and practical problems. Just as the IIA says the program should ensure “affordable broadband service in the eligible entity,” the Telecommunications Act of 1996 says that Universal Service recipients must offer “Quality services ... at just, reasonable, and affordable rates.” Sec. 254(b)(1).

As part of following Congressional instructions, the FCC conducts an “Urban Rate Survey” (URS) to use as benchmarks. Specifically:

The main purpose of the broadband URS is to produce reasonable broadband comparability benchmarks for every possible service tier (i.e., a service plan with specified minimum download speed, minimum upload speed, and monthly capacity allowance). These benchmarks serve as rate caps to “help ensure that universal service support recipients offering [fixed voice and] broadband services do so at reasonably comparable rates to those in urban areas.”²

Because Congress – appropriately – does not define “affordable” or “just and reasonable,” the URS provides a rigorous and consistent approach to meeting these conditions.

² 2022 FCC Urban Rate Survey, Broadband Survey Methodology, <https://www.fcc.gov/file/22209/download>

The approach laid out in the NOFO is inappropriate because it will yield arbitrary pricing decisions. But NTIA need not reinvent the wheel. It should study the FCC's approach to solving the same question and probably adopt its methodology and use its data.

Administration

Congress decided to give money to the states, with each free to decide how to distribute it subject to rules that NTIA would promulgate. Because it dismissed the FCC's relevant existing skill and infrastructure, Congress made it necessary for 56 Entities (states, territories, and DC) to build their own capacity, often from scratch. Doing so requires resources, which come from BEAD funds, thereby reducing the amount available for broadband. The amounts available for administration are enormous and NTIA should work to minimize those for states and itself.

Problem: The Law and NOFO Allow Massive Amounts of Money for Administrative Expenses that Could Otherwise Build Broadband

The law allows states to use some of the \$42 billion for administrative expenses. The law and NOFO together are somewhat unclear on how much money is allocated to administrative expenses, but it is significant. The smallest pot of money is \$5 million for each state and \$1.25 million to each territory to aid initial planning, which totals more than \$250 million. The larger pot is the share of the \$42 billion set aside for administrative expenses. The law states:

Administrative Expenses.--

(1) Assistant secretary.--The Assistant Secretary may use not more than 2 percent of amounts appropriated pursuant to subsection (b) for administrative purposes.

(2) Eligible entities.--

(A) Pre-deployment planning.--An eligible entity may use not more than 5 percent of the amount allocated to the eligible entity under subsection (c) (2) for the planning and pre-deployment activities under subsection (e) (1) (C) .

(B) Administration.--An eligible entity may use not more than 2 percent of the grant amounts made available to the eligible entity under subsection (e) for expenses relating (directly or indirectly) to administration of the grant. (Section 60102(d))

The law appears to provide NTIA up to 2% of the \$42 billion, or more than \$840 million (and the NTIA is not awarding that money as part of the NOFO, (p. 17); eligible entities (states and territories) 5%, or \$2.1 billion for "predeployment planning" plus another 2% or \$840 million for administering the grant. In total, the law seems to allocate as much as \$4 billion for overhead and planning.

In other words, the amount set aside for agency overhead is about the same size as the entire 2009 BTOP program.

NTIA's NOFO says that Entities may only use 2% for administration but does not address the 5% pre-deployment money.

An Eligible Entity may not use more than two percent of the grant amounts received under the BEAD Program for expenses relating (directly or indirectly) to administration of the grant under Section 60102(d)(2)(B) of the Infrastructure Act. (p. 83)

In sum, it appears that between \$1.7 billion and \$4 billion is meant for administrative overhead. Such enormous sums should not be necessary given existing knowledge and capabilities that could be shared with states. Each dollar freed from administrative expenses is a dollar that can go to broadband.

Solution: Help States Share Resources, Including Those at NTIA and FCC

To save costs and promote efficiency, NTIA can offer a set of defaults, guidelines, and software that Entities can use and gain easy and cheap approval, possibly in conjunction with the FCC. The NOFO requires that “Each Eligible Entity must establish fair, open, and competitive processes for selecting subgrantees.” And “Eligible Entities’ selection processes must be made clear to potential subgrantees and must be described in the Eligible Entity’s Initial Proposal and Final Proposal. NTIA recognizes that there may be a variety of competitive processes Eligible Entities might use to select subgrantees and does not mandate any specific approach.” (p. 35).

While it might not mandate a specific competitive process, NTIA could work with the FCC to provide a default competitive process so that Entities would not have to develop their own. For example, the states could use the detailed selection mechanism that the FCC used for its RDOF auction to allocate the money.³

NTIA can set defaults for states to use to make the tradeoff between cost and coverage. As of now, the definition of Extremely High Cost per Location is unclear. It may vary by state, but NTIA could provide a framework so that a state does not spend more than X% of its budget providing access to less than Y% of unserved locations. Such a framework would provide guidance across the country so that very high cost areas get served at a reasonable cost.

Secondary Objectives

The NOFO lays out a range of goals in addition to that of building broadband:

This program will lay critical groundwork for widespread access, affordability, equity, and adoption of broadband, create good-paying jobs; grow economic opportunities, including for local workers, provide increased access to healthcare services, enrich educational experiences of students, close long-standing equity gaps, and improve the overall quality of life across America. (p. 7)

³ The biggest problem with RDOF auction process, awarding money to provide service to areas that already had service, should not be an issue with updated and accurate maps of unserved locations. The FCC’s mechanism will also help resolve overlapping geographic coverage proposals.

To be sure, this paragraph seems intended to be aspirational and inspirational, not a set of instructions. However, many of these appear in the NOFO as secondary goals. As laudable as these objectives are—and we agree with all of them—each one comes with a cost to the program as well as its own intrinsic benefits. Yet, the NOFO mandates them without any regard to their costs.

It is not up to us to say whether the good things NTIA hopes to promote from these objectives is worth the cost in terms of broadband not funded due to higher costs because of these other objectives, but NTIA should make some attempt to estimate the costs so that it can understand the tradeoffs. Only with estimates of the costs can policymakers decide whether they are good uses of funds intended for broadband buildout.

Problem: Too Many Objectives

BEAD’s goal should be to build broadband access where it does not exist. The NOFO starts by claiming that as the primary objective. Then the NOFO adds additional objectives. For example, states are encouraged to preference:

- Equitable workforce development and job quality
- Union labor
- Climate resilience
- Domestic suppliers

To be clear, we are not saying these are not worthy objectives. Only that each increases costs and therefore also reduces the funds available for broadband.

The “Build America, Buy America” (BABA) provisions are perhaps the simplest example, and one where NTIA determined how much it is willing to trade off in lost broadband to stick to this principle. BABA reduces the number of available options for broadband providers to use and will increase the costs of the equipment that is available.⁴ If current supply chain problems continue to exist as providers began building, the increased competition for the smaller amount of available equipment will drive prices up even more. NTIA acknowledges that it is unrealistic to expect that providers can obtain all its supplies domestically and also that this restriction will increase costs. The rules allow providers to buy supplies abroad if not doing so would increase costs by at least 25%. NTIA is therefore concluding that, in principle, it is worth spending a 25% cost premium on equipment.

It is also important to note that the IJA addresses many of the equity goals elsewhere. NTIA is overseeing the \$2.8 billion Digital Inclusion and Equity and the \$2.0 billion Tribal connectivity programs. The FCC oversees the Affordable Connectivity Program, which provides \$14.2 billion in a voucher-like program that provides up to \$30 per household (\$75 on tribal lands) for broadband connectivity as well as additional funds for equipment. The existing Universal

⁴ Paradoxically, NTIA asks to develop a “supply chain risk management” plan. (p. 70). The only realistic risk management plan is to identify alternate suppliers, which becomes more difficult when the rest of the world is excluded.

Service Fund adds another \$9.25 a month on top of that, yielding a subsidy of almost \$40 per month to eligible households.

Solution: Develop Cost Estimates for Each Additional Objective and Decide a Threshold for Whether it is Worth the Cost

NTIA should follow the initial inclination in its NOFO to focus on providing broadband service to unserved areas. Many of the additional considerations listed above may not cost much money and will remain even when subject to a rough benefit-cost test. But if provisions cause substantially less buildout to occur, the tradeoff should be explicit so that policymakers and the public can see the costs of those decisions.

Conclusion

Our intention is not to criticize NTIA. They have been handed the near-impossible task of turning vague and expansive legislative language into a workable program while also balancing competing interests and doing it in record time. But we encourage NTIA to remember that, as it says, the “program’s principal focus will be on deploying broadband service to unserved locations ... and underserved locations.” Its efforts should focus on that clear objective, and it should consider carefully other provisions that may detract from it.