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COMMENTS OF ITIF

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In the Matter of:

Guidance for Grants and Agreements: Build America, Buy America Act

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INTRODUCTION AND SUMMARY

The Infrastructure Investment and Jobs Act (IIJA) contains unprecedented funding that presents the best chance we will ever have to deploy broadband to virtually all Americans and close the digital divide. The IIJA also contains the Build America Buy America Act (BABA), which requires iron & steel, construction materials, and manufactured products use in IIJA infrastructure funding programs to be made in the United States. ITIF welcomes the opportunity to comment on the Office of Management and Budget’s guidance which should hold together the goals of rapid and fiscally responsible infrastructure deployment as well as supporting U.S. industrial revitalization.¹ Before making specific comments it is worth noting that few think tanks in the United States have been more committed to U.S. manufacturing renewal and the policies needed to achieve it than ITIF.²

This balance is especially precarious for broadband infrastructure since the United States lacks a well-developed industrial base capable of meeting broadband deployment requirements and deadlines under the IIJA’s Broadband Equity, Access, and Deployment (BEAD) program. An onerous reading of Buy-America requirements risks dramatically increasing the cost of broadband deployment or delaying that deployment,

¹ Founded in 2006, ITIF is an independent 501(c)(3) nonprofit, nonpartisan research and educational institute—a think tank. Its mission is to formulate, evaluate, and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress. ITIF’s goal is to provide policymakers around the world with high-quality information, analysis, and recommendations they can trust. To that end, ITIF adheres to a high standard of research integrity with an internal code of ethics grounded in analytical rigor, policy pragmatism, and independence from external direction or bias. See About ITIF: A Champion for Innovation, <https://itif.org/about>.

² See, “Manufacturing,” Information Technology and Innovation Foundation, <https://itif.org/issues/manufacturing/>.

potentially for years. The White House has promised that IJA programs will represent “bold, concerted action to expand internet access and digital equity in Tribal communities.”³ In addition, President Biden has spoken of the need to get to “shovel ready” projects quickly and show results for the American people in reasonable time frame.

These goals are achievable alongside the goal of rejuvenated domestic manufacturing as long as the federal government maintains a balanced approach that does not sacrifice broadband deployment to overly strict buy-America provisions.

Therefore, the Office of Management and Budget (OMB) should carefully craft its guidance and allow waivers as necessary to ensure Americans can rapidly and cost-effectively get the benefits of broadband connectivity while allowing for longer term investments in onshoring of high-tech manufacturing to come to fruition over a reasonable time horizon.

U.S. INDUSTRIAL CAPACITY CANNOT MEET IJA'S BROADBAND DEMANDS WITH STRICT BUY-AMERICA REQUIREMENTS

Many broadband components do not have an existing manufacturing base that can ramp up to meet BEAD's demands

The well-intentioned goal of revitalizing America's manufacturing base may make sense for some sectors, like steel, cement, or wallboard, in which the United States has established industrial capacity that can grow to meet the demand occasioned by IJA programs. But each sector has different requirements, and, unlike other sectors, many, if not most, of the information technology (IT) components that make up broadband networks do not have the base from which to expand production.

Broadband networks deployed under the BEAD program will require highly specific elements for “switching, routing, transport, access, operations systems, and customer premises/end user equipment and devices.”⁴ Many of these components are not produced in the United States and, instead, rely on international supply chains. Indeed, U.S. output of computer, electronic, and optical products lags far behind Asian nations which saw their output increase by triple-digit percentage points from 1995-2018.⁵ The United States saw just a 32 percent increase over the same period.⁶ Taiwan alone dwarfs the United States's share in

³ The White House, “FACT SHEET: Biden-Harris Administration Brings High-Speed, Affordable Internet to Tribal Communities,” briefing room, statements and releases, August 11, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/11/fact-sheet-biden-harris-administration-brings-high-speed-affordable-internet-to-tribal-communities/>.

⁴ “Industry Letter on IJA and Buy American,” January 31, 2022, <https://tiaonline.org/wp-content/uploads/2022/01/Industry-Letter-on-IJA-and-Buy-American-v7.4-FINAL.pdf>.

⁵ Robert D. Atkinson, “How Applying ‘Buy America’ Provisions to IT Undermines Infrastructure Goals,” (ITIF, May 2022), <https://itif.org/publications/2022/05/09/how-applying-buy-america-provisions-it-undermines-infrastructure-goals/>.

⁶ Ibid.

this sector with nearly nine times the share of value-added output (controlling for each country's share of global GDP).⁷ Indeed, the federal government has repeatedly recognized that U.S. production capacity for IT products is weak. The Departments of Commerce, Homeland Security, and Defense have recently highlighted how seriously the United States lags behind in IT manufacturing and how that threatens U.S. national and economic security, especially in competition with China.⁸ While the White House is right to view fixing this problem as a long-term strategic project for the United States, for now, it remains a reality that OMB should not ignore in evaluating the application of buy-America (BA) mandates to IJJA broadband programs. For BEAD to succeed, OMB and the National Telecommunications and Information Administration (NTIA) must address the manufacturing base as it is, not as they wish it were or how it may be after several years of development.

Given the current state of IT manufacturing, in many cases, accessing critical network elements is not only difficult but impossible. Many types of routers, switches, and other electronic components of broadband deployment are not available from U.S. manufacturers at all. It is no hyperbole to say that cutting off U.S. broadband providers from foreign manufacturers of these components will preclude the construction of broadband networks at all.

It may be tempting to view the lack of IT manufacturing capacity as exactly the problem BA mandates could solve, but, while theoretically attractive, OMB is unlikely to realize that dream with ever tighter requirements at the very beginning of the program. The United States is simply too far behind for BEAD funding to make it catch up in time to realize the benefits of onshored manufacturing and rapid broadband deployment at the same time. There are immense barriers to building a manufacturing base for broadband equipment in the United States that IJJA funding is insufficient to overcome. The result of tight BA mandates, therefore, would be to scuttle BEAD while also failing to develop sustainable manufacturing capacity.

First, BA mandates would take years to implement and would, therefore, dramatically delay the time that unconnected Americans get access to broadband. Though BEAD promises funding, subgrantees (broadband providers) do not know how much money they will get until after states and NTIA certify the awards. This process requires an extended period of time. States have not yet even submitted their five-year action plans for BEAD funding and likely will not for several months.⁹ It is only after the certifications of those plans that NTIA will begin to disperse funds that states can then award to broadband providers. And only after these awards will a broadband provider be able to begin negotiations with a foreign manufacturer to incur the costs and risks to onshore some of its production. If those negotiations are successful, the subgrantee would then start a multiyear process of buying or building factories capable of producing the necessary

⁷ Ibid.

⁸ Ibid.

⁹ National Telecommunications and Information Administration, BroadbandUSA, Broadband Equity, Access, and Deployment (BEAD) Program, accessed March 2023, <https://broadbandusa.ntia.doc.gov/taxonomy/term/158/broadband-equity-access-and-deployment-bead-program#KeyDatesBEAD>.

components. This requires site selection, negotiations with local governments, architectural planning, engineering work, layout and testing and workforce training and then a period of testing and “getting out the kinks.” The government would be gambling BEAD funds on successful negotiations with foreign manufacturers, successful construction of sufficient manufacturing capacity, and successful sustaining of that capacity throughout the construction of BEAD projects. All three gambles are highly uncertain and unnecessary.

Second, BEAD funds are not sufficiently large to justify the business case for mass onshoring. OMB should not overestimate the incentive of BEAD grants. Though \$42.45 billion is substantial, the United States now imports \$383 billion in IT goods included in the Build Back Better agenda every year.¹⁰ Furthermore, funding will be spread over many providers nationwide all of whom require their own components that are not necessarily interoperable. The BEAD funds will be sliced into ever smaller pieces, and it is unlikely that entrepreneurs would sink the capital required to build substantial production capacity for a business that has a limited time and scope of potential revenue. Investing in new factories is always risky, and putting all BEAD’s eggs in the basket of newly built production facilities places the entire program at the mercy of national and international economic conditions. This is made even more difficult by the fact that many if not most electronic components depend on highly specialized suppliers with large facilities to take advantage of economies of scale to drive down costs. As Harvard Business School Professor Willy Shih writes:

The long-term trend towards specialization in most fields is increasing because of the very different technological skills and capabilities demanded of firms working on the leading edge. Whether you are making computers, food ingredients, or personal care products, this division of labor helps firms incorporate new technologies and do so more economically than ever before. Specialists are also able to exploit scale economies both in production and design, making it harder for firms who might wish to become self-sufficient to perform those tasks economically.¹¹

Overly strict BA mandates, therefore, would introduce many more points of failure for BEAD. It is far from certain that even the best-laid business plans and the limited BEAD funding will entice successful production of necessary components at all, much less lead to a revitalized electronics manufacturing base. And all of these steps require significant time and money. The prospect of completing the lengthy process to award BEAD funds only to wait years for risky and expensive onshoring would undermine the central BEAD goal of rapid universal access to broadband.

¹⁰ Atkinson, “How Applying ‘Buy America’ Provisions to IT Undermines Infrastructure Goals.”

¹¹ Neil Barbour et al. “Digital devices, broadband infrastructure grappling with supply chain woes,” S&P Global Market Intelligence, April 2022, <https://hbr.org/2020/04/bringing-manufacturing-back-to-the-u-s-is-easier-said-than-done>

Broadband deployment is difficult and costly even without onerous BA mandates

Production of technical components is already difficult even for countries with established manufacturing bases. Supply chain problems, such as a shortage of semiconductors and a lack of properly skilled labor, have reduced supplies of chipsets necessary for broadband infrastructure.¹² It would be hubris for the United States to run headlong into these same problems with the additional disadvantage of starting from scratch.

The federal government also has experience with BA mandates in broadband subsidy efforts from the Broadband Technology Opportunities Program (BTOP). In that program, NTIA granted a broad-based waiver of BA requirements because it found that such requirements would “slow broadband deployment and undermine broadband initiatives.” Even with that waiver, BTOP was beset with failures, including exorbitant costs that failed to produce connectivity benefits.¹³ It is, therefore, even less likely that BEAD would succeed where BTOP failed if it is subject to BA mandates that increase costs even more.

BA MANDATES WOULD INCREASE COSTS BY NEARLY 30 PERCENT

To estimate the magnitude of BA mandates’ costs, ITIF constructed a model to estimate the additional annual costs that would be caused by reshoring the manufacturing of IT goods.¹⁴ This model compares production costs in 11 countries from which the United States imports IT equipment to the estimated costs to produce the same equipment in the United States. It also estimates the growth in the U.S. manufacturing industry’s capital stock that would be necessary to build the requisite production capacity. This model finds that BA mandates would raise IT costs by between 23.7 and 29.9 percent over seven years.¹⁵ One should expect the increased cost for broadband-specific equipment to be on the highest end of this range since broadband, as opposed to IT in general, more often requires components with absolutely no domestic source, such as routers and switches. In those cases, it would be even more costly (and time-consuming) to build up the necessary capital stock and train and pay workers with the skills necessary to produce these goods.

The 29.9 percent estimate exceeds the IJJA threshold for an unreasonable cost waiver and, though not itself a showing sufficient to require a waiver is strong evidence that the application of BA mandates to many broadband infrastructure components would not be in the public interest and OMB guidance should seek to facilitate the issuance of applicable waivers rather than blocking it.

¹² Neil Barbour et al. “Digital devices, broadband infrastructure grappling with supply chain woes,” S&P Global Market Intelligence, April 2022, <https://www.spglobal.com/marketintelligence/en/news-insights/research/digital-devices-broadband-infrastructure-grappling-with-supply-chain-woes>.

¹³ T. Randolph Beard, PhD, George S. Ford, PhD, and Michael Stern, PhD, “Bridging the Digital Divide: What Has Not Worked But What Just Might,” (Phoenix Center for Advanced Legal & Economic Public Policy Studies, PHOENIX CENTER POLICY PAPER SERIES Number 56, June 2020), <https://www.phoenix-center.org/pcpp/PCPP56Final.pdf>.

¹⁴ Atkinson, “How Applying ‘Buy America’ Provisions to IT Undermines Infrastructure Goals.”

¹⁵ Ibid.

CLOSING THE DIGITAL DIVIDE REQUIRES BEAD FUNDING TO REMAIN FOR ADOPTION EFFORTS

OMB's IJA guidance does not occur in a vacuum. There are pressing policy concerns that are the heart of the IJA and cannot wait for a new manufacturing sector to be built almost entirely from scratch. As the pandemic demonstrated, broadband connectivity is now essential to daily life. Still many Americans remain offline. The BEAD program is our best chance to connect them, but, while large, the program's funding is not unlimited.

Moreover, the structure of BEAD means that its real impact can be realized only by economically providing infrastructure deployment. BEAD's top priority is to deploy broadband to "unserved" Americans, those without the ability to access broadband throughput of at least 25 megabits per second (Mbps) download and 5 Mbps upload.¹⁶ However, simply building more infrastructure will not solve the digital divide. Indeed, the most pressing cause of the digital divide is not deployment since the vast majority of Americans could already subscribe to broadband that meets the 25/3 threshold.¹⁷ The more pressing reason for a lack of connectivity is a lack of adoption: people who have access to broadband service but do not subscribe to it.¹⁸ BEAD is intended to address barriers to adoption, which include a lack of interest, lack of a device, or the price being too high, but only with the funds that remain after deploying new infrastructure.¹⁹ Therefore, every dollar spent on higher prices for American-made products directly subtracts from the resources that can be dedicated to lowering barriers to adoption. For example, if broadband infrastructure costs are inflated due to BA mandates, a state will have to cut back on funding for "digital navigators" that help unprivileged groups get access to and learn to use the Internet. It would be a perverse result, and one contrary to the goals of the IJA, to allow inappropriately stringent BA mandates to be the reason BEAD funds are exhausted before closing the digital divide.

BROADBAND CONNECTIVITY IS A PREREQUISITE TO ONSHORE EFFORTS

Precisely because broadband is so essential to consumer and industrial users alike, prioritizing broadband deployment without onerous BA mandates will accelerate the ultimate goal of revitalized manufacturing. More extensive connectivity can improve the efficiency of manufacturing operations making them more viable and sustainable in the United States.²⁰ Broadband is also a prerequisite for the Internet of things (IoT),

¹⁶ Ibid.

¹⁷ Jessica Dine and Joe Kane, "The State of US Broadband in 2022: Reassessing the Whole Picture," (ITIF, December 2022), <https://itif.org/publications/2022/12/05/state-of-us-broadband-in-2022-reassessing-the-whole-picture/>.

¹⁸ Broadband Breakfast Staff, "Jessica Dine: Broadband Networks Are Doing Well, Time to Shift to Adoption Gap," *Broadband Breakfast: Expert Opinion*, January 2023, <https://broadbandbreakfast.com/2023/01/jessica-dine-broadband-networks-are-doing-well-time-to-shift-to-adoption-gap/>.

¹⁹ NTIA, Broadband Equity, Access, and Deployment (BEAD) Program, Notice of Funding Opportunity, NTIA-BEAD-2022, CFDA Number 11.035, start date May 13, 2022, <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>.

²⁰ Wei Qin, Siqi Chen, and Mugen Peng, "Recent advances in Industrial Internet: insights and challenges," *Digital Communications and Networks*, Volume 6, Issue 1, 2020, Pages 1-13, ISSN 2352-8648, <https://doi.org/10.1016/j.dcan.2019.07.001>, <https://www.sciencedirect.com/science/article/pii/S2352864819301166>.

which holds great promise to ease supply chain tensions, reduce energy consumption, and facilitate smart manufacturing.²¹ China has already recognized the promise of these applications, making smart factories a focus of its “Made in China 2025” plan.²² The United States risks falling behind in the race to improve domestic manufacturing if it puts the cart of high-tech manufacturing before the horse of universal broadband availability. On the other hand, it would benefit the American economy in the short term to prioritize rapid broadband deployment and set the scene for domestic manufacturing to grow after the expiration of BA waivers. Far from compromising on the domestic manufacturers goals of the IIJA, waivers that permit the rapid construction of broadband networks will be a force-multiplier that enhances the development of more productive industries and create more long term jobs throughout the IT and other manufacturing sectors.

EVEN WITH WAIVERS DOMESTIC PRODUCERS AND WORKERS WILL RECEIVE OVER 92 PERCENT OF BEAD FUNDS

The federal government need not impose onerous BA mandates to achieve its goal of using BEAD funds to revitalize the American economy, rather than sending tens of billions of dollars overseas. The vast majority of the cost of broadband infrastructure deployment will consist of American-made fiberoptic and copper cables and American labor.

Fiber and copper cables have substantial domestic manufacturing capacity that can expand to meet the demands of BEAD, so they need not have BA mandates waived. Estimates of the per-mile cost of fiber deployment vary widely, ranging from \$27,000-\$80,000 per mile.²³ The fiber itself costs \$2,640-\$21,120, the median of which is \$11,880.²⁴ These estimates may be used to conduct a back-of-the-envelope estimate of where BEAD funds will go.

²¹ Ibid.

²² Emily Jin, “Smart Manufacturing: A Linchpin in China’s Industrial Policy,” *Lawfare*, September 6, 2022, <https://www.lawfareblog.com/smart-manufacturing-linchpin-chinas-industrial-policy>.

²³ Sally Aman, “Dig Once: A Solution for Rural Broadband,” USTelecom: The Broadband Association, April 2017, <https://www.ustelecom.org/dig-once-a-solution-for-rural-broadband/>; Jonathan Kim, “Fiber Optic Network Construction: Process and Build Costs,” *Dgtl Infra*, July 28, 2022, <https://dgtlinfra.com/fiber-optic-network-construction-process-costs/>; “High Speed Fiber Infrastructure: Where, when, why, and how,” GoNetspeed (formerly OTELCO), June 1, 2018, <https://www.otelco.com/fiber-infrastructure/>.

²⁴ National Telecommunications and Information Administration, BroadbandUSA, “Costs at-a-Glance: Fiber and Wireless Networks,” May 2017, https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_costs_at_glance_networks.pdf.

Suppose a median total cost per mile of a fiber deployment is \$53,500 (the median of the high and low estimates above). Of this, 70 percent, or about \$37,450 goes to labor and construction costs.²⁵ Suppose, also, a median fiber cost of \$11,800. Together, these account for over 92 percent of the total cost.

Therefore, waivers of BA mandates are not necessary for these components and the substantial funds spent on them will remain in the United States; 92 percent of the funds will stay onshore even with extensive waivers for components that are difficult or impossible to acquire from domestic sources.

Moreover, this 92 percent calculation is likely conservative for two reasons. First, the BEAD program, as structured by NTIA, now favors fiber deployments, there is every reason to think that an even greater share of BEAD funds will go to domestic fiber manufacturers even compared to prior, unsubsidized deployment.²⁶ Second, BEAD prioritizes building to unserved areas which are, almost by definition, more difficult and costly to reach.²⁷ But domestically unavailable electronics are needed only at points along a fiber run and, therefore, would not see their costs increase proportionally with labor and fiber which will be more directly necessary to cope with challenging terrain.

Still more, infrastructure deployment is not the only initiative within BEAD. Other components of the BEAD programs, such as promotion of equity and adoption, rely even more on domestic labor and resources and less on overseas components, so the balance of BEAD funds will tilt even further toward direct domestic benefits the more funding is left for those programs.

Therefore, only a small minority of BEAD funds, less than 8 percent, are at stake in BA waiver decisions. But that minority contains critical components without which none of the other benefits can be realized. The IIA's waiver provisions are required to "ensure the maximum utilization of goods, products, and material produced in the United States."²⁸ It would be contrary to this provision to allow American fiber and cable production to lie fallow for years to see if onshoring of routers and switches will be successful.

The administration should not create a bottleneck that lets the large and immediate benefits to domestic manufacturers and workers slip away by holding the entire program hostage during the years it will take to see if faint and uncertain hopes of onshoring the manufacturing of specialized electronics are realized.

STREAMLINED, HIGH-LEVEL WAIVERS WILL REDUCE UNNECESSARY COSTS

The IIA provides clear statutory authority for NTIA to grant waivers for products that, if required to be sourced domestically, would impose unreasonable costs, are unavailable, or are otherwise in the public

²⁵ Bill Sawyer, "Clearfield: How the YOURx Multi-Purpose Terminal (MPT) Lowers Labor/Construction and Equipment Costs for the MTU," *Clearfield*, October 8, 2019, <https://www.seeclearfield.com/newsroom/yourx-mpt-lowers-labor-material-costs.html>.

²⁶ E.g., "NTIA has determined that 'Priority Broadband Projects' are those that use end-to-end fiber-optic architecture," at BEAD, Notice of Funding Opportunity, 42.

²⁷ *Ibid.* at 7.

²⁸ IIA § 70935(a).

interest.²⁹ OMB should, therefore, meaningfully implement Congress's intent to prevent steep costs and unavailability of domestically produced goods to hamper the success of BEAD's central purposes. Waivers are eminently appropriate for certain broadband networking components, and OMB should advise NTIA that granting such waivers is consistent with both the letter and the spirit of the IIJA as a whole.

As OMB considers guidance of waivers of BA requirements, it should also seek to minimize the costs imposed by the waivers themselves. Though the IIJA requires a showing of unreasonable cost or unavailability, it would be wasteful to require every subgrantee to make essentially the same showing over and over. Rather, OMB should indicate that a waiver granted for one type of component will be deemed granted to all substantially similar components. OMB should also encourage NTIA to conduct its own analysis, perhaps in partnership with the National Institute of Standards and Technology (NIST), so that it can rapidly identify components that are not available domestically and streamline the waiver process for subgrantees that require those components.

The IIJA also provides for accelerated waivers in the case of "an urgent contracting need in an unforeseen and exigent circumstance."³⁰ Even if OMB disagrees that waivers are necessary to get BEAD off the ground, it should provide clear guidance that rapid broadband deployment is an urgent priority, and if shortages of essential equipment arise, they should be considered exigent circumstances that warrant accelerated waivers.

Time is of the essence in granting waivers to avoid a bottleneck that scuttles the potential of the BEAD program. Therefore, even if NTIA is not inclined to issue long-term waivers, OMB should advise it to issue short-term waivers for a few years while it evaluates the potential for onshoring of necessary components. NTIA can always stop issuing waivers, but if it delays issuing waivers for equipment not available domestically, BEAD will grind to a halt before it ever gets off the ground, denying millions of Americans access to the broadband networks they need.

CONCLUSION

The BEAD program is poised to deliver massive benefits to American consumers on the wrong side of the digital divide and to American manufacturing and labor. But imposing too-strict BA requirements is an existential threat to the program because many components necessary for broadband deployment are not and will not be available from domestic manufacturers for the foreseeable future.

It is not practical to maximize both the goal of rapid universal broadband access and maximally stringent BA mandates. To insist on both goals will only result in cost increases and delays that will imperil the viability of BEAD as a whole. Rather than fixating on BA mandates at the expense of BEAD's more central goals, OMB should adopt guidance that recognizes the unique situation of broadband components and allows BA mandates adapted to provide waivers as necessary to connect Americans to high-speed broadband as soon as possible.

²⁹ IIJA § 70937.

³⁰ IIJA § 70937(b)(2).

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