Before the
U.S. DEPARTMENT OF COMMERCE
Washington, DC 20230

In the Matter of	)	
	)	
Request for Comment on Broadband Programs	)	Docket No. 220105-0002
In Bipartisan Infrastructure Law	)	RIN-0660-ZA33

COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION

February 4, 2022

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I.   Introduction and Summary

The Telecommunications Industry Association ("TIA") appreciates the opportunity to provide input regarding the National Telecommunications and Information Administration ("NTIA") Request for Comment on Broadband Programs in the Bipartisan Infrastructure Law ("BIL"). TIA is an industry association that represents more than four hundred U.S. and global manufacturers and vendors of telecommunications equipment and services. From the fiber in the ground to satellites in the sky, TIA member companies build the equipment that will make the BIL broadband buildout possible and are therefore deeply invested in the success of this plan and the efficient use of federal dollars in connecting every American to high-quality broadband internet.

TIA welcomes NTIA's request for industry feedback. As NTIA works to establish the regulations that will operate these five funding programs authorized by BIL, TIA wanted to take this opportunity to provide feedback based on conversations with our members and offer guiding principles on how NTIA can administer these grants in a way that ensures their success.

II.   A Waiver for "Buy American" Content Mandates Is a Precondition for Effective Broadband Investment

Question Addressed: 12

TIA has serious concerns that the Buy American content requirements in the BIL will make it difficult, if not impossible, to connect 100 percent of Americans to high-speed broadband in the timeline envisioned by Congress. Per Title IX of the BIL, "no amounts made available through a program for Federal financial assistance may be obligated for a project

unless…the manufactured products used in the projects are produced in the United States."[1] This is further defined in Section 70912 as meeting a content threshold of 55 percent.[2] The supply chain for information and communications technology ("ICT") is deeply global, with products used to manage and operate broadband infrastructure manufactured outside of the United States, and it is fundamentally different than other construction materials and manufactured products covered by Title IX of the bill. Broadband networks contain a number of elements that connect users to the data and services that they are seeking to access. These include end-user devices, customer premises equipment, access network equipment, transport equipment, routing equipment, and switching equipment. **TIA assesses that there is no combination of equipment and services that meet the BIL's domestic content requirements across the broadband technology stack. A waiver of the "Buy American" requirement is necessary to ensure that the entire nation can be connected. Without a waiver of these requirements, zero Americans will be connected to the internet using only BIL funding.**

    i.   *The Application of Buy American Provisions Should be Consistent with the Reality of the Global Supply Chain*

The supply chain for telecommunications products is fundamentally different than that of other infrastructure products like concrete or steel, and it should be treated accordingly. For example, 5G end-user devices and radio access network equipment contain hundreds of complex electronic components like semiconductors, organic laminates and ceramics used as part of

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[1] Infrastructure Investment and Jobs Act, Public Law No. 117-58, tit. IX, 135 (2021) ("BIL").
[2] *Id.*

substrates for antennas, printed circuit boards, heat-conducting gels used for thermal management, and polymers used in antenna radomes.[3]
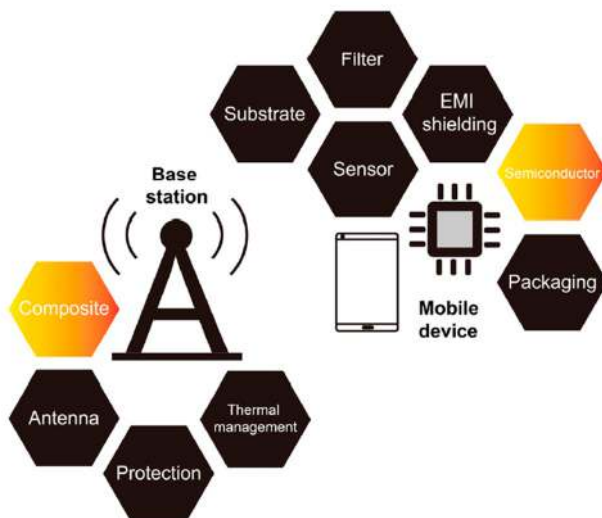
Figure 1: Various Material Needs in 5G technology

Each of these components has its own subcomponent supply chains radiating out to raw materials supply chains that span the globe. As an example, semiconductors – which are a major driver in terms of the value of components and are pervasive across network elements – may cross international borders 70 times during the production process because of the process' complicated and specialized nature.[5] The idea that final assembly, component manufacturing, and subcomponent and materials sourcing could be picked up and moved to the United States to support a domestic content mandate within the timeframe necessary to meet the needs of unconnected Americans does not conform with reality. Even U.S. firms that manufacture

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[3] Ye Zhou, *Material Foundation for Future 5G Technology*, 2 (5), Accounts of Materials Research, 306, (2021) (*available at:* https://pubs.acs.org/doi/10.1021/accountsmr.0c00087).
[4] *Id.*
[5] Alam et al., *Globality And Complexity of the Semiconductor Supply Ecosystem*, Accenture (2020) (*available at* https://www.accenture.com/_acnmedia/PDF-119/Accenture-Globality-and-Complexity-Semiconductor-POV.pdf).

wireless broadband equipment in the United States rely on these global supply chains, and they are unlikely to be able to meet BIL requirements within any reasonable timeframe.

      ii.   *A Waiver for ICT Broadband Network Equipment is Consistent with the Goals and Structure of the BIL and Past Precedent*

The United States government has long recognized the fact that manufacturing broadband equipment is different than mixing cement, and it has established a series of exemptions for ICT products under both Republican and Democratic administrations. The first is the waiver for commercial IT products established by Congress in the Consolidation Appropriations Act of 2004[6] and further spelled out in FAR Subpart 25.103 which notes that restrictions on purchasing foreign end products do "not apply to the acquisition of information technology that is a commercial item."[7] The scope of this exemption is further defined in FAR Subpart 2.101 as "any equipment or interconnected system(s) or subsystem(s) of equipment, that is used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency."[8]

The second set of exemptions – and the ones most relevant to BIL funding – are the waivers to the American Recovery and Reinvestment Act of 2009 ("ARRA") requirements for broadband equipment issued by NTIA[9] and by the Department of Agriculture's Rural

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[6] Consolidated Appropriations Act of 2004, Public Law No. 108-199, Title V., Sec. 535 (a), 345. (2004) (*available at* https://www.govinfo.gov/content/pkg/STATUTE-118/html/STATUTE-118-Pg3.htm).
[7] 48 C.F.R. § 25.103.
[8] 48 C.F.R. § 25.101.
[9] Broadband Technology Opportunities Program; Buy American Exception under the American Recovery and Reinvestment Act of 2009; 74 FR 31410, (July 1, 2006). (*available at* https://www.govinfo.gov/app/details/FR-2009-07-01/E9-15514).

Agriculture Service.[10] Section 1605 of the ARRA states that Buy American requirements could

be waived if:

> [T]he head of the Federal department or agency involved finds that--
> (1) applying subsection (a) would be inconsistent with the public interest;
> (2) iron, steel, and the relevant manufactured goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
> (3) inclusion of iron, steel, and manufactured goods produced in the United States will increase the cost of the overall project by more than 25 percent.

This waiver language is word-for-word identical with Section 70914 of the waiver justification

of the BIL.[11] For ARRA, NTIA found that a waiver would be in the public interest because:

> [I]t would be difficult, if not impossible, for a BTOP applicant to have certain knowledge of the manufacturing origins of each component of a broadband network and the requirement to do so would be so overwhelmingly burdensome as to deter participation in the program. Requiring a BTOP applicant to request a waiver on a case-by-case basis also would be such an administrative burden on the applicant as to discourage participation in the program and would increase the agency's time and costs for processing BTOP applications for broadband infrastructure projects. Thus, implementing the BTOP without a limited programmatic waiver encompassing broadband network components would jeopardize the success of the program and undermine the broadband initiative.[12]

The practical challenge of tracing the content of each piece of equipment has not changed

since the establishment of NTIA's waver, and if implemented in the context of BIL

funding would similarly discourage participation in the program and increase the agency's

time and costs for processing applications.

While NTIA did not make a determination with respect to "non-availability" of

broadband equipment that meets this threshold, it did say the department could have done

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[10] Notice of Limited Waiver of Section 1605 (Buy American Requirement) of the American Recovery and Reinvestment Act of 2009 (ARRA) for the Broadband Initiatives Program; 74 FR 31402 (July 1, 2009) (*available at* https://www.federalregister.gov/documents/2009/07/01/E9-15511/notice-of-limited-waiver-of-section-1605-buy-american-requirement-of-the-american-recovery-and).
[11] Infrastructure Investment and Jobs Act, Public Law No. 117-58, tit. IX, 135 (2021).
[12] 74 FR 31410.

so but stopped short primarily because "the burden placed on the Department of Commerce in sourcing and evaluating the availability of each component of broadband equipment would be significant."[13] NTIA did, however, note that:

> [M]uch of the finished products used to manage and operate broadband infrastructure and offer broadband service are manufactured outside of the United States. The manufacturing supply chain varies by product and changes constantly due to the influence of global supply and demand. The result is a very competitive and complex production landscape with components and end products being manufactured and assembled in a large number of countries.[14]

This characterization of a complex, interconnected production landscape remains true as we have discussed both in Section II (i) of these comments and in previous industry comments on government procurement and the tech sector.[15] While TIA supports a public interest determination as a primary rationale for providing an exemption, we also believe that the reality of the production landscape would support a broad finding of "non-availability."

iii. Applying Buy American Requirements Would Exacerbate Workforce Shortages

Finally, Question 12 of the RFC asks about the relationship between "Buy American" requirements and supply chain and workforce challenges.[16] These are not trivial concerns. There are already worker shortages across many industries in the U.S. economy, and – to the extent manufacturing facilities could be stood up in a short period of time – the skilled labor required for setting up complex manufacturing operations for

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[13] 74 FR 31410
[14] *Id*.
[15] *See* the comments of the Information Technology Industry Council, the Telecommunications Industry Association, and a coalition of technology sector stakeholders in response to 86 FR 40980.
[16] NTIA Request for Comments on Infrastructure Investment and Jobs Act Implementation; 87 FR 1122 (January 10, 2022) (*available at* https://www.ntia.doc.gov/files/ntia/publications/fr-iija-broadband-rfc.pdf).

technology products is even scarcer. According to a study released last May by Deloitte using data from the Bureau of Labor Statistics, "at any given moment in the past six months, nearly 500,000 jobs have remained open in manufacturing" and there will be as many as 2.1 million unfilled jobs in manufacturing by 2030.[17] 46% of manufacturers a skills mismatch as the reason they are having trouble filling these positions.[18] Given the high-skilled nature of ICT manufacturing in the United States, we assess that these jobs will be particularly difficult to fill.

> iv.   *TIA Supports Applying the 2009 AARA waiver of Six Equipment Categories plus Certain Named Product Exclusions*

One important element of the 2009 waiver was that it was limited and product-specific. It focused on providing a waiver for network elements that could not feasibly be sourced in the United States, and it excluded elements that could easily be identified as domestically manufactured and sourced using primarily U.S. content. TIA supports the same approach in the context of the BIL, providing a waiver for the six categories identified in the 2009 ARRA waiver:

1) **Broadband Switching Equipment** -- Equipment necessary to establish a broadband communications path between two points.
2) **Broadband Routing Equipment** -- Equipment that routes data packets throughout a broadband network.
3) **Broadband Transport Equipment** -- Equipment for providing interconnection within the broadband provider's network.
4) **Broadband Access Equipment** -- Equipment facilitating the last mile connection to a broadband subscriber.
5) **Broadband Customer Premises Equipment and End-User Devices** - End-user equipment that connects to a broadband network.

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[17] Paul Wellener, Victor Reyes, Heather Ashton, and Chad Moutray, *Creating pathways for tomorrow's workforce today: Beyond reskilling in manufacturing*, Deloitte (May 4, 2021) (*available at* https://www2.deloitte.com/us/en/insights/industry/manufacturing/manufacturing-industry-diversity.html).
[18] *Id.*

6) **Billing/Operations Systems** -- Equipment that is used to manage and operate a broadband network or offer a broadband service.[19]

TIA supports a limited waiver for broadband equipment funded by the BIL in line with the 2009 waiver, including maintaining the exclusion of the products named outside of these categories. Past NTIA administration of the BTOP program has demonstrated that such an exclusion is administrable and practical.

III.   Supply Chain Challenges are Likely to Constrain Broadband Buildout

Question Addressed: 10

The COVID-19 pandemic, combined with severe weather conditions in areas around the world and logistics challenges across many industries, has led to supply chain constraints that are increasing prices and delaying the time to market for broadband products. These delay times have been recorded across a number of broadband categories, as USTelecom discovered in a survey of their members in late 2021. Per their supply chain survey, they found the following lead time delays among wireline providers:

Fiber Optics Lead Time (months)

Count	Less than one month	3 to 6 months	6 to 9 months	9 months to one year	One to two years
31	0	7	8	4	11

Customer Premises Equipment Lead Time (months)

Count	Less than one month	3 to 6 months	6 to 9 months	9 months to one year	One to two years
23	0	9	7	3	1

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[19] 74 FR 31410.

Router Lead Times (months)

Count	Less than one month	3 to 6 months	6 to 9 months	9 months to one year	One to two years
14	0	4	6	3	0

Switch Lead Times (months)

Count	Less than one month	3 to 6 months	6 to 9 months	9 months to one year	One to two years
6	0	2	3	0	0

Generators Lead Times (months)

Count	Less than one month	3 to 6 months	6 to 9 months	9 months to one year	One to two years
3	0	0	1	1	1

[20]

Telecommunications network operators also report significant price increases. Early on in the pandemic, TIA estimated that costs for broadband equipment had increased by around 5%.[21] As the pandemic has continued and supply chain impacts have worsened, independent analyses have estimated that prices have increased by at least ten to twelve percent for some network equipment.[22]

    i.   *It is Essential that Congress Act to Support Incentives and Tax Credits for Semiconductor Manufacturing and Design*

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[20] Paul Eisler, Comments of the United States Telecom Association in the Matter of Information and Communications Technology Supply Chain, 86 FR 52127, (November 4, 2021) (*available at* https://www.regulations.gov/comment/BIS-2021-0021-0021).

[21] Comments of the Telecommunications Industry Association In the Matter of Wireless Telecommunications Bureau Seeks Comment On Potential Impact Of Global Semiconductor Shortage, Docket No. 21-195, June 10, 2021 (*available at* https://ecfsapi.fcc.gov/file/106100453603850/2021.06.10%20TIA%20Comments%20on%20FCC%20Semiconductor%20Shortage.pdf).

[22] Dileep Srihari, Erik Jacobs, and Isabella Perera; *The Global Semiconductor Shortage: Impact on U.S. Broadband and Recommendations for Policymakers*, Access Partnerships, December 2021 (*available at* https://www.accesspartnership.com/cms/wp-content/uploads/2021/12/AP-Broadband-Semiconductor-Paper-Dec-2021.pdf).

Delays in the sourcing of these products have – in many cases – come about as a result of shortages in key components. One of the most problematic and ubiquitous shortages is in semiconductors. The telecommunications industry is the largest end-user of semiconductors, constituting 50% of all end-users.[23] As the White House noted in their report on critical supply chains pursuant to Executive Order 14017, delays in the semiconductor industry arose from exogenous supply and demand shocks.[24] On the demand side, people around the world increasingly need devices to access remote work and education, and network operators need additional equipment to manage the increased strain on telecommunications networks. On the supply side, events including a record drought in Taiwan, storms in Texas that knocked out power to production lines, and a fire at a Japanese semiconductor plant all substantially decreased the ability of industry to keep up with the pace of increased demand.[25]

This series of unlikely events have highlighted the need for additional geographic diversity in semiconductor manufacturing, assembly, and design. Congress took an important initial step to address this issue by including the Creating Helpful Incentives to Produce Semiconductors ("CHIPS") in America Act in Title XCIX of the William M. (Mac) Thornberry National Defense Authorization Act ("NDAA") for Fiscal Year 2021.[26] However, Congress has yet to act to appropriate money for the CHIPS Act, which was included in the Senate-passed U.S. Innovation and Competition Act, though the House version of this legislation, the America COMPETES Act, remains to be passed. Meanwhile, the Department of Commerce's National

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[23] *Building Resilient Supply Chains, Revitalizing American Manufacturing, And Fostering Broad-Based Growth*, The White House, p. 24 (June 2021) (*available at* https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf).
[24] *Id.*
[25] *Id.*
[26] William M. (Mac) Thornberry National Defense Authorization Act, Pub. L. No. 116-283, Title XCIX, 1457.

Institute of Standards and Technology ("NIST") is currently collecting feedback on how to implement the CHIPS bill.[27] TIA recommends that NTIA work with Congress and with sister agencies at the Department of Commerce to ensure that CHIPS funding supports an ambitious infrastructure buildout and more broadly the generational change in connectivity technologies currently taking place. In addition to the build-out of 5G networks, the industry is also in the middle of upgrading to next-generation connectivity methods such as WiFi 6 (802.11ax), DOCSIS 3.1 cable modems, and next-generation vehicle to infrastructure (C-V2X) communications. This generational shift and the investments outlined in the BIL make a robust and resilient semiconductor supply chain a necessity to support America's connected future.

     ii.   *The Commerce Department Should Implement Technology-Neutral Semiconductor Incentives That Do Not Prioritize Particular End Uses over Others*

One issue that merits the Commerce Department's attention as it formulates rules regarding CHIPS funding is ensuring that the rules are neutral and do not favor any one sector of the economy. Specifically, the automotive sector has sought to use the power of government to preference their own access to chips over that of the telecommunications sector. Examples include:

- Lobbying by auto companies that resulted in a call by Senators to invoke the Defense Production Act to preference their access to chips.[28]
- A letter from Alliance for Automotive Innovation CEO John Bozella calling on the administration to favor their industry by "specifying that a particular percentage – that is

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[27] Incentives, Infrastructure, And Research and Development Needs to Support A Strong Domestic Semiconductor Industry, 87 FR 3497 (January 24, 2022) (*available at* https://www.federalregister.gov/documents/2022/01/24/2022-01305/incentives-infrastructure-and-research-and-development-needs-to-support-a-strong-domestic).

[28] *Rubio, Coons Urge Biden to Invoke Defense Production Act to Address Semiconductor Shortage*, Marco Rubio's website, (February 24, 2021) (*available at* https://www.rubio.senate.gov/public/index.cfm/2021/2/rubio-coons-urge-biden-to-invoke-defense-production-act-to-address-semiconductor-shortage).

reasonably based on the projected needs of the auto industry – be allocated for facilities that will support the production of auto grade chips."[29]

- A filing by the American Automotive Policy Council to the FCC calling for the agency to promote an allocation-based incentives program just for the automotive sector.[30]
- The inclusion of the "Peters Amendment" in the Senate version of the U.S. Innovation and Competition Act that would create a separate pot of money for the purpose of supporting "legacy node" semiconductors favored by the automotive sector.[31]

There is already a complex, global tool for allocating semiconductors – supply and demand. And as the report from the White House pointed out, many of the current issues faced by the automotive industry came from a choice they made early in the pandemic to lay off workers and slow down production.[32] The telecommunications sector – the largest user of semiconductors and the industry which has helped keep the economy connected during the pandemic – has never asked for preferential access to chips, and the industry does not intend to do so as the Commerce Department drafts rules to support domestic semiconductor manufacturing. Rather, TIA supports technology-neutrality in the drafting of semiconductor manufacturing incentives. No end use – beyond the preference for legacy nodes already

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[29] John Bozella, *Letter to Congress on Semiconductor CHIPS*, Alliance for Automotive Innovation (*available at* https://www.autosinnovate.org/_default_upload_bucket/2021%20-%20Letter%20to%20Congress%20on%20Semiconductors%20-%20CHIPS.pdf).

[30] Comments of the American Automotive Policy Council In the Matter of Wireless Telecommunications Bureau Seeks Comment On Potential Impact Of Global Semiconductor Shortage, Docket No. 21-195, June 10, 2021 (*available at* https://ecfsapi.fcc.gov/file/106100007611472/AAPC%20Submission%20on%20FCC%20Semiconductors%20Supply%20Chains%20(Docket%2021-195)%20FINAL.pdf).

[31] Peters Provision to Increase American Semiconductor Production Advances in Senate, Gary Peters website, (May, 12, 2021) (*available at* https://www.peters.senate.gov/newsroom/press-releases/peters-provision-to-increase-american-semiconductor-production-advances-in-senate#:~:text=Peters'%20amendment%20to%20the%20Endless,chip%20production%20benefit%20American%20manufacturing).

[32] *Building Resilient Supply Chains, Revitalizing American Manufacturing, And Fostering Broad-Based Growth*, pg. 25-26 (*available at* https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf).

embedded in the USICA legislation – should be favored over any other, and supply and demand, and not the lobbyists of the automotive sector, should drive the allocation of semiconductors.

IV. Connecting All Americans Requires A 21st Century Workforce

Question Addressed: 10, 12

i. *Telecom Jobs Pay Well, But Labor Shortfalls Persist*

The telecom sector is a leading source of high-paying jobs in the United States, employing more than 672,000 workers making average wages of $77,500 per year.[33] At the current rate of deployment, the industry is already expected to create more than 850,000 jobs through 2025, which federal support in the BIL will likely accelerate.[34] As noted previously, there are currently worker shortages across the economy but particularly in high-skill, technology-intensive sectors such as the telecommunications sector. The impact of the workforce shortage on the telecommunications industry is not new news. As early as 2019, industry stakeholders and voices within government were already saying that there are in excess of 20,000 job openings for tower climbers and telecom technology specialists that need to be filled.[35] This number is likely larger today, and it will grow in light of federal funding as NTIA itself has been made aware of during its public listening sessions.

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[33] US Telecom, Broadband Coalition Workforce Letter, (January 27, 2021) (*available at* https://www.ustelecom.org/wp-content/uploads/2021/01/workforce-letter-jan-2021_biden.pdf).
[34] *Id.*
[35] Brendan Carr, *The 5g Workforce And Obstacles To Broadband Deployment*, (January 22, 2020) (*available at* https://www.commerce.senate.gov/services/files/6AA613CF-B18C-482A-87B9-C1FE48E50755).

ii.   Supporting Workforce Development Projects Would Accelerate Broadband Buildout

With this workforce shortfall in mind – and particularly in light of the fact that a sizeable amount of BIL funding will be deployed in remote and under-resourced communities – we recommend that NTIA consider ways to allow BIL funds to go toward developing the telecommunications workforce through apprenticeship and other workforce development programs so as to prepare interested workers for the task of deploying broadband internet. This will not only provide workers with a marketable and useful set of skills in this growing industry, but it will also help providers that may or may not have a background in deploying telecommunications networks to develop the workforce that they will need to undertake the task of deploying broadband in unserved and difficult-to-reach areas. We also recommend that NTIA consider ways to work with other parts of the federal government – such as the Department of Education – to support longer-term investments in the telecommunications workforce of the future.

Such an effort could, for example, increase minority participation in the telecommunications workforce as Senators Wicker, Sinema, Scott, and others have recommended in the Improving Minority Participation And Careers in Telecommunications (IMPACT) Act, which has broad support from industry.[36] NTIA could also work with interagency partners to create better guidance for state workforce and development boards and to study the needs of the telecommunications workforce as has been suggested under the

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[36]*Senators Introduce Bill to Address Telecommunications Workforce Shortage*, U.S. Senate Committee on Commerce, Science, and Transportation (March 25,2021) (*available at* https://www.commerce.senate.gov/2021/3/senators-introduce-bill-to-address-telecommunications-workforce-shortage).

Telecommunications Skilled Workforce Act.[37] Finally, TIA recommends expanding visa programs for workers with skills relevant to the telecommunications sector. In particular, TIA would like to see the cap on the number of H-1B visas increased and the application process streamlined so that America's manufacturers and suppliers of telecommunications equipment can effectively recruit and retain the talent they need to lead the world in 5G and beyond.

V. Commerce Must Adopt Technology-Neutral Rules and Regulations for these Funds that Allow Grantees to Utilize All Equipment Options for Building Broadband Networks

Questions Addressed:1, 2, 5, 8, 24

As NTIA considers how it can best administer the broadband funds authorized by the BIL, it is important to construct federal guidelines flexibly and efficiently based on consultation with providers who will receive these funds. NTIA's regulations should ensure that providers can utilize the wide array of technical options available for building these networks, rather than designing regulations that favor one network architecture or technology over another. These regulations should account for the geographically diverse nature of the U.S. and allow providers to select the most effective technology to serve their communities. Additionally, as the federal administrator of these programs, NTIA should educate potential grantees on eligible equipment options, and encourage states to adopt harmonious application processes.

i. NTIA Should Refrain from Introducing Additional Limits on Speed and Latency that Could Render Various Service Options Ineligible

As part of the conditions for receiving broadband funding, the BIL specified that any networks built utilizing these funds needed to meet certain baseline thresholds. With respect to speeds, Congress required grantees to provide broadband speeds of at least 100 MBs upload and

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[37] Telecommunications Skilled Workforce Act (S.163), Congress.gov, (December 16, 2021) (*available at* https://www.congress.gov/bill/117th-congress/senate-bill/163).

20 MBs download.[38] This speed threshold was the result of extensive negotiations among parties, public interest groups, and the ICT industry. The resulting threshold was found to be the best compromise between future-proofing these new networks, thus ensuring that all Americans will have access to high-speed connections while allowing providers flexibility in designing networks with technology best situated for their service community.

While networks funded by BIL grants are required to meet this speed threshold, as a base policy, NTIA should not introduce through regulation additional speed eligibility requirements for funds outside of the limits set in the BIL. As for latency requirements, the BIL required that networks be "low latency" allowing for "real-time interactive" uses.[39] The BIL included this flexible language for latency on purpose, as latency for each customer is directly impacted by numerous circumstances outside of a provider's control when utilizing non-terrestrial options, such as various satellite options. As NTIA works to create eligibility requirements for BIL funding, they should work with industry and the carrier community to ensure that any further latency requirements do not inadvertently reduce eligible network solutions. It is important for NTIA's eligibility requirements to retain a level of flexibility to provide carriers with sufficient options for connecting their communities. 100 percent service in a country as geographically diverse as the United States is both a laudable and challenging goal, and any requirements that would exclude options such as satellite from funding eligibility would adversely impact residents in remote underserved communities where non-terrestrial options could be the most efficient way at receiving high-speed service.

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[38] Public Law No. 117-58.
[39] Public Law No. 117-58.

In promulgating these rules, NTIA must work with both the ICT provider and the manufacturer community to ensure that any regulations adopted are technically feasible. If the grantors of these funds and states want to meet the Administration's goal of providing quality service for 100 percent of the U.S., they must listen to providers about how best to serve their communities. This RFC represents an important first step in collaborating with the ICT service providers that will be applying for these funds, but this mustn't be the last time NTIA seeks input from potential grantees. Instead, NTIA should work with rural providers to make sure their concerns about serving their communities are met, as well as utilize NTIA's role as the administrator of the funds to educate providers on the eligible equipment available to them.

Rural providers will best know how to efficiently connect their communities, and NTIA should resist any call for a preference on a specific type of network equipment, for instance, it is not practical to adopt a fiber-only approach to connecting every home in America, as fixed wireless or even satellite solutions will be required to reach more remote geographical locations. Retaining flexibility concerning network choices will allow carriers to employ the most cost-effective and efficient solutions for their service areas, rather than forcing the most expensive option for every scenario which will increase costs on carriers that will be passed on to consumers.

Additionally, as the administrator of these funds, NTIA has a duty to educate potential grantees on all eligible options. In doing so, NTIA should describe the pros and cons for each option and refrain from stating a preference for a specific technology and should refrain from

any calls for NTIA to put itself in an advocacy role or salesforce-type situation in favor of a specific technology, as has been advocated in some legislation.[40] NTIA should create educational resources for providers on all of the equipment eligible for funding under these programs and should refrain from utilizing these resources as a way to favor or sell a particular technology over other technologies. This, combined with regulatory flexibility in the funding programs, will empower providers to pick the best solution for their service area.

iii.   As the Federal Administrator of these Grants, NTIA's Regulations should Include Provisions that Streamline State Program's Application Processes

The BIL authorizes NTIA to administer $42.45 billion in broadband funding to individual states and territories, though each state or territory will be setting up a framework to administer their respective funds. While each state will be in charge of overseeing the buildout of networks in their respective communities, NTIA has an important coordinating role to play as the federal administrator of these funds. Communities often continue beyond county and state lines, and it is imperative to this program's success that networks can be built in a cohesive and interoperable manner across state borders. To that end, NTIA should establish requirements for the state's application processes that will promote a harmonized application process for potential grantees across state lines.

We have consistently heard from smaller operators that face high barriers of entry when applying for existing funds run by the FCC, such as the existing Connect America Fund or the Mobility Fund. One of the largest barriers for smaller providers to participate in these programs is the complexity of the application process. We have heard from operators that most existing

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[40] *See eg.* Open RAN Outreach Act, H.R. 4032 (117th) (*available at* https://www.congress.gov/bill/117th-congress/house-bill/4032).

broadband grants cannot be done without significant investment in a grant writing consultant, which can dissuade some smaller providers from even attempting to receive grant funding. Additionally, the eligibility of funds for underserved areas has proved to be a challenge for potential grantees.

Eligibility for the BIL's funds will be determined based on new broadband service maps that the FCC is expected to release this year, but NTIA should also learn from processes utilized in past funds. For instance, the FCC's Mobility Fund Phase II utilized a Challenge Process that required wireless carriers to submit coverage data that the FCC then used to create service and eligibility maps. These maps were found to be inaccurate and overstated coverage for certain areas, rendering underserved communities ineligible for funding. As a result, in 2020 the FCC determined not to go forward with the Challenge Process because underlying maps that the process was based on were not sufficiently accurate to guide the program.[41] As the FCC works to establish new maps for the BIL funds, it is imperative that NTIA works with local carriers to ensure the accuracy of those maps and any ineligibility determinations to ensure the administration's goal of 100% service becomes a reality.

VI.   NTIA should Prioritize ICT Network Trust and Security for their Grant Programs

Questions Addressed: 1, 5, 13, 15, 28

As NTIA develops its implementation plans, the Administration must prioritize security throughout the funding and deployment of these broadband networks. As recent high-profile cyber-attacks and expansion of the attack surface exhibited, it is essential for the U.S. to build in

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[41] *See* Report and Order *Establishing a 5G Fund for Rural America*, GN Docket No. 2032, pp. 6-9 (Oct. 29, 2020).

security and resiliency to their networks. Indeed, Division F of the IIJA directs NTIA to provide

technical and general assistance regarding cybersecurity resources for grantees and directs grant

recipients to comply with prudent cybersecurity and supply chain risk management practices

specified by NTIA, in coordination with NIST and the FCC. With this in mind, TIA urges the

Administration to use the substantial consensus-based tools and guidance that the ICT

community has already developed with government partners to manage cyber and supply chain

security, including voluntary international standards – such as existing ISO/IEC standards and

TIA's recently launched SCS 9001 – that help improve network quality and provide supply chain

assurance, while promoting the adoption of continuously evolving best practices.

     i.   NTIA Should Leverage Existing Tools and Guidance to Inform Cybersecurity and Supply Chain Risk Management Expectations

Over the last decade, NTIA has played a critical role in convening ICT stakeholders and

coordinating efforts across the government to help develop guidance and promote the use of

effective cybersecurity and supply chain risk management practices. Many participants in the

IIJA funding programs will already be familiar with key public-private workstreams, including:

- Executive Order 14028 on *Improving the Nation's Cybersecurity*, which directs NIST to develop comprehensive software supply chain guidance;[42]

- The ICT Supply Chain Risk Management Task Force, a joint initiative between the Communications and IT Sector Coordinating Councils and government partners

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[42] Executive Order 14028, *Improving the Nation's Cybersecurity* (May 12, 2021), (*available at* https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/12/executive-order-on-improving-the-nations-cybersecurity/). As part of this effort, NIST built on its substantial existing risk management guidance and recently published SP 800-161 Rev. 1 *Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations (2ND Draft)*, SP 800-218 *Secure Software Development Framework (SSDF) Version 1.1: Recommendations for Mitigating the Risk of Software Vulnerabilities*, and NISTIR 8397 *Guidelines on Minimum Standards for Developer Verification of Software*.

convened within CISA's National Risk Management Center that identifies and develops consensus strategies to enhance ICT supply chain security;[43]

- The Enduring Security Framework, an executive-level public-private partnership convened by NSA and CISA to address discrete technical security challenges;[44]

- The FCC's Communications Security, Reliability, and Interoperability Council (CSRIC), a federal advisory committee of communications security experts that provides recommendations addressing challenges such as the prevention and remediation of detrimental cybersecurity events, the development of best practices to improve overall communications reliability, the availability and performance of communications services and emergency alerting during natural disasters, terrorist attacks, cybersecurity attacks or other events that result in exceptional strain on the communications infrastructure, the rapid restoration of communications services in the event of widespread or major disruptions, and the steps communications providers can take to help secure end-users and servers;[45] and

- The National Initiative for Improving Cybersecurity in Supply Chains (NIICS), a recently announced public-private partnership at NIST supporting the development of domestic and global supply chain risk management practices.[46]

NTIA should give particular consideration to the NIST *Framework for Improving Critical Infrastructure Cybersecurity* ("Framework" of "CSF") as foundational guidance for all broadband grantees.[47] Communications sector leaders, including many TIA members, undertook substantial efforts through CSRIC in 2015 to develop detailed guidance for network operators

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[43] CISA, Information and Communications Technology (ICT) Supply Chain Risk Management (SCRM) Task Force, (last visited Feb. 2, 2022), (*available at* https://www.cisa.gov/ict-scrm-task-force).

[44] ESF recently produced a four-part series of Security Guidance for 5G Cloud Infrastructures, including Part I: Prevent and Detect Lateral Movement, Part II: Securely Isolate Network Resources, Part III: Protect Data in Transit, In-Use, and at Rest, and Part IV: Ensure Integrity of Infrastructure.

[45] FCC, Communications Security, Reliability, and Interoperability Council (last visited Feb. 2, 2022), (*available at* https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability-council-0).

[46] NIST, *Improving Cybersecurity in Supply Chains: NIST's Public-Private Partnership* (updated Nov. 16, 2021), (*available at* https://www.nist.gov/cybersecurity/improving-cybersecurity-supply-chains-nists-public-private-partnership).

[47] National Institute of Standards and Technology, *Cybersecurity Framework*, (last visited Feb. 2, 2022), (*available at* https://www.nist.gov/cyberframework).

implementing the Framework across all five segments of broadcast, cable, satellite, wireless, and wireline networks.[48] The Framework and 2015 CSRIC Report provide a comprehensive set of fundamental cybersecurity and supply chain risk management expectations, which NTIA may easily augment with technical assistance for smaller grant recipients.

ii.   *TIA Standards on ICT Network and Resiliency can Help NTIA Improve ICT Network Quality and Illuminate Supply Chains*

TIA has long advocated that the ICT industry itself is in the best position when it comes to efforts to secure its supply chains. NTIA, nor any other branch of the U.S. government, or any state, should take on the mantle of establishing mandatory cybersecurity standards that industry must abide by. Instead, NTIA should work with industry and educate potential grantees on existing industry-led standards and best practices. TIA's belief in industry-led solutions was the driving force behind our release last month of TIA SCS 9001, the first global ICT industry standard to measure and verify supplier trust.[49]

Over the past two years, over 60 volunteers from ICT companies worked across 9 different working groups managed through TIA's subsidiary, QuEST Forum, to create a draft of SCS 9001. That draft was then vetted via 500 comments submitted from ICT stakeholders, including representatives of U.S. and international governments before a public version of SCS 9001 was released late last year. The goal of SCS9001 is to create a standard that verifies end-to-end cyber and physical security across ICT network infrastructure, including products, software, hardware, and general services that connect networks across the globe. SCS 9001 is a process-

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[48] Communications Security, Reliability and Interoperability Council IV, *Cybersecurity Risk Management and Best Practices: Working Group 4: Final Report*, (Mar. 2015), (*available at* https://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG4_Final_Report_031815.pdf).
[49] *See* About SCS 9001: Supply Chain Security Standard (*available at* https://tiaonline.org/what-we-do/scs-9001-supply-chain-security-standard/).

based standard with an independent audit and certification program for suppliers and service providers to verify security controls and processes are in place for their products and solutions. SCS 9001 is also built around a Quality Management System which operationalizes international industry best practices, such as ISO 27001, the Prague Proposals, NIST standards, and industry guidelines such as the CSIS Criteria for Security and Trust. As NTIA works to fund networks and close the digital divide, we urge both NTIA and the Administration to utilize industry-led standards and guidelines, such as our own SCS 9001, as benchmarks for how to build in security to new high-speed networks across the country.

VII. Conclusion

TIA welcomes this opportunity to provide feedback on the once-in-a-generation opportunity provided by the BIL to build fast, reliable, and resilient networks across unserved and underserved portions of the United States. As NTIA and the Department of Commerce work to establish these funds, TIA welcomes any opportunity to discuss ways the Administration can make the goal of 100 percent service a reality.

By: _/s/ Patrick Lozada_____

Patrick Lozada
Director, Global Policy

Colin Black Andrews
Senior Director, Government Affairs

TELECOMMUNICATIONS INDUSTRY ASSOCIATION
1310 N. Courthouse Road
Suite 800
Arlington, VA 22201
(703) 907-7700

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