

**BEFORE THE
DEPARTMENT OF COMMERCE
WASHINGTON, D.C.**

In the Matter of)	
)	
Risks In the Semiconductor Supply)	Docket No. 210915-0189
Chain)	RIN 0694-XC084
)	

COMMENTS OF NCTA – THE INTERNET & TELEVISION ASSOCIATION

NCTA – The Internet & Television Association (NCTA)¹ submits these comments in response to the U.S. Department of Commerce’s (the Department) request for comments regarding risks in the U.S. semiconductor supply chain.²

INTRODUCTION

NCTA appreciates the opportunity to provide input on semiconductor supply chain risks and measures the federal government can take to help ameliorate current shortages and delays. The Department’s request appropriately seeks to “facilitat[e] the flow of information across the various segments of the supply chain [by] identifying gaps and bottlenecks in the supply chain, and potential inconsistent demand signals.”³ NCTA, joined by industry associations that collectively represent the nation’s leading broadband providers, wrote to President Biden on February 24, 2021 to express strong support for the Administration’s “early focus on the supply chain for semiconductor chips, which are critical to today’s broadband networks and the next

¹ NCTA is the principal trade association of the cable television industry in the United States, which is a leading provider of residential broadband service to U.S. households. Its members include owners and operators of cable television systems serving nearly 80 percent of the nation’s cable television customers, as well as more than 200 cable program networks.

² Risks in the Semiconductor Supply Chain, 86 Fed. Reg. 53,031 (Sept. 24, 2021) (BIS September 2021 Semiconductor PN).

³ *Id.*

generation of broadband services that [Internet service providers] are deploying to keep Americans connected.”⁴ The study called for by Executive Order 14017—which recognized that semiconductors are “the linchpin” of high-speed broadband infrastructure—was an important step toward ensuring America’s continued competitiveness in the global economy.⁵ However, the Department should take additional steps to ensure that the paramount national interest in supporting increased broadband deployment and access is appropriately recognized and prioritized in developing policies to bolster semiconductor supply chain resiliency.

During the COVID-19 pandemic, the communications industry has seen extraordinary demand for consumer and network electronics that require semiconductor chips. While working, learning, and seeing doctors from home, consumers around the world have updated their laptops, smartphones, tablets, gaming systems, television set-top boxes, and home networking equipment and relied more heavily on cloud-computing services and their associated data centers, putting unprecedented strain on the semiconductor industry to produce the chips required to power such devices.⁶ Recent events further underscore the fragility of the global supply chain for semiconductors. This spring, for example, a fire devastated one of the world’s largest chip

⁴ Letter from ACA Connects – America’s Communications Association, CTIA, NCTA – The Internet & Television Association, and USTelecom – The Broadband Association to Joseph R. Biden, Jr., President of the United States, at 1 (Feb. 24, 2021).

⁵ The White House, *Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth: 100-Day Reviews under Executive Order 14017* (June 2021), <https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf>.

⁶ See Asa Fitch and Elizabeth Koh, *Chips Are in Hot Demand—and That’s a Problem*, The Wall Street Journal (Jan. 14, 2021), <https://www.wsj.com/articles/chips-are-in-hot-demandand-thats-a-problem-11610630859>.

manufacturers in Japan,⁷ a container ship ran aground and blocked the Suez Canal, stalling billions of dollars in global trade,⁸ and the worst drought in decades hit Taiwan, slowing semiconductor production, given its dependence on “voluminous quantities of water to churn out chips.”⁹ Most recently, the power outages afflicting China are expected to further compound the problem.¹⁰ These unanticipated occurrences follow more than a year of similarly unpredictable events, including prior factory fires and restrictions in the global transportation system.¹¹ Such events have exposed supply chain vulnerabilities—including in particular over-dependence on a small number of foreign suppliers—that are expected to persist over the next year (if not longer).¹²

As a result of these supply chain issues, some broadband service providers—which heavily rely on semiconductors—are seeing increased lead times and rising costs that threaten to

⁷ Yang Jie, *Fire at Giant Auto-Chip Plant Fuels Supply Concerns*, The Wall Street Journal (Mar. 23, 2021), <https://www.wsj.com/articles/renesas-chip-plant-fire-spreads-concerns-about-global-auto-production-11616414181>.

⁸ Vivian Yee and Peter S. Goodman, *Suez Canal Blocked After Giant Container Ship Gets Stuck*, The New York Times (updated July 17, 2021), <https://www.nytimes.com/2021/03/24/world/middleeast/suez-canal-blocked-ship.html>.

⁹ See Stephanie Yang, *The Chip Shortage Is Bad. Taiwan’s Drought Threatens to Make It Worse*, The Wall Street Journal (Apr. 16, 2021), https://www.wsj.com/articles/the-chip-shortage-is-bad-taiwans-drought-threatens-to-make-it-worse-11618565400?mod=hp_featst_pos5.

¹⁰ See Eamon Barrett, *Supply Chain Delays Are Bad—China’s Rolling Power Outages Will Make Them Worse*, Fortune (Sept. 28, 2021), <https://fortune.com/2021/09/28/china-energy-crisis-chip-shortage-supply-chain-delay>.

¹¹ See Bindiya Vakil and Tom Linton, *Why We’re in the Midst of a Global Semiconductor Shortage*, Harvard Business Review (Feb. 26, 2021), <https://hbr.org/2021/02/why-were-in-the-midst-of-a-global-semiconductor-shortage>.

¹² See Stephanie Yang and Jiyoung Sohn, *Global Chip Shortage ‘Is Far From Over’ as Wait Times Get Longer*, The Wall Street Journal (updated Oct. 29, 2021), https://www.wsj.com/articles/global-chip-shortage-is-far-from-over-as-wait-times-get-longer-11635413402?mod=hp_lead_pos7.

slow innovation and harm American consumers. Indeed, broadband providers have seen product lead times more than double over the past year, with unfulfilled orders set to be delivered a year or more after they were placed.¹³ These slowdowns could have ripple effects throughout the broadband ecosystem, including hampering new deployment and service improvements. In turn, delaying broadband deployment risks stranding tens of billions of dollars in federal investment in broadband and leaving consumers and businesses without the bandwidth they need to connect and compete. For example, the various federal subsidy programs implemented and promoted by the Administration, such as the Emergency Broadband Benefit Program and Emergency Connectivity Fund administered by the Federal Communications Commission (FCC), which provide critical support to low-income consumers to purchase broadband services and connected devices and to schools and libraries to expand the availability of remote learning, risk being hampered by shortages in consumer technology that could continue into next year.¹⁴

For all these reasons and as described further below, NCTA appreciates the urgency with which the Department, the Administration more broadly, and Congress are approaching this challenge and looks forward to continuing to work with all stakeholders to shape policy initiatives that ease the shortage and improve domestic research, development, and production of key semiconductor resources going forward. In particular, in the near term, NCTA urges the Department to ensure that the needs of the communications sector are prioritized as policymakers take action to ameliorate constraints in the semiconductor supply chain. The

¹³ Comments of NCTA – The Internet & Television Association, FCC WT Docket No. 21-195, at 3-4 (filed June 10, 2021) (NCTA FCC Semiconductor Comments).

¹⁴ See Josh Taylor, *Acer Says Global Chip Shortage to Slow Laptop Production Until at Least Next Year*, The Guardian (May 31, 2021), <https://www.theguardian.com/technology/2021/jun/01/acer-says-global-chip-shortage-to-slow-laptop-production-until-at-least-next-year>.

situation for some broadband providers is serious and consequential, and the most substantial adverse effects for broadband appear to be ahead of—and not behind—us. We recognize the seriousness of the impact of the shortage on the automotive industry, but the impact on the broadband industry is every bit as dire, if not more so. Sector-specific set-asides for the automotive industry are plainly inappropriate, including because such set-asides might reduce semiconductor availability for the communications sector and the critical infrastructure and services it supports. Such a policy would conflict with national broadband deployment goals and undermine economic growth. In the long term, the Department, in coordination with the FCC and other relevant agencies, should recommend a course of action that supports investment in the expansion of domestic innovation and manufacturing capacity for semiconductors.

DISCUSSION

NCTA appreciates the Department's vigorous response to the ongoing challenge stemming from interruptions in the semiconductor supply chain, as well as the Department's interest in better understanding the impact of the global shortage on the communications sector. NCTA urges the Department to work with other federal agencies and Congress to ensure that any targeted governmental interventions in the marketplace account for the critical needs of broadband and cable television providers to obtain chipsets for modems, routers, set-top boxes, and other network equipment essential to the provision of broadband and cable television services. The vital national policy interest in facilitating increased broadband deployment, especially given the increased reliance on the services provided by the communications sector as a result of the COVID-19 pandemic, militates strongly in favor of government action to help ameliorate the supply chain issues afflicting broadband providers and consumers.

I. Broadband Providers Are Critical Users of Semiconductors

In his remarks prior to signing E.O. 14017, President Biden recognized that semiconductors are “a wonder of innovation and design that powers so much of our country, enables so much of our modern lives to go on – not just our cars, but our smartphones, televisions, radios, medical diagnostic equipment, and so much more.”¹⁵ The President rightly recognized that semiconductors undergird much of the American economy, including our communications infrastructure. Consistent with the President’s Order, the Department’s Public Notice appropriately seeks to “facilitat[e] the flow of information across the various segments of the supply chain [by] identifying gaps and bottlenecks in the supply chain, and potential inconsistent demand signals.”¹⁶ While each industry has been impacted in its own way, the harmful impact on the communications sector, including broadband providers, requires solutions that account for the vital national interest in promoting increased broadband deployment and universal access, especially in light of the increased reliance on services provided by the communications sector during the COVID-19 pandemic.

The impacts of constricted semiconductor supply on the broadband and cable television industry are substantial and widespread, with communications comprising approximately 50 percent of the U.S. end-use market for semiconductors.¹⁷ NCTA members have reported that

¹⁵ President Biden, Remarks at the Signing of an Executive Order on Supply Chains (Feb. 24, 2021), <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/02/24/remarks-by-president-biden-at-signing-of-an-executive-order-on-supply-chains>.

¹⁶ BIS September 2021 Semiconductor PN at 53,031.

¹⁷ See The White House, *Building Resilient Supply Chains, Revitalizing American Manufacturing, And Fostering Broad-Based Growth, 100-Day Reviews under Executive Order 14017*, at 24-25 (June 8, 2021), available at <https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf>; Comments of USTelecom – The Broadband Association, FCC WT Docket No. 21-195, at 2 (filed June 10, 2021) (USTelecom Comments) (“Even before the COVID-19 pandemic . . . the ICT infrastructure and mobile phone markets collectively accounted for 50 percent of total global

lead times for semiconductors have gone from around 18 weeks in early 2020 to 50 weeks or more today as suppliers struggle to keep up with demand.¹⁸ When such lead times are added to the time required to manufacture and transport devices, broadband providers now expect to receive new network equipment more than a year after orders are placed in some instances. As a result, some broadband providers have been forced to scale back marketing campaigns and limit efforts to expand coverage to new areas, including unserved and underserved communities with a particularly acute need for expanded broadband access—especially during the COVID-19 pandemic.¹⁹ Similar delays impact the manufacture and delivery of set-top boxes necessary to deliver cable television service to customer homes. Apart from such customer equipment shortfalls, some broadband providers are facing comparable delays in receiving network switches, routers, and servers, as well as network amplifiers and nodes, slowing the rate of growth for urgently needed additional bandwidth. Shortages in semiconductors and the associated delays could result in hundreds of millions of dollars in impact to the broadband and cable television industry this year.²⁰ For example, CommScope “expects shortages on silicon and other components to impact full-year net sales by about \$600 million,” \$340 million in

semiconductor sales.”); Comments of the Semiconductor Industry Association, FCC WT Docket No. 21-195, at 3 (showing a breakdown of the 2020 global semiconductor market, with 31.2% of consumption attributed to communications, 12% to Consumer, and 32.3% to PC/Computer).

¹⁸ NCTA FCC Semiconductor Comments at 7.

¹⁹ For example, it was reported in April that T-Mobile warned that its 5G fixed wireless service will be limited by supply chain constraints at launch. Mike Dano, *AT&T, Samsung, Others to Meet with Biden Over Chip Shortages*, Light Reading (Apr. 12, 2021), <https://www.lightreading.com/security/atandt-samsung-others-to-meet-with-biden-over-chip-shortages/d/d-id/768691>.

²⁰ See, e.g., Mike Dano, *Chip Shortages Spread into Telecom*, Light Reading (Feb. 24, 2021), <https://www.lightreading.com/opticalip/chip-shortages-spread-into-telecom/d/d-id/767660> (noting that a company estimated that chip shortages could cost up to \$10 million over the span of a few months).

impact to its customer premises equipment (CPE) unit and \$260 million in impact to the core portion of its business, including Broadband Networks, Venue and Campus Networks, and Outdoor Wireless Networks.²¹ Another NCTA member estimates cost increases of 10-20 percent alongside product delays of 10-20 percent versus its forecast.

Others in the communications sector also have described major extensions in lead-time for obtaining chips²² and significant price increases for equipment.²³ For example, TIA notes that “in general companies are seeing product lead times roughly double with [information and communications technology (ICT)] infrastructure-side equipment going from 16-20 weeks to a 50+ week lead time in the production cycle. . . . [with] reported cost increases of up to 5%.”²⁴ Mavenir Systems similarly reports “component costs of up to a three-fold (3x) increase, and extension of lead times from 6-8 weeks to more than 1 year.”²⁵ In general, costs appear to have shifted to a market-price model (in some cases without regard to contractually agreed pricing),

²¹ Jeff Baumgartner, *Supply Chain Disruptions Cut into CommScope Sales*, LightReading (Nov. 4, 2021), <https://www.lightreading.com/cable-tech/supply-chain-disruptions-cut-into-commscope-sales-/d/d-id/773268>.

²² Comments of Mavenir Systems, Inc., FCC WT Docket No. 21-195, at 2 (filed June 10, 2021) (Mavenir Comments); Comments of Rural Wireless Association, Inc., FCC WT Docket No. 21-195, at 1 (filed June 10, 2021) (RWA Comments); Comments of the Alarm Industry Communications Committee, FCC WT Docket No. 21-195, at 7 (filed June 10, 2021); Comments of Stel Life Inc., FCC WT Docket No. 21-195, at 1 (filed June 10, 2021) (Stel Life Comments); Comments of the Information Technology Industry Council, FCC WT Docket No. 21-195, at 3 (filed June 10, 2021) (ITI Comments); Comments of Competitive Carriers Association, FCC WT Docket No. 21-195, at 2 (filed June 10, 2021) (CCA Comments); Comments of the Telecommunications Industry Association (TIA), FCC WT Docket No. 21-195, at 4 (filed June 10, 2021) (TIA Comments); Comments of NTCA – The Rural Broadband Association, FCC WT Docket No. 21-195, at 3 (filed June 10, 2021) (NTCA Comments); USTelecom Comments at 2, 3.

²³ Stel Life Comments at 1; TIA Comments at 4; NTCA Comments at 4; USTelecom Comments at 2, 3.

²⁴ TIA Comments at 4.

²⁵ Mavenir Comments at 2.

and NCTA members expect price increases associated with market pricing and continued supply constraints to persist into 2022. Due to the constrained supply of chipsets, one NCTA member has seen proposed price increases on chipsets of 15-20 percent, which goes beyond understood increases in raw materials prices, and does not include expedite fees charged on top of these price increases for shorter leadtimes, which are often quoted at millions of dollars. In some cases, Original Equipment Manufacturers (OEMs) have resorted to sourcing chipsets in the spot buy market, which are often quoted in excess of 150 percent higher than contractually agreed prices.

Together, these impacts have led to some delays in upgrading existing services, building out infrastructure, or providing new services to customers.²⁶ As USTelecom notes, “[b]roadband providers have had to delay customer turn up in some cases. . . . [and] providers find themselves having to seek multiple customer-premises equipment . . . sources to mitigate impacts to their customers.”²⁷ NTCA also notes that some providers

have had to compensate for the delay by suspending efforts to build redundancy into their network or halting network expansion efforts. While providers are working diligently and creatively to compensate for current equipment shortages and delays, the longer the shortage and delay remain in place, providers will likely be faced with making difficult decisions that will negatively impact their communities.²⁸

Unfortunately, there is no clear anticipated end-date for the shortage, and the biggest associated challenges for broadband providers are likely still before us. Commenters express significant

²⁶ See USTelecom Comments at 4; NTCA Comments at 3-4; TIA Comments at 6; ITI Comments at 8-10; Mavenir Comments at 8; Stel Life Comments at 2; RWA Comments at 2.

²⁷ USTelecom Comments at 4.

²⁸ NTCA Comments at 3-4.

uncertainty about when semiconductor supply will again meet demand, with some forecasting that the shortage could last into 2023.²⁹

At every level of a broadband network, the Internet is powered by semiconductors. Notably, delivering broadband to residential and commercial customers requires continuous innovation and investment at tremendous scale—all of which are contingent on semiconductors. At the highest level of their networks, broadband providers operate, maintain, and expand racks of computing equipment that power the global Internet. These industrial-scale routers, switches, and servers operate every minute of every day to send data packets across the country and around the world. At the regional level, cable broadband providers operate Converged Cable Access Platforms (CCAP), Cable Modem Termination Systems (CMTS), power systems, and additional equipment for routing traffic and managing user modems. These sophisticated network hubs routinely require new and upgraded equipment to ensure that sufficient bandwidth reaches end users. And finally, at the point of service, modems, Wi-Fi routers, and other equipment power the connection for consumers and businesses alike.

Delivering broadband and cable television services requires deploying dozens of semiconductors within each American home, school, and office, on top of the countless chips that power the rest of the network. For example, the cable modems that provide broadband connectivity to many American homes can have as many as 10 semiconductors apiece. And many additional chips are used to power and control the Wi-Fi routers and extenders that enable connectivity from laptops, tablets, mobile phones, and other connected devices throughout our homes, and still more are used in the set-top boxes used to deliver cable television service.

²⁹ Mavenir Comments at 2; ITI Comments at 5; TIA Comments at 5; USTelecom Comments at 4.

Broadband providers deploy tens of millions of modems and routers each year as new customers add service and existing customers upgrade services. All told, broadband providers spend hundreds of millions of dollars each year to upgrade and maintain network equipment, each aspect of which depends on semiconductors that control the operations, power supplies, and network connections that make the Internet function.

Never have these investments proven more important than in the last year. American broadband networks have performed extremely well during the COVID-19 pandemic, despite significant shifts in the volume, timing, and location of usage. Users have never demanded so much of their already-important Internet connections. That said, COVID-19 has also exposed the serious consequences for consumers who do not have sufficient access to broadband, and the demand for fast and reliable connections has never been higher. The broadband industry has responded to this demand with billions of dollars in new investments at all levels of their networks. As millions of Americans work from home, schools continue to offer remote options, and telemedicine visits have become the norm, broadband providers have been deploying new equipment—again, invariably relying on semiconductors—to keep people connected. These investments have helped improve broadband access while driving economic growth and keeping people employed during a time of tremendous uncertainty.³⁰

An extended semiconductor shortage and associated delays in communications equipment availability would significantly impact the U.S. economy. According to the Internet Association, in 2018, “the internet sector contributed 10.1 percent of U.S. GDP and 4.0 percent

³⁰ See, e.g., Qualcomm, Response to the Notice of Request for Public Comments Related to President’s Executive Order 14017 on America’s Supply Chains, RIN 0694–XC073, at 8 (Apr. 5, 2021), <https://www.regulations.gov/comment/BIS-2021-0011-0049> (projecting that 5G “is expected to generate more than \$13.2 trillion of global economic activity by 2035, and create up to 16 million new U.S. jobs between 2021 and 2025”).

of jobs (non-farm employment)” and “supported another over 13.1 million indirect jobs and . . . invested over \$60 billion into the economy.”³¹ Those numbers have undoubtedly increased in the intervening years as more of our commercial activities rely on broadband connectivity, a reliance that became particularly pronounced in the last year as many across the country moved their work, education, medical, and social activities to the Internet. As Federal Communications Commission Chairwoman Jessica Rosenworcel has put it, “[b]roadband is more than a technology—it’s a platform for opportunity. No matter who you are or where you live in this country, you need access to advanced communications to have a fair shot at 21st century success.”³² In order to keep the broadband economic engine running and connect more Americans to high-speed Internet, access to sufficient semiconductors is critical.

While NCTA’s members are making the necessary investments to keep America connected, more is needed to keep up with the growing appetite for bandwidth and connectivity, as the Biden Administration, the FCC, and Congress have recognized by appropriating billions of dollars for broadband investment and proposing tens of billions in additional funding. Despite the extraordinary network investments made over the last year, continued progress on closing the digital divide could be hampered if semiconductor supply chain delays and shortfalls persist. Congress appropriated more than \$3 billion to fund the Emergency Broadband Benefit Program

³¹ Christopher Hooton, Internet Association, *Measuring the U.S. Internet Sector: 2019* at 3, 7 (2019), https://internetassociation.org/wp-content/uploads/2019/09/IA_Measuring-The-US-Internet-Sector-2019.pdf (noting that for purposes of these estimates, the Internet sector includes wired and wireless telecommunications carriers; data processing, hosting and related services; and e-commerce; among others).

³² *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, Fifteenth Broadband Deployment Report Notice of Inquiry, 34 FCC Rcd. 10,092, 10,106 (2019) (Statement of Commissioner Jessica Rosenworcel, Dissenting).

and more than \$7 billion in additional funding for the Emergency Connectivity Fund. The FCC also has committed \$9.2 billion in subsidies through the Rural Digital Opportunity Fund (RDOF) to expand broadband into unserved areas, and Congress has just approved spending more than \$40 billion more in infrastructure legislation that recently passed both houses to meet this burgeoning need for broadband connectivity. Yet the full potential of these initiatives will not be realized without sufficient consumer and network equipment to support deployment.

As many commenters in the FCC’s semiconductor proceeding noted, the impact of semiconductor scarcity on broadband deployment could have a disproportionate impact on communities of color and rural America.³³ New broadband upgrades and deployments to unserved and underserved areas are often a prerequisite to commencement—or acceleration—of digital literacy and digital skills initiatives in local communities. Predicting continued scarcity into the future, some commenters are already calling on the Commission to provide additional time to meet Connect America Fund, RDOF, and other broadband deployment commitments, as well as to satisfy remove-and-replace requirements associated with equipment deemed to pose a national security risk.³⁴

The importance of the next broadband upgrade and maintenance cycle is magnified by demands on capacity and changes in network usage resulting from the pandemic. Further, these upgrade and maintenance activities by broadband providers will be occurring alongside an increase in construction of new broadband facilities fueled by the above-mentioned federal subsidy programs.

³³ Mavenir Comments at 8; ITI Comments at 10; TIA Comments at 6.

³⁴ USTelecom Comments at 2, 6-7; RWA Comments at 3-4.

Unfortunately, the surge in demand and the increase in federal funding arrived at precisely the same time that semiconductor supplies became constrained. With chip manufacturers hit hard by COVID-19 and an uncertain future for the global economy, semiconductor production slowed significantly in early 2020. And when the economy began to recover more quickly than anticipated, including an increase in demand for information and communications technology products needed to work and learn from home, many suppliers were left unprepared. On top of these unprecedented challenges, various other factors—including trade restrictions, fires, and the devastating power outages in Texas—further reduced supply. NCTA is also aware of reports that foreign manufacturers and suppliers have been hoarding chips as a hedge against future supply constraints, including those that may result from U.S. trade sanctions. Such stockpiling has further reduced the supply of semiconductors available to those who are ready to put them to good use today. The result for broadband providers has been increased wait times (more than 50 weeks, as described above, up from 18 weeks in early 2020) and increased prices for new equipment, both of which could eventually hurt American consumers. The impact is particularly significant for the larger chips that power modems, routers, and other network equipment. Semiconductor foundries, faced with growing demand, have focused increasingly on smaller, next generation chips of 16 nm and smaller that power mobile phones, smart home devices, and other consumer technology. With fabricators using their finite capacity to produce smaller, more dense chips, the broadband industry and others who rely on less dense chips larger than 16 nm (particularly 28 nm, which is commonly used for Wi-Fi) have been constrained even further. The compounding effects of these events—many of which are unrelated—have exposed the limits of the global semiconductor supply chain.

With record demand for connectivity and unprecedented shortfalls in equipment availability, the health of American broadband networks depends on urgently finding solutions to the ongoing semiconductor shortages. The needs of the broadband industry are manifest and increasingly acute, with the potential to negatively impact other sectors. The interdependencies of the 21st century economy guarantee that the risks present in the semiconductor manufacturing and advanced packaging supply chain will impact virtually all industry sectors. Indeed, many sectors are jockeying to procure the chips they need to deliver their products and services ahead of others. The Department, working with Congress and its agency partners, should ensure that the critical needs of the communications sector are addressed so that broadband providers can benefit from the more robust supply chain that will result.

II. The Department Should Prioritize Broadband in Its Approach to Facilitate a More Reliable Supply Chain for Semiconductors While Considering All Available Tools to Streamline Technology Deployment

While the short-term challenges of semiconductor availability require urgent action, it is equally important that the federal government consider long-term fixes that will build capacity and resilience into the supply chain in a manner that specifically targets the problems faced by the broadband industry. NCTA supports the President’s policy goal, expressed in E.O. 14017, of developing “resilient, diverse, and secure supply chains to ensure our economic prosperity and national security.”³⁵ Bolstering the supply chain requires investing boldly yet strategically in domestic research, development, and manufacturing. Through the use of targeted incentives, new production capacity can be built in the United States that will reduce or eliminate the long-term risks to the supply chain. Work on many of these policies has already begun, but the

³⁵ Executive Order No. 14017, 86 Fed. Reg. 11,849 (Feb. 24, 2021).

Department should ensure that its activities advance—and where necessary add to—these ongoing efforts.

NCTA was encouraged when Congress voted—with large bipartisan majorities in both houses—to adopt the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, which includes provisions to encourage investment in facilities and equipment in the United States for semiconductor fabrication, assembly, testing, advanced packaging, and research and development.³⁶ Those provisions—part of Title XCIX, Creating Helpful Incentives to Produce Semiconductors for America (CHIPS for America)—advance several important policy goals, each of which aims to improve the supply chain for semiconductors. Among other things, CHIPS for America requires the Secretary of Commerce to establish a program to provide financial assistance to private and public entities to incentivize investment in facilities and equipment in the United States for semiconductor fabrication, assembly, testing, advanced packaging, or research and development. This legislation also authorizes a fund to help secure international semiconductor supply chains, requires the establishment of a Microelectronics Leadership subcommittee within the National Science and Technology Council, and requires the formation of an industry advisory committee to assist the U.S. government on matters relating to microelectronics research, development, manufacturing, and policy.

While NCTA supports these efforts, the success of CHIPS for America depends on future appropriations from Congress to ensure that the necessary investments are made to establish a more secure and reliable supply chain. In line with President Biden’s expression of support for

³⁶ See William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Pub. L. No. 116-283.

\$50 billion in semiconductor manufacturing and research, as called for in CHIPS for America,³⁷ NCTA urges the Department to work closely with Congress so that these important initiatives can be fully realized.

Some of the proposals in Congress to address the chip shortage prioritize semiconductor production “at mature technology nodes” and support for semiconductor supply chains that serve vehicle manufacturing, which could result in skewing funding benefits in favor of the auto industry. We recognize the seriousness of the auto industry situation, but the impact of the chip shortage on the broadband industry is every bit as dire, if not more so. Further, unlike the situation with the auto industry, the most harmful effects of the shortage for broadband may be ahead of, and not behind, us—particularly if the chips remain scarce for longer than expected, as some experts predict. Sector-specific set-asides for the automotive industry are plainly inappropriate when so many sectors of our global economy are reliant on semiconductor chips, each weathering the same shortage. To the extent such set-asides might reduce semiconductor availability for the communications sector and the critical infrastructure and services it supports, such a policy would conflict with national broadband deployment goals and undermine economic growth. The Department should underscore the adverse impact of the chip shortage on the broadband industry, and the potential cascading effects that impact could have on other portions of the economy.

The Department also should continue to work closely with Congress to pass crucial bipartisan legislative proposals like the U.S. Innovation and Competition Act of 2021, which would improve the semiconductor supply chain and advance investments in cutting-edge

³⁷ *Fact Sheet: The American Jobs Plan*, The White House (Mar. 31, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan>.

technologies like artificial intelligence and quantum computing. We also encourage the Department to consider what tools it may have to facilitate the efficient deployment of secure critical broadband technologies. Finally, the Department endeavors on the semiconductor supply chain should work in harmony with efforts from across government and industry to secure additional aspects of the American supply chain, including that for the communications sector more broadly.

CONCLUSION

NCTA encourages the Department to consider the risks posed to the communications sector by restrictions in the semiconductor supply chain, while advancing policy proposals that will ensure that the paramount national interest in supporting increased broadband deployment is recognized and access to semiconductors to achieve this important national objective is appropriately prioritized.

Respectfully submitted,

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