



November 14, 2022

The Honorable Gina Raimondo
Secretary of Commerce
Washington, DC 20230

Re: Request for Information, National Institutes of Standards and Technology, Commerce; Implementation of the CHIPS Incentives Program (87 Fed. Reg. 61,570-61,573, October 12, 2022)

Dear Secretary Raimondo:

The U.S. Chamber of Commerce (“the Chamber”)¹ appreciates the opportunity to respond to the U.S. Department of Commerce’s (“Department”) request for information (“RFI”) regarding the design and implementation of the CHIPS incentive programs (“programs”) authorized by Title XCIX of the Fiscal Year 2021 William M. Thornberry National Defense Authorization Act and as amended by the CHIPS and Science Act of 2022.² The Chamber is committed to collaborating with the federal government on the effective implementation of the CHIPS incentive programs.

Appropriate Use of Grants, Loans, and Loan Guarantees

As the Department crafts the parameters of the CHIPS incentive programs, the Chamber believes that the Department must focus on primary legislative intent of the CHIPS Act, which is to address the cost differential to incentivize domestic production.³ The CHIPS Act provides the Department the discretion to allocate up to \$6 billion for loans and loan guarantees, and the RFI encourages applicants to consider loans and loan guarantees in their applications.⁴ Loans and loan guarantees, especially those with long-term low interest rates, may help expand the scope of the assistance provided the program, especially if the program is oversubscribed.

¹ The Chamber’s membership includes the entire semiconductor ecosystem (leading edge and mature semiconductor and microelectronics manufacturers, designers, and equipment and materials makers), information and communications technology companies, and a host of semiconductor end users across the entire U.S. economy. Our comments are informed by this broad perspective and underscore the critical nature of semiconductor technology to the U.S. economy and our global competitiveness.

² Implementation of the CHIPS Incentives Program, 87 Fed. Reg. 61570 (proposed Oct. 12, 2022) (“RFI”).

³ *CHIPS Act Poised to Boost U.S. Businesses*, CLARK SCHAEFER HACKETT BUSINESS ADVISORS (Aug. 19, 2022), <https://www.cshco.com/articles/chips-act-boost-businesses/>.

⁴ RFI at 61571

However, the Chamber is concerned that an initial emphasis on loans and loan guarantees may insufficiently address the cost differential for semiconductor manufacturing given the certainty provided by grants over loans and diminish the effectiveness of the programs. Many other international jurisdictions are offering grants for semiconductor manufacturing, which limits the efficacy of a loan program. The Department should exercise care in allocating CHIPS funds to loans or loan guarantees and evaluate whether loans and loan guarantees remain necessary only after project applications for grants are submitted and reviewed by the Department.

Supporting the Entire Semiconductor Ecosystem

To strengthen U.S. competitiveness in the global semiconductor sector, the most critical aspects of the semiconductor ecosystem must be addressed. This ecosystem spans the length of the production chain including semiconductor production (e.g. design, manufacturing, and assembly, testing, and packaging) and the upstream supply chain (e.g. raw materials, equipment and component manufacturing, and other inputs).⁵

The Chamber applauds the inclusion of other semiconductor ecosystem companies in CHIPS Act programs and recommends that the Department take a broad view in defining “materials used to manufacture semiconductors” This is important considering a rapid increase in domestic semiconductor manufacturing capacity, without proper planning and support, would lead to significant materials constraints. Impacted materials include deposition materials (e.g. copper alloy sputtering targets), and specialty chemicals (e.g. specialty coatings, lithography and ancillary materials including silicon-based anti-reflective coatings and hard masks, and wet chemicals). In particular, the wet chemicals would potentially constrain this drastic increase in U.S. semiconductor fabrication due to limited North American manufacturing base and stemming from the challenging nature of the supply chain of these specialty materials. Consequently, the Chamber believes that funding should focus on significant supply chain bottlenecks for U.S. semiconductor production. Diversifying semiconductor supply chains away from countries of concern to reduce the impact of potential supply chain disruptions should also be a key consideration.

As the Department sets priorities, it should recognize the important role played by the construction of large scale, advanced semiconductor fabs. Investments in large scale fabs create a ripple effect, driving demand signals throughout the supply chain and creating major regional hubs for semiconductor innovation. This is the

⁵ Saif M. Khan et al., *The Semiconductor Supply Chain: Assessing National Competitiveness*, CSET ISSUE BRIEF (Jan. 2021), <https://cset.georgetown.edu/wp-content/uploads/The-Semiconductor-Supply-Chain-Issue-Brief.pdf>.

phenomenon that created “Silicon Valley,” the “Silicon Desert,” and other regional hubs for the chipmaking ecosystem in New York, Arizona, Oregon, and Austin, Texas. By making investments in large scale, advanced semiconductor fabs, the Department will help bolster all producers within the semiconductor ecosystem in the United States, ensure a robust domestic semiconductor innovation economy, and help mitigate future supply chain disruptions.

Finally, any funding should not just target increased overall production of relevant materials but also expanded refining capabilities to meet the demands of the semiconductor industry. The semiconductor industry’s innovation is done so rapidly that the ecosystem to the industry must have statistical process control and quality testing for organic impurities, metals, water, etc. up to a parts per trillion level. To meet this required testing, significant investment in not only capacity but also in-line quality testing is critical to ensure needs are met. Continued innovation specifically in size of semiconductor defines competition and progress in the semiconductor industry. This causes a steep cost to serve this specific industry compared to other traditional industries that such materials also serve.⁶

Intellectual Property

Counterfeit products cost the global economy \$500 billion annually and as of August 2022, U.S. Customs and Border Protection (“CBP”) made more than 17,000 seizures of counterfeit goods worth approximately \$2.4 billion had the goods been genuine.⁷ Counterfeit semiconductors pose a significant threat to public health, safety, and security. Thus, protecting intellectual property (“IP”) should be a high priority. Many materials are known within the semiconductor industry to be especially IP rich and would likely require joint-ventures and/or IP licensing deals.⁸ Cloning, counterfeiting, and relabeling of semiconductors is especially risky regarding foreign assembly and testing operations since these are typically performed after the semiconductor chips have been built. Approximately 90% of semiconductors undergoing assembly and testing are currently imported. Furthermore, semiconductors integrated into consumer goods may also be at risk since this is the final step documented before U.S. consumers buy end products.⁹ Onshore manufacturing or chip installation of highly consumed products and/or infrastructure critical products containing semiconductors should also be considered to protect IP.

⁶ *2022 Semiconductor Industry Outlook*, DELOITTE US, <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/semiconductor-industry-outlook.html>.

⁷ Kasie Brill, *Shop Smart: Avoid Fake Goods When Shopping for Back-to-School*, U.S. CHAMBER OF COMMERCE (July 27, 2022), <https://www.uschamber.com/intellectual-property/shop-smart-avoid-fake-goods-when-shopping-for-back-to-school>.

⁸ McKinsey Road to \$1 Trillion SemiCon West 2022 market presentation slide 20/24

⁹ McKinsey Road to \$1 Trillion SemiCon West 2022 market presentation slide 19/24

The Chamber recommends that the Department encourage applicants to describe their risk-based approach to address counterfeiting concerns. The Department should also partner with and encourage CBP to support applicants' efforts to address counterfeiting. We are committed to facilitating such a partnership with CBP through the Memorandum of Understanding between CBP and the Chamber's Global Innovation Policy Center which aims to increase interdiction of fake goods at the U.S. border through strong public-private collaboration.¹⁰

Stock Buybacks and Dividends

Section 102(g) of the CHIPS Act prohibits grant recipients from using grant funds for stock buybacks or dividends payments. The RFI proposes to impose a preference on companies that commit not to engage in these activities using non-CHIPS funds. The Chamber strongly opposes this proposed approach and believes that the Department should not penalize businesses that return capital to their share owners when allocating CHIPS funds. Beyond the narrow criteria provided in Section 102(g) of the CHIPS Act, there is simply no statutory basis to discriminate against businesses on this basis. Indeed, the bipartisan majorities that approved the CHIPS Act overwhelmingly rejected (87-6) a proposed legislative amendment that would have restricted all company use of stock buybacks, indicating that the Congressional intent was for the limitation to apply strictly to CHIPS funds, not all private funds. Accordingly, any effort to discriminate in this fashion would clearly exceed the Department's statutory authority under Section 102, would be entitled to no judicial deference, and would be plainly arbitrary and capricious. We urge you to reconsider this unlawful proposal.

Opportunity and Inclusion

The Chamber supports the RFI's goals of facilitating opportunity and inclusion within the semiconductor industry. We encourage the Department to leverage existing private sector initiatives to expand workforce opportunities through programs such as the Chamber's Talent Management Pipeline and other existing programs that can understand the availability of talent at a local level.¹¹ These programs present a unique occasion to provide women as well as historically underrepresented and economically disadvantaged groups the opportunity to enter the semiconductor industry. For example, the American Chemistry Council has partnered with the American Institute

¹⁰ *CBP, Chamber of Commerce Sign MOU to Fight Counterfeits*, INTERNATIONAL TRADE TODAY (May 21, 2021), <https://internationaltradedtoday.com/news/2021/05/27/CBP-Chamber-of-Commerce-Sign-MOU-to-Fight-Counterfeits-2105270024>.

¹¹ U.S. Chamber of Commerce Foundation, *Talent Pipeline Management Initiative*, <https://www.uschamberfoundation.org/talent-pipeline-management> (accessed on Nov. 14, 2022)

of Chemical Engineers, Chemours, and The HBCU Week Foundation to launch the Future of STEM Scholars Initiative, aimed at creating pathways for people from underrepresented groups to enter and succeed in STEM careers within the chemical industry.¹² Similarly, programs such as the U.S. Chamber of Commerce Foundation's Hiring Our Heroes, which seek to bring veterans and active-duty armed service professionals into the civilian workforce, should be considered.¹³

The Department should assess numerous successful and existing programs in place used by employers to work with high schools, career and technical education programs, and community colleges, to strengthen recruitment and training of diverse job candidates. For example, Chamber members are investing heavily across the United States in workforce development programs. In Arizona, companies are represented on the Workforce Arizona Council, the Maricopa Workforce Development Board, the Phoenix Business and Workforce Development Board, as well as with the Western Maricopa Education Center (West-MEC) – a public school focused on career and technical education for mostly minority students. These partnerships enable companies and community partners to address real workforce needs and skills gaps.

Similar initiatives are underway at community colleges, where some Chamber members have launched technician boot camps.¹⁴ Students who complete the 10-day, 40-hour boot camp programs will graduate with an industry recognized credential, an in-depth understanding of the semiconductor business, and the necessary skills to pursue careers as entry-level technicians in the sector. Novel ideas like this are scalable and would benefit from federal support in raising awareness of such pathways, establishing similar programs at community colleges and technical schools across the country, and for veterans and military personnel seeking to transition into the civilian workforce.

Other Key Priorities to Ensure a Strong Semiconductor Industry

As the Department and the Administration continue to implement CHIPS incentive programs, the Chamber urges policymakers to examine and address and other policy issues to spur U.S. semiconductor leadership and maximize the impact of these programs. Policymakers must work to alleviate the many barriers slowing the

¹² See American Chemistry Council, *Future of STEM Scholars Initiative (FOSSI)*, <https://www.americanchemistry.com/chemistry-in-america/chemistry-sustainability/diversity-inclusion/future-of-stem-scholars-initiative-fossi> (accessed on Nov. 14, 2022).

¹³ U.S Chamber of Commerce Foundation, *Hiring our Heroes*, <https://www.uschamberfoundation.org/hiring-our-heroes> (accessed on Nov. 14, 2022).

¹⁴ Nicole Garcia, *Maricopa Community Colleges Offering Course for Those Who Want to Work at Semiconductor Factories*, FOX 10 PHOENIX (Oct. 17, 2022), <https://www.fox10phoenix.com/news/maricopa-community-colleges-offering-course-for-those-who-want-to-work-at-semiconductor-factories>.

creation of additional semiconductor manufacturing and materials capacity here in the United States. Building new semiconductor fabrication plants is time and capital intensive, costing as much as \$20 billion and taking upwards of three years to build a state-of-the-art facility.¹⁵ Three areas to consider include: permitting reform, workforce development, and implementation of the CHIPS Act's investment tax credit.

One potential avenue is through further addressing permitting barriers presented by National Environment Policy Act ("NEPA") review process. As it currently stands, it takes an average of 4.5 years for a NEPA decision to be made, with certain applications taking as much as 7 years to be approved.¹⁶ Compounding this timeline with the intensive process of building a new semiconductor facility, it could take a decade for these projects to come to fruition. While long-term investments in the semiconductor industry are needed, current needs are urgent. Considering the vital and strategic role semiconductors play in both economic and national security, the Department should work with the U.S. Environmental Protection Agency ("EPA") to establish a categorical exclusion for semiconductor projects funded by the CHIPS Act. Similarly, the Department, in partnership with other relevant federal agencies, explore the impact of ongoing assessments on chemicals relevant to manufacturing, performance, and safety of semiconductors.¹⁷

Workforce is another priority. The need for a highly skilled, experienced, and talented workforce is critical for the semiconductor industry and even more critical amid recent multi-billion-dollar investments in semiconductor fabs. The U.S. alone will require 70,000 to 90,000 more workers by 2025 to address anticipated fab expansion.¹⁸ Unfortunately, many semiconductor manufacturers are struggling to meet current needs, meaning attention and action is needed now to address these demands.

The federal government must help establish a semiconductor talent pipeline through continued focus and investment on K-12 education as well as graduate and undergraduate programs at colleges and universities. Community colleges have an important role as well, as they work closely with local communities and can tailor their

¹⁵ Michaela D. Platzer, John F. Sargent Jr., *"U.S. Semiconductor Manufacturing: Industry Trends, Global Competition, Federal Policy"*, CONGRESSIONAL RESEARCH SERVICE (June 27, 2016), <https://crsreports.congress.gov/product/pdf/R/R44544/3>.

¹⁶ Ed Mortimer, *U.S. Chamber Coalition Moves to Defend NEPA Reforms In Court*, U.S. CHAMBER OF COMMERCE (Aug. 25, 2020), <https://www.uschamber.com/infrastructure/us-chamber-coalitionmoves-defend-nepa-reforms-court>.

¹⁷ American Chemistry Council, *ACC Comments on Risks in Semiconductor Supply Chain* (April 5, 2021), <https://www.americanchemistry.com/better-policy-regulation/trade/resources/acc-comments-on-risks-in-semiconductor-supply-chain>.

¹⁸ Stephanie Yang, *Chip Makers Contend for Talent as Industry Faces Labor Shortage*, WALL STREET JOURNAL (Jan. 2, 2022), <https://www.wsj.com/articles/chip-makers-contend-for-talent-as-industryfaces-labor-shortage-11641124802>.

curricula to meet the requirements of companies in those communities, including reskilling of current industrial employees. K-12 STEM education, apprenticeships, internships, and programs aimed at providing real-world experience in the semiconductor industry will offer future leaders in this sector the opportunity to acquire unique insight and understanding of this sector. These programs will also demonstrate its feasibility as a promising career path.

However, talent pipelines built through education and hands-on training should be considered long-term solutions. As the Department examines near-term solutions, immigration must remain part of the equation to meet current and future needs for the semiconductor industry. At the same time, we urge the Administration to work with Congress to expand avenues for companies to obtain the top tier talent they need to ensure U.S. leadership in semiconductors.

Finally, the Chamber notes the critical role of the Advanced Manufacturing Investment Credit (“ITC”) in incentivizing semiconductor investment in the United States. To date, the Department of the Treasury (“Treasury”) has yet to issue any regulations or other guidance to implement the ITC as contemplated by the statute. At the same time, however, the *CHIPS for America: A Strategy for the CHIPS for America Fund* notes that program applicants will need to account for the impact of the ITC in their grant applications.¹⁹ Pending the release of Treasury regulations or other guidance, therefore, The Chamber recommends that the Department consider this “implementation mismatch” as it designs the parameters of the programs.

Conclusion

Thank you for the opportunity to comment on this RFI. It is crucial that the federal government commit itself to supporting a strong semiconductor ecosystem. Please reach out to Matt Furlow at mfurlow@uschamber.com with any questions regarding these comments.

Sincerely,



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U.S. Chamber of Commerce

¹⁹ DEPARTMENT OF COMMERCE, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, A STRATEGY FOR THE CHIPS FOR AMERICA FUND (2022).