

May 13, 2024

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Brent Parton
Principal Deputy Assistant Secretary for Employment and Training
Employment and Training Administration
U.S. Department of Labor
200 Constitution Avenue NW
Washington, DC 20210

Re: Labor Certification for Permanent Employment of Foreign Workers in the United States;
Modernizing Schedule A To Include Consideration of Additional Occupations in Science,
Technology, Engineering, and Mathematics (STEM) and Non-STEM Occupations

DOL Docket No. ETA–2023–0006

Dear Principal Deputy Assistant Secretary Parton,

The Semiconductor Industry Association (SIA) appreciates the opportunity to submit comments to the Request for Information (RFI) from the Department of Labor (DOL) regarding the modernization of the Schedule A occupation list. Innovation is key to the semiconductor industry and to achieve new advancements in chip manufacturing and design, companies require highly educated engineers and scientists. These highly skilled workers research and build the new manufacturing techniques, chip designs, specialty materials and equipment that are necessary to advance innovation within the semiconductor industry and to meet demand for all other industries that require semiconductors. A modernized Schedule A would provide more predictability and certainty for these important applicants that require workers with certain education and qualifications. We urge the DOL to prioritize a data-driven, self-executing Schedule A occupation list that matches the workforce needs of industry.

In the face of increased global competition, the Federal government prioritized the growth and security of the domestic semiconductor supply chain by passing the CHIPS and Science Act. In the lead up to passage and since that time, chip companies spanning the supply chain have invested nearly \$450 billion into the U.S., creating hundreds of thousands of new jobs in the economy.¹ This includes approximately 56,000 new direct jobs across 25 states, as well as hundreds of thousands of additional jobs with semiconductor suppliers, service providers, and other businesses. These new investments build on the already established economic impact of the

¹ SIA, “The CHIPS Act Has Already Sparked \$450 Billion in Private Investments for U.S. Semiconductor Production,” <https://www.semiconductors.org/the-chips-act-has-already-sparked-200-billion-in-private-investments-for-u-s-semiconductor-production/>

industry, which employs roughly 345,000 workers directly in the U.S. and constitutes the sixth largest export industry for the country. Additionally, the semiconductor industry requires significant investments to continue advancing innovation, a necessary cost, but one that is growing higher in America. Across the industry, roughly 20% of all revenue is funneled back into research and development (R&D).

As global competition for semiconductor manufacturing rises, so does the race for skilled talent. To fulfil the goals of the Chips and Science Act and ensure America has a strong, stable domestic chip supply chain, the federal government and other stakeholders need to take action to solve the growing skills gap. Through these major investments by companies and the federal government, the domestic semiconductor industry is estimated to grow by nearly 115,000 jobs by 2030. At current rates, roughly 67,000 – or 58% of projected new jobs – risk going unfilled. Of the unfilled jobs, more than 60% are expected to involve bachelor’s or advanced degrees in engineering, computer science, or other critical STEM fields for the industry.²

However, the needs of the semiconductor industry are only part of the broader picture. Other technology industries of strategic importance to the country’s economic competitiveness and national security, many of which are also expanding, are competing for the same pool of trained workers. These industries include clean energy, medical technology, artificial intelligence, the Internet of Things, cybersecurity, next-generation communications, aerospace, automotive, and advanced manufacturing. For the economy as a whole, by the end of 2030, an estimated 3.85 million additional jobs requiring proficiency in technical fields will be created in the United States. Of those, 1.4 million STEM jobs risk going unfilled unless we can expand the pipeline of these workers. The shortage of skilled workers poses a substantial challenge for both the semiconductor industry and the broader U.S. economy.

In partnership with states and localities, institutions of higher education, non-profit organizations, labor organizations, veterans groups, and other stakeholders, the U.S. semiconductor industry is working to develop the domestic pipeline of workers that is needed. However, building this domestic pipeline of skilled workers, especially at the advanced degree level, will take years as it requires substantial undergraduate, graduate, and post-graduate education and practical training.

As these efforts to educate and train top scientists and engineers continue, the anticipated domestic supply of certain skilled workers still will not meet the demand for a competitive semiconductor industry for the foreseeable future. In fields that require advanced degrees, foreign born workers have long been vital to America’s workforce. According to a FWD.us

² Semiconductor Industry Association / Oxford Economics, “Chipping Away: Assessing and Addressing the Labor Market Gap Facing the U.S. Semiconductor Industry,” available at https://www.semiconductors.org/wpcontent/uploads/2023/07/SIA_July2023_ChippingAway_website.pdf.

report, international students make up 60% of all advanced degree graduates from U.S. universities specializing in a semiconductor relevant engineering or computer science field.³ Over recent years, more than half of all U.S.-awarded PhDs in computer and information sciences (59%), engineering (60%), and mathematics and statistics (54%) were earned by foreign born workers.⁴ To meet the needs of our economy and the goals of the CHIPS and Science Act, America needs to prioritize targeted updates to our immigration system that allows skilled foreign born talent to complement the existing domestic workforce.

The timing of this RFI pairs well with the recently released SIA Workforce Policy Blueprint, which includes actionable policy recommendations to solve the short- and long-term challenges of building the semiconductor workforce. It recommends that the federal government prioritize actions that improve efficiency and increase flexibility for companies to obtain the workers they need in STEM and critical and emerging technologies while also building the domestic pipeline for skilled domestic workers.

One of the ways the federal government can do this is by modernizing Schedule A and updating the list regularly with a transparent, data-driven methodology. The most recent update to Schedule A occurred in 1991—before smart phones, electric vehicles, and cloud computing even existed. Given the demand for new and improved capabilities and performance that our industry will face in the coming years and increased global competition for talent, the federal government should use every avenue available to address labor shortages.

An updated Schedule A list can serve two purposes: increasing flexibility for U.S. semiconductor companies to hire the international talent that they need to continue U.S. leadership; and provide up-to-date information on which fields and occupations the industry should target for further domestic workforce development.

For schedule A to meet the mark, it should reflect the labor market as it currently exists, as well as expected changes in industry workforce needs. An accurate reflection of the current and future labor market would require regular updates to the Schedule A system through a routine, transparent review process with data-driven methodology and common criteria to determine when occupations and categories should be added or removed. The Help Wanted Index developed by the Brookings Institution and Institute for Progress is a helpful case study.⁵ Using

³ FWD.us, “The U.S. Semiconductor Industry Needs Skilled Workers for Thousands of Open Jobs. Retaining International Graduates is a Solution,” Oct. 2023, <https://www.fwd.us/news/semiconductors/>

⁴ National Science Foundation, “The State of U.S. Science and Engineering 2024,” <https://nces.nsf.gov/pubs/nsb20243/preface>

⁵ The Help Wanted Index factors are appropriate for DOL’s consideration for modernizing Schedule A, Group I which focuses on specific shortage occupations. Regarding modernizing Schedule A, Group II for persons of Exceptional Ability in the Sciences, Arts, and Performing arts, DOL may wish to adopt a definition of “Exceptional

mostly federal data sources, the Help Wanted Index has identified a list of occupations that are likely experiencing labor shortages today, and it includes an occupation that is crucial to the success of the U.S. semiconductor industry: electrical and electronics engineers.⁶

We also would encourage DOL to explore and consider including additional categories of qualifications and skills in a regular Schedule A review. For example, DOL may want to consider education level and experience when making determinations about whether to classify an occupation as a shortage occupation. As noted above, even among electrical and electronics engineers, there are particular labor shortages at the advanced degree level, where some 60% of students are foreign students. Additionally, not all electrical and electronics engineers have specialized skills in semiconductor-related areas, such as hardware design or manufacturing. Consideration of qualifications and experience that industry requires would allow the DOL to better tailor Schedule A to address anticipated areas of growth and strategic importance to the country, facilitating the hiring and retention of foreign nationals to fill roles in which the domestic workforce cannot meet the demand.

As the Federal government places an increased emphasis on the domestic production and design of semiconductors, as well as the prioritization of other STEM sectors such as AI, it is important that Schedule A reflect these economic and national security priorities. This should include the addition of roles for semiconductor research, development, and production across the supply chain. Doing so will lead to a more comprehensive strategy for a skilled workforce in America in the face of global competition. Moreover, we strongly support the inclusion of electrical engineers, electronics engineers, design engineers, electronic design automation (EDA) applications engineers, EDA R&D engineers, fab engineers, infra technology engineers, production & systems, yield, quality and reliability, and innovation engineers on the list of Schedule A occupations that are in high-demand and facing a critical shortage in the U.S. workforce.

Lastly, we also encourage DOL to consider the creation of an expedited processing queue for prevailing wage requests for Schedule A occupations. Shorter processing times for these requests would help U.S. semiconductor employers attract and retain these shortage occupation employees in a competitive global labor market. To ensure industry has ample time to accurately forecast and plan, DOL should prioritize the prompt issuance of prevailing wage determinations and labor certifications.

Ability” to identify highly qualified and highly compensated professionals with a focus on individuals who receive multiples of the national median household income. DOL could shape the definition of Exceptional Ability in a way to have longevity regardless of changes in the marketplace and to avoid cascading complications flowing from adoption of an occupation-specific methodology.

⁶ Lindsay Milliken, Jeremy Neufeld, Greg Wright, Help Wanted: Modernizing the Schedule A Shortage Occupation List, December 14, 2023, Institute for Progress, <https://ifp.org/schedule-a/>.

The significant gap the U.S. faces for skilled workers in the semiconductor industry and the broader economy threatens America's ability to build and secure the domestic semiconductor industry and other key technologies of the future. For that reason, we urge DOL to modernize Schedule A to provide additional certainty and flexibility to employers, accurately forecast the domestic supply of workers, and help us meet this skilled workforce challenge. Ultimately, an updated Schedule A will enhance our nation's economic growth and national security and strengthen critical and emerging technology industries who need access to top talent.

Sincerely,

Semiconductor Industry Association