DEPARTMENT OF LABOR

Employment and Training Administration

20 CFR Part 656

RIN 1205–AC16

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

AGENCY: Employment and Training Administration, Department of Labor.

ACTION: Request for information.

SUMMARY: The Department of Labor's (Department or DOL) Employment and Training Administration (ETA) is considering revisions to Schedule A of the permanent labor certification process to include occupations in Science, Technology, Engineering and Mathematics (STEM) and other non-STEM occupations and invites employers and other interested parties to comment on this Request for Information (RFI). ETA's Office of Foreign Labor Certification developed this RFI and is publishing it for comment so that the public may provide input, including data, statistical metrics or models, studies, and other relevant information, on how the Department may establish a reliable, objective, and transparent methodology for revising Schedule A to include STEM and other non-STEM occupations that are experiencing labor shortages, consistent with requirements of the Immigration and Nationality Act (INA). The Department wants to ensure that it is striking an appropriate balance between the need to provide U.S. workers notice of available permanent job opportunities and the opportunity to apply for those job opportunities, and, where insufficient U.S. workers are available to satisfy an employer's need for permanent labor, the need to provide employers access to foreign labor through effective administration of the permanent labor certification program. Information received from the public will help inform decisions regarding whether or how to improve Schedule A and ensure that its purpose in responding to national labor shortages is more effectively met.

DATES: Submit written comments on or before February 20, 2024.

ADDRESSES: You may submit written comments electronically by the following method:

- *Federal eRulemaking Portal: https://www.regulations.gov.* Follow the instructions on the website for submitting comments.
- *Instructions:* Include the docket number ETA–2023–0006 in your comments. All comments received will be posted without change to *https://www.regulations.gov.* Please do not include any personally identifiable or confidential business information you do not want publicly disclosed.

FOR FURTHER INFORMATION CONTACT: For further information, contact Brian Pasternak, Administrator, Office of Foreign Labor Certification, Employment and Training Administration, Department of Labor, 200 Constitution Avenue NW, N–5311, Washington, DC 20210; Telephone (202) 513–7350 (this is not a toll-free number). For persons with a hearing or speech disability who need assistance to use the telephone system, please dial 711 to access telecommunications relay services.

SUPPLEMENTARY INFORMATION:

I. Legal Framework

Section 212(a)(5)(A) of the INA, 8 U.S.C. 1182(a)(5)(A), deems inadmissible certain foreign nationals who seek to enter the United States for purposes of employment, unless the Secretary of Labor first certifies that: (1) there are insufficient U.S. workers at the place where the foreign worker would be employed who are able, willing, qualified and available for the job the foreign worker seeks; and (2) employment of the foreign worker would not adversely affect the wages and working conditions of U.S. workers in similar jobs.[1]

In an effort to address the workforce needs of employers at a time when the U.S. economy was rapidly expanding, the Department first established a mechanism in the mid-1960s by regulation for pre-certifying job vacancies of occupations for which U.S. workers were in short supply nationwide, which became known as Schedule A of the permanent labor certification program.[2] Schedule A is set forth in the Department's permanent labor certification regulations at 20 CFR 656.5 and enumerates a list of occupations for which the Department has predetermined that the statutory requirements have been met. The occupations currently listed in Schedule A are divided into two groups. Group I consists of physical therapists and professional nurses; Group II consists of occupations that require foreign workers to possess exceptional ability in the sciences, arts, or performing arts.[3] An employer seeking to hire foreign nationals in shortage occupations on Schedule A is able to forego the need to test the labor market normally required under the Department's process for permanent labor certification, is able to bypass filing an application for permanent employment certification with the Department, and instead files an uncertified application for permanent employment certification directly with U.S. Citizenship and Immigration Services (USCIS) at the time the employer files its immigrant visa petition, or *Immigrant Petition for Alien Workers,* Form I–140.[4]

II. Background

Schedule A was proposed in 1965 by the Secretary of Labor via rulemaking modifying then 29 CFR 60.2: ''Certification and noncertification schedules. (a) Determination. To reduce the delay in processing an alien's request for visa, the determination has been made by the Secretary of Labor pursuant to section 212(a)(14) that: (1) For the categories of employment described in Schedule A and in the geographic areas therein set forth, there are not sufficient workers who are able, willing, qualified, and available for employment in such categories, and the employment of aliens in such categories and in such areas will not adversely affect the wages and working conditions of workers in the United States similarly employed.'' [5] Historically, the post-1965 permanent labor certification program, by design, relied on labor market statistics compiled by state employment service offices. The Department used that information as the basis for Schedule A. In the 1960s and 1970s, Schedule A was the product of an extensive process of economic and labor market analysis of employment demand and supply by the Department. Schedule A occupations were later identified through the application of multiple factors, including unemployment rates; occupational

[1] *See also* 20 CFR 656.1 and 656.2.

[2] *See* 30 FR 14979 (Dec. 3, 1965) (publishing initial Schedule A).

[3] *See* 20 CFR 656.5(b) and 656.15(d); *see also See* Final Rule, *Labor Certification Process for the Permanent Employment of Aliens in the United States,* 42 FR 3440 (Jan. 18, 1977), *available at https://www.dol.gov/sites/dolgov/files/OALJ/PUBLIC/INA/REFERENCES/FEDERAL_REGISTER/42_FED._REG._3440_(JAN._18,_1977).PDF* (establishing the initial framework for Group II).

[4] *See* 8 CFR 204.5(k)(4)(i); 8 CFR 204.5(l)(3)(i); *see also* 20 CFR 656.15.

[5] Notice of Proposed Rulemaking, *Availability of and Adverse Effect Upon American Workers,* 30 FR 14494, 14494 (Nov. 19, 1965), *available at https://www.govinfo.gov/content/pkg/FR-1965-11-19/pdf/FR-1965-11-19.pdf.*

projections; evidence submitted by trade associations, employers and organized labor; and technical reviews by Federal and State staff with expertise in these areas.[6] The occupational listings in the Schedule were reviewed and modified at regular intervals to reflect changing economic and labor market conditions and to prevent adverse effects on the wages or working conditions of U.S. workers. Schedule A has been revised eight times, the last time in 2004.[7] The most recent revisions to Schedule A listings in 2004 only added foreign workers of exceptional ability in the performing arts to Group II; the other revision in 2004 was procedural and clarified the professional qualifications for eligible nurses under Schedule A.[8] Some comments requesting the expansion of Schedule A listings in 2004 were rejected because the suggestions exceeded the scope of the proposal.

In part because Schedule A has not been comprehensively examined or modified in approximately three decades, and in part because Schedule A by definition allows employers to bypass filing an application for a labor certification, the Department does not have comprehensive data on how employers utilize Schedule A and the types of work performed thereunder.

In order to help gather evidence about how to determine whether to expand or alter Schedule A, the Department is seeking information from the public that will help inform this decision. In this RFI, the Department provides an overview of key research, data, and trends related to STEM occupations. We also welcome comments from the public on non-STEM occupations, including those that may be related to but not traditionally considered STEM occupations as well as those that are outside of the STEM arena but nonetheless may also face labor shortages.

Anecdotal evidence and industry research suggest that economic and labor market conditions have changed for certain industries and occupations that rely on foreign workers and various visa programs, especially in the area of STEM occupations, including occupations in the field of artificial intelligence (AI).[9] In particular, jobs in the STEM fields often require a bachelor's degree or higher, leaving few opportunities for workers younger than 25 who do not have a bachelor's degree.[10] As a result, in 2021, workers between the ages of 16 and 24 made up 12.7 percent of total employment across all occupations but only 6.8 percent of all STEM workers in the United States.[11] STEM opportunities for young workers without a college degree do exist, but they mostly fall in technician occupations. Technician jobs are an important part of meeting future demand, but they do not address the demand for jobs which require a Bachelor's degree or higher. For instance, workers in that age group accounted for 21.8 percent of all life, physical and social science technicians in the United States. A smaller percentage of younger workers held STEM jobs as life scientists (4 percent) or social scientists (2.1 percent).[12] Within the various technician-related occupations approximately 15 percent of workers in this age group were employed as agricultural and food science technicians, biological technicians or chemical technicians with another 8 percent serving as environmental science and geoscience technicians.[13] Under several Administrations, efforts have been and are presently being made at various levels, as a result of federal government, state government, and industry and non-profit initiatives, to attract and train young workers as technicians in STEM fields, such as through Registered Apprenticeship programs provided by the Department's Apprenticeship USA program and nonprofit organizations and by community colleges.[14]

While ETA is familiar with the BLS's Occupational Employment Wage Statistics (OEWS) data and Employment Projections data,[15] as well as the U.S. Census Bureau's (Census Bureau) American Community Survey (ACS) data and Current Population Survey (CPS) data, these data sources alone do not appear to be sufficient for determining appropriate revisions to Schedule A. None of the datasets of OEWS, CPS, and ACS or projections is designed to identify potential labor shortages, as identifying such shortages requires knowing about labor demand, labor supply, and how they interact. However, employment surveys or projections cannot indicate unmet demand because they only record the demand that has been met.[16]

Over the last decade, the federal government has taken steps toward diversifying the pipeline of STEM talent in the United States, primarily supporting STEM education opportunities for historically underrepresented groups in these fields.[17] According to the U.S. Government Accountability Office,[18] the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (COMPETES Act) was passed with the overall goal of increasing federal investment in scientific research to improve U.S. economic competitiveness and increased support for education in STEM fields.[19] The COMPETES Act was signed into law on August 9, 2007. The COMPETES Act authorized various

[6] *See* Proposed Rule, *Labor Certification Process for the Permanent Employment of Aliens in the United States; Labor Market Information Pilot Program,* 58 FR 15242, 15242 (Mar. 19, 1993), *available at https://www.govinfo.gov/content/pkg/FR-1993-03-19/pdf/FR-1993-03-19.pdf.*

[7] *See, e.g.,* 31 FR 16412 (Dec. 23, 1966), 33 FR 12808 (Sept. 10, 1968), 36 FR 2462 (Feb. 4, 1971), 42 FR 3440 (Jan. 18, 1977), 45 FR 83933 (Dec. 19, 1980), 52 FR 20593 (June 2, 1987), 56 FR 54920 (Oct. 23, 1991), and 69 FR 77326 (Dec. 27, 2004).

[8] 69 FR 77326, 77333.

[9] On October 30, 2023, President Joseph R. Biden Jr. issued the *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence* (AI E.O.), which defines AI at section 3(b). E.O. 14110, 88 FR 75191, 75193 (Nov. 1, 2023), *available at https://www.federalregister.gov/documents/2023/11/01/2023-24283/safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence.*

[10] *See* Laughlin, L. *et al.,* Who Are the STEM Workers Under Age 25?: Technician Is A Common Job Among Young STEM Workers, U.S. Census Bureau (Nov. 22, 2022), *available at https://www.census.gov/library/stories/2022/11/stem-workers-under-age-25.html.*

[11] *See id.*

[12] *See id.*

[13] *See id.*

[14] *See, e.g.,* Daniel Kuh, Ian Heckler and Alphonse Simeon, Registered Apprenticeship in Science and Engineering (May 2019), *available* at *https://www.urban.org/sites/default/files/publication/100390/registered_apprenticeship_in_science_and_engineering.pdf, and* U.S. Department of Labor, Apprenticeship USA, *available* at *https://www.apprenticeship.gov/events/diversity-stem-session-iv-innovation-today-and-tomorrow.*

[15] A complete list of OEWS occupations included in the STEM definition by the Bureau of Labor Statistics (BLS) is available at *https://www.bls.gov/oes/stem_list.xlsx;* however, different studies, research, and sources referenced herein might construe the definition of a STEM occupation more narrowly or more broadly than BLS. *See, e.g.,* Bureau of Labor Statistics, Standard Occupational Classification, About 2018 SOC System, Options for Defining STEM Occupations Under the 2018 SOC, Attachments B and C, *available at https://www.bls.gov/soc/Attachment_B_STEM_2018.pdf* and *https://www.bls.gov/soc/Attachment_C_STEM_2018.pdf.*

[16] *See* Ass'n of Science and Technology Centers, U.S. Federal Agencies and STEM Engagement, *available at https://www.astc.org/impact-initiatives/advocacy/federal-agencies/.*

[17] *See* U.S. Gov't Accountability Office, Diversifying the Pipeline of STEM Talent (Jun. 18, 2018), available at *https://www.gao.gov/blog/2018/06/19/diversifying-the-pipeline-of-stem-talent#:~:text=Over%20the%20last%20decade%2C%20the%20federal%20government%20has,opportunities%20for%20historically%20underrepresented%20groups%20in%20these%20fields.*

[18] *See* U.S. Gov't Accountability Office, America COMPETES Act: It Is Too Early to Evaluate Programs Long-Term Effectiveness, but Agencies Could Improve Reporting of High-Risk, High-Reward Research Priorities (Oct. 7, 2010), *available at https://www.gao.gov/products/gao-11-127r.*

[19] *See* 42 U.S.C. 6621.

programs at the National Science Foundation (NSF) and the Departments of Energy, Commerce, and Education intended to strengthen STEM education and research in the United States. Since its inception, the COMPETES Act has been reauthorized numerous times as various organizations have discovered that the United States's competitiveness in STEM education has deteriorated relative to advances by other countries. The most recent reauthorization, which took place in 2022, added several provisions to strengthen and expand the U.S. STEM workforce and ensure that it more accurately reflects the diversity of the nation.[20]

The Department notes that various articles and studies have been written and conducted outlining reasons why there has been a STEM shortage in the United States including: a lack of interest in STEM occupations, a STEM branding problem with younger generations, and employers' lack of access to foreign talent.[21]

Executive Order 13806, published in 2017, directs the Secretary of Defense to conduct a government-wide risk analysis of manufacturing and the defense industrial base and propose recommendations to improve economic and national security.[22] In 2021, the U.S. Department of Defense (DOD) assessed the macroeconomic forces affecting the U.S. industrial base in response to Executive Order 13806 and outlined several problems, included diminishing STEM education.[23] DOD found that the United States is graduating fewer students with STEM degrees as a percentage of population compared to China and that the United States no longer has the most STEM graduates worldwide, as it is being rapidly outpaced by China.[24] The report also noted that, as of 2017, American students made up approximately 21 percent of the computer science student body and 19 percent of electrical engineering majors among the nation's universities. In support of the DOD's conclusion that STEM-focused sectors are struggling to attract and retain top-tier technical talent from the United States,[25] data from the National Science Board (NSB) reveals that more than one-half of all graduates of engineering, computer science, and mathematics doctoral programs at U.S. universities are foreign-born, as universities are turning to foreign students to address a shortfall of U.S. candidates for those programs.[26] Many of these foreign-born, U.S.-educated and trained students entering the U.S. workforce have become U.S. permanent residents or U.S. citizens, leading the NSB to conclude that ''immigration represents a key component to building the capacity of the U.S. STEM workforce.'' [27]

Subsequently, a non-profit organization, produced an analysis of data from the Census Bureau stating that foreign-born STEM workers have made important contributions to the U.S. economy in terms of productivity and innovation.[28] Its research found that, as the demand for STEM workers continues to increase, foreign-born STEM workers will likely continue to complement the U.S. workers and play a key role in U.S. productivity and innovation.[29]

At the same time that the U.S. has shown greater reliance on foreign workers and foreign-born U.S.-educated workers, the U.S. is undergoing significant demographic changes indicating that the U.S. faces many challenges in supplying its own domestic STEM workforce. In 2017, a scientific journal determined that the U.S. had seen significant demographic trends with an aging STEM workforce that saw a decline in scientists ages 35 to 53 and a rise in scientists older than 53 between 1993 and 2010.[30] The report points out that during the same time period the average age of the scientific workforce increased from 45.1 to 48.6, whereas the average age of the general workforce only increased from 42.2 to 45.4, indicating that the STEM workforce is both older and is aging more rapidly.[31] Private sector studies have found that, as the ''baby boomer'' generation moves into retirement, millennials [32] will compose the largest share of the labor market. Millennials, however, are not showing an increased tendency to major in high-demand areas of STEM fields despite a higher proportion of this population choosing to attend college.[33] These studies suggest that younger generations trail older generations in choosing STEM majors, except for computer and information services, instead disproportionately choosing to major in business, health professions, and visual and performing arts compared to older generations.[34]

According to BLS data of job openings, hires, separations, and total employment in the United States, employment growth is projected to slow

[20] *See id.; see also* Public Law 111–358, title I, sec. 101, 124 Stat. 3984 (Jan. 4, 2011), Public Law 114–329, title III, sec. 304 (Jan. 6, 2017); and Public Law 117–167, div. B, title V, sec. 10522(e) (Aug. 9, 2022).

[21] *See, e.g.,* Weiner, B., Why the U.S. Has a STEM Shortage and How We Fix it (Part 1), Recruiting Daily (Nov. 6, 2018), *available at https://recruitingdaily.com/why-the-u-s-has-a-stem-shortage-and-how-we-fix-it-part-1/* and Pagllieri, G., STEM Hiring Trends in 2022: What Employers Need to Know, Randstad (Feb. 8, 2022), *available at https://www.randstadusa.com/business/business-insights/future-workplace-trends/stem-hiring-trends-2022-what-employers-need-to/.*

[22] Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States, 82 FR 34597 (Jul. 21, 2017), *available at https://www.federalregister.gov/documents/2017/07/26/2017-15860/assessing-and-strengthening-the-manufacturing-and-defense-industrial-base-and-supply-chain.*

[23] *See* Fiscal Year 2020 Industrial Capabilities Report, Dept. of Defense (January 14, 2021), p. 13, *available at https://www.defense.gov/News/Releases/Release/Article/2472854/dod-releases-industrial-capabilities-report/.*

[24] *Id.* at p. 102. *See also id.* at p. 15 (''Ultimately, the most important asset [the U.S.] defense industrial base possesses isn't machines or facilities, but people. America needs an ambitious effort, like the Eisenhower National Defense Education Act, to support education and training for manufacturing skills required to meet DoD and wider U.S. requirements. As the Industrial Capabilities Report notes, while China has four times the U.S. population, it has eight times as many STEM grads, while Russia has almost four times more engineers than the United States. [The United States has] lost ground also in many equally important touch labor industrial skills sets.'')

[25] *Id.* at pp. 86 (''Promising STEM and trade-skill oriented personnel are leaving the sector industry for other occupations. Individuals with these skills are becoming harder to recruit and retain due to barriers of pay, location, and cyclical sector demand.'') and 113 (''In keeping with priorities articulated by executives, workforce-related efforts undertaken by the U.S. Services due to the coronavirus pandemic focused on *retaining* rather than growing or enhancing the industrial workforce.'')

[26] *See* The STEM Workforce of Today: Scientists, Engineers, and Skilled Technical Workers, National Science Board (Aug. 31, 2021), at p. 72, *available at https://ncses.nsf.gov/pubs/nsb20212/assets/nsb20212.pdf.*

[27] *Id.* at p. 9.

[28] *See* Fact Sheet, Foreign-Born Workers in the United States, American Immigration Council (Jun. 14, 2022), *available at https://www.americanimmigrationcouncil.org/research/foreign-born-stem-workers-united-states.*

[29] *Id.* (citing microdata from the U.S. Census Bureau's 2000, 2010, and 2019 American Community Surveys).

[30] *See* Blau, David M. and Weinberg, Bruce A., Why the U.S. Science and Engineering Workforce Is Again Rapidly, Proceedings of the Nat'l Academy of Sciences of the United States of America (Apr. 11, 2017), pp. 3379–84, *available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5393244/pdf/pnas.201611748.pdf* (citing data from the 1993–2010 Surveys of Doctorate Recipients of the National Science Foundation, *available at https://nsf.gov/statistics/srvydoctoratework/*).

[31] *Id.* at p. 3380.

[32] *See* Dimock, M., Defining Where Millennials End and Generation Z Begins, Pew Research Center (Jan. 17, 2019), *available at https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/.*

[33] *See* Deloitte Insights, Issues By the Numbers, A New Understanding of Millennials: Generational Differences Reexamined, Deloitte Univ. Press (Oct. 2015), p. 2, *available at https://www2.deloitte.com/content/dam/insights/us/articles/understanding-millennials-generational-differences/DUP1276_Millennials_report_MASTER_101615.pdf.*

[34] *Id.* at p. 4.

over the next decade because of slowing population growth and changing demographics. The data outlined that the labor force participation rate for those ages 65 years and older is expected to increase to 23.3 percent in 2028, up from 19.6 percent in 2018 due to lack of sufficient retirement savings and employer-provided health insurance and employers' increased willingness to hire and retain older workers who may have institutional knowledge that is not easily replaceable, while the labor force participation of those ages 16–24 is expected to decline during that same period.[35]

These trends are also more pronounced for certain demographics. For example, additional analysis finds women are underrepresented in STEM careers and are being hindered in STEM by social barriers, like gender stereotypes and lack of representation, and discouragement.[36] According to a management consulting firm, the next wave of efficiency gains in global manufacturing will be driven by digitalization and big data on the shop floor, which will require more skilled workers with STEM knowledge, problem solving skills, and programming familiarity.[37] Additionally, the Census Bureau states that women make up approximately 47 percent of the American workforce but only 30 percent work in manufacturing. Among ways the manufacturing industry has been attracting more women are attempts to reduce the gender gap is by encouraging girls to study STEM subjects at a young age.[38]

Furthermore, there remain significant racial disparities in the technical workforce among women.[39] Recent surveys have shown that Black and Hispanic U.S. workers are vastly underrepresented in the STEM workforce.[40] According to an August 31, 2021, NSB report females with their highest degree in science and engineering (S&E) tend to work proportionately less in S&E occupations compared to men. Among women in S&E there are also tremendous disparities, with 45 percent of Asian women with such degrees working in STEM, compared to 24 percent, 22 percent, and 15 percent respectively for white, Hispanic or Latino, and Black women.[41] The U.S. Chamber of Commerce noted that the NSF implemented a strategy to address these issues through a newly funded Community College Presidents' Initiative in STEM Education by introducing STEM programs at the earliest stages of post-secondary STEM education as community colleges serve the most diverse student body in higher education and serve as a gateway to further higher education.[42]

Not only is the United States facing headwinds in developing enough U.S.-born students pursuing STEM careers to replace those entering retirement, but broader market trends also suggest that the need for STEM workers will increase in future years. The growth rate of employment in STEM fields is projected to expand significantly—specifically, by 10.8 percent through 2032, compared to 2.8 percent for all occupations.[43] Although growth in STEM occupations is led by substantial increases in mathematical science occupations (29.2 percent) and computer occupations (14.2 percent), the expected growth for every major STEM occupational classification is expected to exceed the growth for all occupations.[44]

However, the NSB, in its analysis of the U.S. STEM labor force, argued that new scientific and technological advancements and discoveries, such as quantum technologies, space exploration, and medical vaccines, are ''rapidly changing the world of work and, as a result, continue to challenge the traditional framework used to define the STEM labor force in the United States.'' [45] The basis of this report introduced a limited analysis of the skilled technical workforce (STW)

[35] *See* Dubina, Kevin S. *et al.,* Projections Overview and Highlights, 2018–2028, Bureau of Labor Statistics Monthly Labor Review (Oct. 2019), *available at https://www.bls.gov/opub/mlr/2019/article/projections-overview-and-highlights-2018-28.htm#top.*

[36] *See* Meyer B. and Daugherty, J., Paving the Way to Gender Equity Through STEM Education, U.S. Chamber of Commerce Foundation (Mar. 3, 2021), *available at https://www.uschamberfoundation.org/blog/post/paving-way-gender-equity-through-stem-education.*

[37] *See* Kautzsch, T. and Chien A., Bringing Manufacturing Jobs Back to the US?, Oliver Wyman, *available at https://www.oliverwyman.com/our-expertise/insights/2017/nov/perspectives-on-manufacturing-industries-vol-12/manufacturing-in-a-changing-world/bringing-manufacturing-jobs-back-to-the-US.html.*

[38] *See* Dowell, Earlene K.P., Manufacturing Opens More Doors to Women, U.S. Census Bureau (Oct. 3, 2022), *available at https://www.census.gov/library/stories/2022/10/more-women-in-manufacturing-jobs.html.*

[39] *See* Boggs G., *et al.,* Addressing the STEM Workforce Shortage, U.S. Chamber of Commerce Foundation (Oct. 17, 2022), *available at https://www.uschamberfoundation.org/blog/post/addressing-stem-workforce-shortage* (''Women are underrepresented in several STEM occupations, particularly in computer jobs and engineering. The racial and gender inequalities have significant income implications. Even among workers with similar education, STEM workers earn significantly more. At a time when we need to address STEM labor shortages, we cannot afford to leave segments of our population behind.'' (citing data from The Skilled Technical Workforce: Creating America's Science and Engineering Enterprise, National Science Board (Sept. 3, 2019), *available at https://www.nsf.gov/nsb/publications/2019/nsb201923.pdf*).

[40] *See* Funk C. and Parker, K., Women and Men in STEM Often at Odds Over Workplace Equity, Pew Research Center (Jan. 18, 2019), p. 24, *available at https://www.pewresearch.org/social-trends/wp-content/uploads/sites/3/2018/01/PS_2018.01.09_STEM_FINAL.pdf.* (''Blacks make up 11% of the U.S. workforce overall but represent 9% of STEM workers, while Hispanics comprise 16% of the U.S. workforce but only 7% of all STEM workers. And among employed adults with a bachelor's degree or higher, Blacks are just 7% and Hispanics are 6% of the STEM workforce.'')

[41] *See* The STEM Workforce of Today: Scientists, Engineers, and Skilled Technical Workers, National Science Board (Aug. 31, 2021), p. 69, Intersectionality In Stem, *available at https://ncses.nsf.gov/pubs/nsb20212/participation-of-demographic-groups-in-stem* (''Female S&E highest degree holders tend to work proportionately less in S&E occupations (26%) compared to men (45%) (Figure LBR–30; Table SLBR–32). However, the extent to which women with their highest degree in an S&E field worked in S&E occupations varied by race or ethnicity. Among women with their highest degree in an S&E field, Asian women worked proportionately more in S&E occupations (45%) compared to White (24%), Hispanic or Latino (22%), other races or ethnicities (21%), and Black or African American women (15%) (Figure LBR–30).'')

[42] *See* Community College Presidents' Initiative in STEM Education, Resources, *available at https://www.ccpi-stem.org/resources/* and Sdavkovich V. *et al.,* Have You Heard About the Community College Presidents' Initiative in STEM?, HigherEdJobs (May 31, 2022), *available at https://www.higheredjobs.com/articles/articleDisplay.cfm?ID=3065* (citing Fast Facts 2022, American Association of Community Colleges (May 11, 2022), *available at https://www.aacc.nche.edu/research-trends/fast-facts/* (''51 percent of community college students taking college credit classes are students of color.''))

[43] *See* Bureau of Labor Statistics, Employment Projections: Employment in STEM Occupations, Table 1.7, Occupational Projections, 2022–32, and Worker Characteristics, 2022 (Numbers in Thousands), *available at https://www.bls.gov/emp/tables/occupational-projections-and-characteristics.htm,* and Table 1.11, Employment in STEM Occupations, 2022 and Projected 2032 (Sept. 6, 2023), *available at https://www.bls.gov/emp/tables/stem-employment.htm.*

[44] *Id.* at Table 1.7. (In addition to those two occupations, BLS projects increases as well for physical scientists (5.3%), STEM post-secondary teachers (6.8%), life scientists (7.1%), and engineers (6.9%), all of which exceed the 2.8% average growth across all occupations.)

[45] *See supra* note 26, at pp. 7 (''As such, the STEM workforce described in this report includes occupations that have historically been known to require STEM skills and expertise (*e.g.,* life sciences, physical sciences, engineering, mathematics and computer sciences, social sciences, and health care) as well as occupations that are not typically considered STEM fields but that do, in fact, require STEM skills (*e.g.,* installation, maintenance and repair, construction trades, and production occupations))'' and 11; *see also supra* note 10. Non-STEM occupations primarily include occupations in management (excluding S&E and S&E-related managers, industrial production managers, and farmers, ranchers, and agricultural managers), sales (excluding sales engineers), transportation and material moving (excluding transportation inspectors and pumping station operators), office and administrative support, and education and training. *See* Table SLBR–1 for a full list of non-STEM occupations.

which included occupations that require a high level of knowledge in a technical domain but did not require a bachelor's degree.[46] As a result, the NSB suggested to broaden the definition of STEM to include workers without a bachelor's degree who are employed in S&E, S&E-related, and non-STEM middle-skill occupations.[47] The NSB also argued that building a STEM workforce demanded expanding the definition of STEM to include middle-skill occupations, such as construction, extraction, and production, pointing out that the 2019 ACS survey that finds nearly 20 million STEM workers without a bachelor's degree worked in middle-skill occupations.[48] Furthermore, others have argued that the COVID–19 outbreak has resulted in shortfalls of STEM workers and suggested that immigration can alleviate those shortages.[49] Upon review of BLS' Job Openings and Labor Turnover Survey (JOLTS), reflecting the number of yearly job openings measured as an annual mean to monthly job openings, one organization argued that the shortfalls of STEM workers has been building continuously since 2020 and cannot be solved through the domestic workforce.[50]

In evaluating the utility of expanding Schedule A to include STEM occupations, the Department invites the public to provide input on the appropriate data sources and methods for determining whether labor shortages exist, whether Schedule A should be used to alleviate any labor shortages in STEM occupations should it be determined from these data sources and methods that such shortages exist, and if so, how the Department could establish a reliable, objective, and transparent methodology for identifying STEM occupations that are experiencing labor shortages. Additionally, the Department invites the public to provide input on whether to limit examination of STEM only to those OEWS occupations used in most of the recent BLS publications,[51] or whether the STEM occupations should be expanded to include additional occupations that cover STW occupations, and whether it is justifiable to find for each such occupation that there are not and will not be sufficient U.S. workers ready, willing, able and qualified to perform positions in those occupations nationwide, considering significant government and private sector investment in STEM education and research to enhance STEM labor market participation among U.S. workers generally and among underrepresented groups specifically. Similarly, the Department encourages the public to provide input as to whether there are non-STEM occupations which should be added to Schedule A and, if such occupations exist, to provide the data sources and methods of determining such shortages exist. This input will assist the Department in fulfilling its obligation under the INA to ensure the employment of foreign workers will not adversely affect the wages and working conditions of U.S. workers. Information received from the public will help inform decisions regarding whether or how to improve Schedule A and ensure that its purpose in responding to national labor shortages is more effectively met.

The Department invites general comments and suggestions concerning:

(A) whether any STEM occupations should be added to Schedule A, and why; and

(B) defining and determining which occupations should be considered as falling under the umbrella of STEM, and why.

The Department is also specifically seeking input on the questions listed below.[52] To the extent possible and wherever appropriate, responses to this RFI should indicate the question number(s) and include specific information, data, statistical models and metrics, and any resources relied on in reaching conclusions for its claims, rather than relying on general observations.

Accordingly, the Department invites the public to answer one or more of the following questions in their submissions:

1. Besides the OEWS, ACS, and CPS, what other appropriate sources of data are available that can be used to determine or forecast potential labor shortages for STEM occupations by occupation and geographic area?

2. What methods are available that can be used alone, or in conjunction with other methods, to measure presence and severity of labor shortages for STEM occupations by occupation and geographic area?

3. How could the Department establish a reliable, objective, and transparent methodology for identifying STEM occupations with significant shortages of workers that should be added to Schedule A?

4. Should the STEM occupations potentially added to Schedule A be limited to those OEWS occupations used in most of the recent BLS publications, or should the STEM occupations be expanded to include additional occupations that cover STW occupations?

5. Beyond the parameters discussed for STW occupations, should the Department expand Schedule A to include other non-STEM occupations? If so, what should the Department consider to establish a reliable, objective, and transparent methodology for identifying non-STEM occupations with a significant shortage of workers that should be added to or removed from Schedule A?

Brent Parton,

Principal Deputy Assistant Secretary for Employment and Training, Labor.

[FR Doc. 2023–27938 Filed 12–20–23; 8:45 am]

BILLING CODE 4510–FP–P

[46] *Id.*

[47] *Id.; see also* Employed Adults in STEM and Non-STEM Occupations, by Broad and Detailed Occupation: 2019, *available at https://ncses.nsf.gov/pubs/nsb20212/data/table/SLBR-1#.*

[48] *Compare supra* note 26, at p. 11, *with supra* note 43 (noting BLS employment projections rank construction as the industry sector with the third highest projected growth over the next 10 years behind health care and education services). *See also* U.S. Census Bureau, American Community Survey (ACS), *available at https://www.census.gov/programs-surveys/acs.*

[49] *See* Esterline, C., The Case for Updating Schedule A, Niskanen Center (Oct. 2022), *available at https://www.niskanencenter.org/wp-content/uploads/2022/10/PolicyBriefTHE-CASE-FOR-UPDATING-SCHEDULE-A.pdf* (highlighting specific benefits of using Schedule A during COVID pandemic); *see, e.g.,* Peri G. and Zaiour, R., Labor Shortages and the Immigration Shortfall, Econofact (Jan. 11, 2022), *available at https://econofact.org/labor-shortages-and-the-immigration-shortfall* and Kenan Institute of Private Enterprise, Why America Needs High Skill Immigrants, Kenan Insight (Jul. 22, 2020), *available at https://kenaninstitute.unc.edu/kenan-insight/why-america-needs-high-skilled-immigrants/* (discussing need for expanding immigration during the COVID pandemic).

[50] *See* Esterline, *supra note* 49, at pp. 3 (''According to BLS's JOLTS, from 2011 to 2021 the number of job openings increased on average 12 percent per year accounting for the downturn seen in early 2020. Further data from BLS's JOLTS points that in August 2022 approximately 6 million Americans were unemployed, yet job openings in the same month exceeded 10 million.'') and 8 (''While much can and should be done to improve STEM education in the United States or to increase the matching potential between American skills and interests and current job openings, the statistics still show that this alone will likely not be enough.'').

[51] Bureau of Labor Statistics, Occupational Employment and Wage Statistics (Feb. 4, 2022), *available at https://www.bls.gov/oes/topics.htm#stem.*

[52] The Department's issuance of this RFI and the input sought in this request are consistent with the AI E.O., which directed the Secretary of Labor, within 45 days of issuance the AI E.O., to publish a RFI soliciting public input to identify AI and other STEM-related occupations, as well as additional occupations across the economy, for which there is an insufficient number of ready, willing, able, and qualified U.S. workers for purposes of updating Schedule A. *See AI E.O., supra* note 9, at Sec. 5(e).