Methodological appendix

Additional details on identifying workforce development activities in recent federal infrastructure legislation is available in the earlier Brookings report, How state and local leaders can harness new infrastructure funding to build a stronger, more inclusive workforce.

This document provides more background on the methodological approach the Brookings team used to identify programs and funding within the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) that emphasize or allow green workforce development activities. We defined "green workforce development activities" as those related to recruiting, training, and hiring workers involved in the transition to a cleaner, more resilient economy (or green transition).

Definitions for "green workers" (and "green jobs") lack consistency, and the purpose of this methodology is not to quantify the exact occupations, industrial activities, or full range of workers involved in the green transition. Rather, it is more concerned with how recent federal funding in the IIJA and IRA can support state and local leaders (e.g., eligible government agencies, utilities, etc.) involved in green workforce development. It considers how this funding can support them in recruiting, training, and hiring efforts across the broadest array of positions involved in carrying out activities with an environmental benefit. Additional details on these positions are available in the 2019 Brookings report Advancing inclusion through clean energy jobs.

Identifying green workforce development funding in the IIJA

The Brookings team identified green workforce development funding within the IIJA that emphasizes or allows workforce development activities. We defined "workforce development activities" as those related to recruiting, training, and hiring workers. Since there is no single federal agency or program responsible for workforce development within the IIJA, we examined programs and funding levels by following six steps:

1. To identify IIJA programs allowing or emphasizing workforce development activities, we relied on three methods:

    a. Keyword search: We carried out a keyword search of the IIJA's legislative text and inventoried the provisions that matched keywords. We used the following seven keywords in our search: apprentice, worker, career, skill, community college, training, and job.

    b. We inventoried the IIJA programs highlighted in the November 2022 White House report, Equitable Workforce Development for Infrastructure Jobs. This report identifies programs within the IIJA that can support education, skill building, and job placement.

    c. Supplemental review of publicly available documents: In a limited number of cases, we added programs that we did not identify through the keyword search or White House report based on other sources suggesting that recruiting, training, and/or hiring workers would be an implementation priority. These sources included:

        i. Notice of Funding Opportunity for the Department of Transportation's Multimodal Project Discretionary Grant Opportunity for FY22, amended May 18, 2022 (for the Nationally Significant Multimodal Freight and Highways Projects grants program [INFRA])

ii. Environmental Protection Agency Memorandum, Implementation of the Clean Water and Drinking Water State Revolving Fund Provisions of the Bipartisan Infrastructure Law, March 8, 2022 (for the Clean Water State Revolving Funds and the Drinking Water State Revolving Funds)

iii. Notice of Funding Opportunity for the Federal-State Partnership for Intercity Passenger Rail Program, December 7, 2022.

2. We cross-referenced the list of programs identified in Step 1 against programs inventoried in the Brookings Federal Infrastructure Hub, and dropped programs not included in the hub. The hub is organized by infrastructure type, federal agency, and estimated spending levels. It only includes programs tied to authorized or appropriated funds. Limiting our analysis to the programs in the hub allowed us to focus on programs that send funding to states, localities, and other entities eligible for federal dollars.

    i. For the resulting programs, we provided further information, including the agency in charge of funds, total dollar amount authorized or appropriated, whether the program is new, whether it is funded by formula or competitive grants, entities eligible for funding, and the application process timeline.

3. We used our subject matter expertise to determine if the remaining IIJA programs included a substantive focus on recruiting, hiring, or training workers. The decisions made were informed by examining the legislative text, reviewing publicly available documents from the Biden administration related to the IIJA, and consulting other executive agency staff.

4. We identified if the programs received climate-related (or green) funding by focusing on a variety of mitigation and adaptation activities. These activities were previously flagged in the Brookings Federal Infrastructure Hub. These included programs focused on climate-related research and data gathering, "future of industry investments," battery manufacturing and recycling, certain ecosystem restoration activities tied to wildfires and flooding, and greenhouse gas emission reduction activities.

5. The eligible entities were found directly in the legislation. To simplify and create consistency across programs and provisions, we condensed the eligible entities into 10 categories:

    a) *Federal entities* includes agencies and other governing bodies involved in environmental management, regulation, or other activities (e.g., Council on Environmental Quality).

    b) *State entities* refers to any agency, authority, office, council, etc. of the state government, and any division of the state government such as state academic institutions and research agencies.

    c) *Tribal entities* includes federally and non-federally recognized tribal governments, their subdivisions, their agencies, and Alaska Native Corporations.

d) *Local entities* means agencies and instrumentalities of a state (cities, counties, municipalities, townships) and of local government (water districts, school districts, special districts, and authorities).

e) *Educational entities* are institutions of higher education such as universities and research institutions, local education agencies, and school districts.

f) *Nonprofit entities* encompasses organizations such as public charities, private foundations, trade schools, community-based organizations, and workforce development programs.

g) *Business entities* can be any corporation operating on a cooperative basis to provide electricity, eligible contractors and project developers, manufacturers, and engineering and construction firms.

h) *Coalition entities* are territories of the United States as well as a consortium of one local agency and one or more schools, for-profits, and community partners. A multistate group of governments is also considered a coalition.

i) *Regional entities* under the IRA and IIJA are municipal planning organizations (organizations created and designated to carry out the metropolitan transportation planning process) and regional transit authorities.

j) *Other entities* in this case include farmers, ranchers, landowners, utilities, public utility commissions, and any other entity as determined.

6. For programs/provisions considered relevant, we conducted a web search to identify process timelines. For the programs, we searched the title of the program and navigated to the corresponding agency/department's site for the program. In most instances, we were able to find the program's most recent Notice of Funding Availability (NOFA) or Notice of Funding Opportunity (NOFO) that laid out the application timeline, including opening date, submission deadline, anticipated selection notification date, expected timeframe for award negotiations, and anticipated awards. In cases where we could not find the NOFA/NOFO, we relied on the program site for identifying key dates.

    a. We organized and simplified the information into application open and application close periods using the federal fiscal quarter system.

        i. Q1: October to December
        ii. Q2: January to March
        iii. Q3: April to June
        iv. Q4: July to September

    b. There were five programs we were unable to locate the opening date for, and two programs we could not find a closing date for. There are also three programs in which the agency noted the submission date is to be determined (TBD).

Unlike the IIJA, the IRA is entirely focused on green improvements. However, because the IRA makes extensive use of both direct spending programs and reforms to the tax code, assessing potential support for green workforce development requires a different approach. We identified a combination of **programs** and **clean energy tax credit provisions** that incorporate workforce development activities:

- *Grants:* Financial awards given by the government to fund some type of beneficial project that provides public services and stimulates the economy.
- *Cooperative agreements*: Facilitates the transfer of funds from federal executive agencies to states, local governments, and private recipients for a public purpose or benefit.
- *Direct funding*: Funds that are provided directly to an organization by a government entity or intermediate organization that has the same duties as a government entity.
- *Tax credits*: A dollar-for-dollar amount taxpayers can claim on their tax return to reduce the amount of tax owed. In terms of workforce development specifically, the IRS released a notice that explains how builders, developers, and owners of clean energy facilities can receive enhanced tax benefits in the form of tax credits by satisfying wage and apprenticeship requirements. These include creating good-paying jobs and new economic opportunities for workers in clean energy technology, manufacturing, and innovation.

We carried out several different steps to better identify which programs and provisions support green workforce development activities aimed at training workers for these positions:

1. Similar to the IIJA scan, we conducted a keyword search to identify all infrastructure workforce programs and provisions. We examined the legislation and the White House guidebook Building a Clean Energy Economy: A Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action (January 2023 version). The keywords included in the search were workforce, apprenticeship, education, and training. We excluded any program or tax credit if they only noted prevailing wages but not any workforce development.

2. We cross-checked the tax incentives identified through the keyword search against the list included in the tax code information from Treasury guidance. Specifically, the list in the first paragraph of Section 1, including U.S. Code provisions tied to prevailing wage and apprenticeship requirements: 45Q, 45V, 45Z, 48, 48C, 48E, and 179D.

3. For the programs and provisions identified in Steps 1 and 2, we collected descriptive information taken from the White House guidebook, the October 2022 Congressional Research Service report Inflation Reduction Act of 2022 (IRA): Provisions Related to Climate Change, and the legislation itself. Descriptive information includes the section of the legislation, program title, type of program (tax credit, direct funding, grants, cooperative agreements), agency or department, sector (energy, transportation, miscellaneous environmental activities, other federal), funding amount, program details, eligible entities (see IIJA Step 5), and timeline.

4. The process for finding application open and close dates was very similar to Step 6 for the IIJA. However, since the IRA is a newer bill, there were far fewer NOFAs or NOFOs released, and we had to rely more on agencies' program sites. The funding system for the tax credit programs and direct

funding programs also created differences in determining application open/close dates. Tax credit programs are open on a rolling basis with deadlines aligning with annual tax return closing dates (e.g., May 15, 2024). For agencies and departments receiving direct funding, application open dates were tracked as the year funding began, and closing dates were considered not applicable.

5. For the provisions and programs identified via keyword or Treasury guidance, we reviewed the White House guidance and the legislation to categorize them as "relevant" or "not relevant" to workforce development.

    a. Tax credit provisions were automatically deemed as "relevant." Programs were identified as "relevant" if the legislation directs funds or supports activities related to hiring, training, or workforce development to bring new workers into the field or support incumbent workers in learning new skills to expand their employment opportunities.

    b. Programs and provisions considered "not relevant" were excluded from the pool. Exclusions included instances where the only keyword that appeared was "education" because "institutions of higher education" were eligible institutions. In some cases, programs with keyword occurrences of "create new jobs" or "hire new employees" were dismissed due to lack of purpose-driven language.