

## Why green jobs plans matter and where U.S. cities stand in implementing them

### Methodological appendix

This appendix describes the methods used to analyze city climate action plans (CAPs) for green workforce development efforts nationally. As described in the report, the goal of this analysis is not to define “green jobs” or measure their extent in different cities. Rather, this analysis aims to address the information deficits limiting “green jobs” planning at the local and regional level; this includes an exploration of the built environment sectors in which workers are needed, the collaborations described with other institutional and organizational partners (e.g. community colleges), the funding sources used to support training, and the timelines and benchmarks to gauge progress over time.

Many of the methods described below build off what we used for the fall 2022 report, [Not according to plan: Exploring gaps in city climate planning and the need for regional action](#). That report, similar to this one, examined decarbonization planning and implementation across the country by examining different 50 different cities—and CAPs.

### Defining “green” workforce development activities

Since “green jobs” lack a consistent definition among policymakers, practitioners, and researchers, it can be difficult to quantify the full range of workers needed and to characterize the exact nature of the work they must be prepared to take on. [A 2019 Brookings report](#) explores 320 unique occupations spread across three major industrial sectors: clean energy production, energy efficiency, and environmental management. From electricians to roofers to septic tank servicers, the report highlights the wide variety of workers involved in a green transition and their concentration in the skilled trades. Several additional reports and research efforts over the last few years—including [DOE’s Energy and Employment Report](#), [UC Berkeley’s Green Economy Program](#), and the [BLS past green job surveys](#), among [many other analyses](#)—similarly describe the enormous range of industries and workers involved in a green transition.

Rather than defining and counting a specific number of green jobs, this research brief is more concerned with the major workforce development needs facing local leaders amid the green transition—and amid the current influx of federal funding. It considers the broadest array of positions involved in carrying out activities with an environmental benefit and what types of training and preparation workers will need in support of a [long-term talent pipeline](#). That means examining educational efforts, on-the-job training, and other workforce development strategies aimed at preparing the country’s green workforce, both now and for years to come.

### Geographic scope

To analyze the current landscape of decarbonization plans across the country, this report explores planning efforts in 50 cities. Decarbonization implementation represents an enormous task that not only spans multiple sectors of the built environment, but also traverses the public and private sector and many individual jurisdictions—which can complicate any consistent analysis of the strategies and actions that cities are leading. To help bound all this activity, the analysis focuses on implementation in 50 cities where decarbonization plans are readily available.

The cities cover all corners of the country and range in size, from New York and Los Angeles to Boise, Idaho and Madison, Wis. While this analysis does not cover every city with a decarbonization plan, selected cities represent a range of populations, geographic locations, and economic trajectories.

Cities do not reflect the full variety of jurisdictional issues at play in decarbonization (e.g., among urban and rural localities), but the analysis aims to focus on the single most comprehensive plan in each area. Each jurisdiction has a unique combination of factors that can influence plan implementation—from building codes to energy facilities—which speaks to the complexity of issues at play. An individual city does not represent or capture all of these unique factors across an entire metropolitan area, but it tends to carry the greatest economic weight, contain the most population, and generate the most GHG emissions. This analysis scratches the surface of these inter- and intra-regional differences, signaling the need for additional research.

### **Climate action plan selection**

This analysis does not concentrate on measuring actual changes in GHG emissions—or all the various green jobs involved in climate mitigation and adaptation. Rather, it focuses on decarbonization implementation potential: the level of detail, transparency, and accountability in emissions reduction strategies and actions across the built environment, particularly from buildings, transportation, and electricity.

Once the 50 cities were selected, the research team identified the specific plan to analyze. The analysis concentrates on the most comprehensive decarbonization plan in each city—the document that primarily or solely focuses on implementing a comprehensive set of decarbonization pathways to reduce GHG emissions across multiple built environment sectors (typically including buildings, transportation, and electricity). The research team relied on the following definitions from the U.S. Environmental Protection Agency to examine these sectors:

- **Transportation:** Emissions from the movement of people and goods by cars, trucks, trains, ships, airplanes, and other vehicles
- **Buildings:** Emissions from all homes and commercial businesses (excluding agricultural and industrial activities).
- **Energy:** All the infrastructure needed to collect, produce, distribute, store, and consume power for our homes, for our businesses, and while we are on the go. This includes electricity—emissions from the generation, transmission, and distribution of electricity to customers
- **Manufacturing:** Emissions from goods-producing industries that transform materials into new products

While plans specific to individual departments or built environment sectors may have more detailed goals, measures, and strategies, this analysis identifies and assesses the document with the broadest topical coverage. In addition, the analysis concentrates on the most current decarbonization plan available, typically created, or updated in the last two to three years. In cases where the most recent plan is still in draft form awaiting public comment, the draft plan is analyzed. Plans released after the research team’s initial analysis, such as Portland, Oregon’s July 2022 Climate Emergency Workplan, are not analyzed. This analysis tries to examine a consistent type of plan in each city: one structured to be public-facing and implementable, which allows for clearer assessment. The following table lists the cities selected and their respective decarbonization plans.

### Cities and plans analyzed

1	Albuquerque, NM	<a href="#">Climate Action Plan</a>
2	Atlanta, GA	<a href="#">City of Atlanta Climate Action Plan</a>
3	Austin, TX	<a href="#">Climate Equity Plan</a>
4	Baltimore, MD	<a href="#">Climate Action Plan</a>
5	Boise, ID	<a href="#">Climate Action Roadmap</a>
6	Boston, MA	<a href="#">Climate Action Plan</a>
7	Charleston, SC	<a href="#">Climate Action Plan</a>
8	Charlotte, NC	<a href="#">Strategy Energy Action Plan</a>
9	Chicago, IL	<a href="#">Home   2022 Chicago Climate Action Plan</a>
10	Cincinnati, OH	<a href="#">2018 Green Cincinnati Plan (cincinnati-oh.gov)</a>
11	Cleveland, OH	<a href="#">Cleveland Climate Action Plan</a>
12	Columbus, OH	<a href="#">Climate Action Plan</a>
13	Dallas, TX	<a href="#">Dallas Comprehensive Environmental and Climate Action Plan</a>
14	Denver, CO	<a href="#">Climate Protection Fund Five-Year Plan</a>
15	Detroit, MI	<a href="#">Sustainability Action Agenda</a>
16	Hartford, CT	<a href="#">Climate Action Plan</a>
17	Houston, TX	<a href="#">Climate Action Plan</a>
18	Indianapolis, IN	<a href="#">Thrive Indianapolis</a>
19	Kansas City, MO	<a href="#">Climate Protection and Resiliency Plan</a>
20	Las Vegas, NV	<a href="#">Sustainability and Climate Action Plan FINAL.pdf (clarkcountynv.gov)</a>
21	Los Angeles, CA	<a href="#">pLAn   L.A.'s Green New Deal   Sustainability pLAn 2019 (lamayor.org)</a>
22	Louisville, KY	<a href="#">Louisville GHG Emissions Reduction Plan</a>
23	Madison, WI	<a href="#">Sustainable Madison</a>
24	Memphis Area, TN	<a href="#">Memphis Area Climate Action Plan</a>
25	Miami, FL	<a href="#">Miami Forever Carbon Neutral</a>
26	Minneapolis, MN	<a href="#">Climate Action Plan</a>
27	Nashville, TN	<a href="#">Metro Nashville Mayor's Office Sustainability Advisory Committee Report, 2021</a>
28	New Orleans, LA	<a href="#">Climate Action for a Resilient New Orleans</a>
29	New York City, NY	<a href="#">OneNYC-2050-A-Livable-Climate-11.7.pdf (netdna-ssl.com)</a>
30	Oahu Island, HI	<a href="#">One Climate One O'ahu</a>
31	Oklahoma City, OK	<a href="#">adaptokc</a>
32	Orlando, FL	<a href="#">Green Works Orlando Community Action Plan</a>
33	Philadelphia, PA	<a href="#">Climate Action Playbook</a>
34	Phoenix, AZ	<a href="#">Climate Action Plan</a>
35	Pittsburgh, PA	<a href="#">Climate Action Plan 3.0</a>
36	Portland/Multnomah County, OR	<a href="#">Climate Action Plan</a>
37	Providence, RI	<a href="#">Climate Justice Plan</a>
38	Raleigh, NC	<a href="#">Community Climate Action Plan</a>
39	Richmond, VA	<a href="#">RVAGreen: A Roadmap to Sustainability</a>

40	Rochester, NY	<a href="#">Climate Action Plan</a>
41	Sacramento, CA	<a href="#">Climate Action Plan</a>
42	Salt Lake City, UT	<a href="#">Climate Positive 2040</a>
43	San Antonio, TX	<a href="#">SA Climate Ready: A Pathway for Climate Action &amp; Adaptation</a>
44	San Diego, CA	<a href="#">Climate Action Plan</a>
45	San Francisco, CA	<a href="#">Climate Action Plan</a>
46	San Jose, CA	<a href="#">Climate Smart San Jose</a>
47	Seattle, WA	<a href="#">Climate Action Plan</a>
48	St. Louis, MO	<a href="#">Climate Action and Adaptation Plan</a>
49	Tulsa, OK	<a href="#">City of Tulsa Sustainability Plan</a>
50	Washington, DC	<a href="#">Sustainable D.C. 2.0 Plan</a>

### Assessment of CAPs for green workforce development

We examined each climate action plan for their inclusion of green workforce development efforts. While CAPs in themselves do not reflect the full range of plans, programs, and collaborations underway in cities around green workforce development, they do serve as important, centralized documents intended to guide ongoing infrastructure investments and economic development strategies. Additional research, ideally, can build off this analysis to consider the full range of other efforts emerging across the country, including in different geographies beyond cities (e.g., states, counties, etc.).

For this analysis, we first examined whether each CAP even mentioned “green jobs,” and if so, how detailed the plan was on related workforce development efforts. A plan was determined to mention green jobs if the specific phrase “green jobs” was used at least once or mentions the idea that more jobs will be created, more workers will be needed, or evolving sets of knowledge and skills are demanded in the context of climate action (in the industries of Transportation, Buildings, Manufacturing, Energy, Other). If the plan was determined to include discussion of green jobs or workers in some capacity, it was evaluated to what extent. The CAPs were examined using the following questions.

#### What specific sectors are mentioned regarding green workforce development?

The plans were evaluated for whether they mentioned green workforce development efforts across a variety of sectors: Energy, Building, Transportation, Manufacturing, or Other (including waste management, food systems, and other miscellaneous activities). We first assessed if the plans even mentioned any of these sectors. If the plan did mention the sector, we more closely examined that section of the plan to see any language around jobs, workers, training, and similar issues. If these topics were mentioned, we determined if they were indeed focusing on specific “green job” activities (e.g. involved in constructing, operating, maintaining, or governing the built environment, with an emphasis on cleaner or more resilient improvements). For example, we would not include general information concerning bus drivers in the transportation sector. However, jobs in developing electric vehicle charging stations would be considered, or changing skillsets around green activities for workers in the transportation sector. While most plans mentioned green jobs or workers broadly, some cities did not specify a particular sector for these jobs or workers.

### **Does the plan include details on other actors involved with green workforce development?**

Once establishing if and where green workforce development efforts were mentioned in the CAP, we examined if the plan mentioned any actors that would assist in hiring, training, or engaging workers in green jobs. Other actors we sought to identify included places such as community colleges, community organizations, labor groups, research institutions, and corporate partners. For each plan, we noted if other actors were mentioned and if mentioned, who they were and in what capacity they would be involved. For example, these included describing collaborations with educational institutions involved in specific classroom instruction or equipping workers with related credentials.

### **Does the plan mention funding or financing for green workforce development?**

We evaluated if the CAP included any information on how green workforce development efforts would be funded or financed. After identifying where green jobs or workers were mentioned, we examined whether the plan specified any dollar amounts and specific budgetary resources to support training or preparation for these careers. For instance, the City of Cincinnati included \$44,500 to create training programs for green jobs and education for sustainability professionals. In addition to reading for dollar amounts, we assessed if the CAPs mentioned how and where the funding may come from to get a better sense of the funding sources and other financing approaches for green workforce development efforts in each city.

### **Does the plan include specific dates, benchmarks, or timelines for green workforce development?**

We assessed if the CAPS provided any actionable and attainable dates, benchmarks, or timelines for green workforce development efforts. For example, we looked for dates that would explain when the city planned to create green jobs by or start a green jobs project or training program. We identified a date as anything from an exact date (dd/mm/yyyy) to a specific year (yyyy). Additionally, we looked for the inclusion of benchmarks, such as cities' goals of how many jobs to be created by what date (e.g. the City of Los Angeles aimed to create 300,000 green jobs by 2035 and 400,000 green jobs by 2050). Lastly, we looked to see if the plans provided timelines, such as multiple milestone dates and benchmarks for green job training and creation. We noted if the plans had any one of these or a combination of dates, benchmarks, and timelines.