High-Road Workforce Guide for City Climate Action

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INCLUSIVE ECONOMICS

PREPARED FOR THE

American Cities Climate Challenge

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GLOSSARY

For some of the following ideas, there are various terms in common use. For consistency and conciseness in this document, we have chosen to use the terms listed below, defined as follows:

Active transit:
Transportation without the use of motorized vehicles, such as bicycles, walking, and scooters.

BIPOC:
Black, Indigenous, and People of Color.

Bridge to retirement:
A mechanism to provide retiree benefits for the gap period between early retirement and the age of retirement eligibility.

Disadvantaged workers:
Workers facing barriers to employment (i.e., from under-resourced, marginalized, or disenfranchised communities, including populations historically excluded due to structural inequity, race, age, gender, etc.). Encompassed in this term is the key notion that disadvantage is perpetuated by systems and does not reflect a failing on the part of individuals.

"First source" hiring:
A policy or agreement to maximize use of local labor, specifying a process that employers must follow to give certain individuals, such as graduates or participants from a particular program, the first opportunity for open positions.

FTE:
Full-time equivalent, a unit used to measure current or projected job impacts. In climate program implementation, most work will not be performed by people working full time exclusively on the climate project. The "head count" or actual number of individuals engaged on the project will typically be higher than the FTE estimate.

High-road:
In a workforce context, an approach aimed at creating high-quality employment, "good jobs" characterized by family-sustaining, living wages, comprehensive benefits, and opportunity for career advancement.

Latine:
Inclusive, gender-neutral term for people of Latin American descent.

Local hire:
Mechanism that requires or incentivizes contractors receiving public funds to hire local residents. Local hire requirements are also used to enhance opportunities for disadvantaged workers.[1]

Low-road:
In a workforce context, an approach resulting in low-quality employment, "dead-end jobs" characterized by low wages, poor benefits, menial responsibilities, and little or no career mobility.

"No regrets" actions:
In climate change adaptation strategies, measures that are cost effective now, can be enacted without hard tradeoffs, and provide significant benefits under a range of future climate scenarios.

Opportunity youth:
Young people between the ages of 16 and 24 who are neither in school nor employed. Other terms used to describe this population are "disconnected youth" and "at-risk youth." While many youth in this category do face composite risks such as disabilities, homelessness, or involvement with the juvenile justice or child welfare systems, the term "opportunity youth" changes the narrative to reflect the untapped potential of these individuals.

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1   PolicyLink. *Local and Targeted Hiring.* All-In Cities Policy Toolkit. Retrieved January 6, 2021 from https://allincities.org/toolkit/local-targeted-hiring.

Prevailing wage:

The hourly wage and fringe benefits paid to the majority of workers engaged in a particular craft, classification, or type of work in the local labor markets. Prevailing wages are established by regulatory agencies and usually match the union wage. Prevailing wage is often required in government contracting, but rules vary by state and locale. Prevailing wage laws establish wage standards to avoid encouraging firms to undercut each other by reducing pay for workers.

Race-conscious:

Explicitly aimed at improving the conditions of racial minorities and increasing equality of opportunity. Some states allow race-conscious policy, which in high-road workforce development can be used to set specific hiring targets based on race.

Race-neutral:

In race-neutral environments, it is illegal to target policies or actions based on race. Pursuing high-road workforce development in a race-neutral environment will require finding other means of increasing equality of opportunity for racial minorities.

Returning citizens:

Previously incarcerated persons.

Support services:

In a workforce context, case-by-case services—such as child care, transportation, health care, a housing subsidy, counseling, etc.—set up to address specific barriers to an individual's success in a job or training program.

Targeted hire:

Mechanism(s) that require or incentivize contractors receiving public funds to hire workers from specific populations within the community to ensure that a fair share of jobs created by public dollars benefit those with the greatest need.[2]

Upskilling:

Improving a person's professional aptitude through additional training or education; increasing or enhancing a person's current skill set.

Vehicle miles traveled:

Miles of travel by all types of motor vehicles for a given geographic area over a given period of time.

Wraparound:

A holistic, coordinated, and solution-focused approach to support opportunity youth, centered around relationships and tailored toward building strengths and promoting success.

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2 Ibid.

INTRODUCTION

In terms of scale and maneuverability, cities are uniquely positioned to tackle climate challenges with concrete measures. They can see their local actions have global reach, providing replicable models for cities around the world. As U.S. cities pursue ambitious climate targets, showcasing various pathways to emissions reductions and sustainability, jobs are at the core. There is wide recognition that as climate actions create new jobs, they also provide opportunities to address racial and social inequities in the labor market. The goal of this guide is to help cities leverage action on multiple fronts to bring about a sustainable, just, and equitable future. In this regard, climate policies and outcomes should also promote equity. High-road workforce development (HRWD) does so by increasing economic opportunity for people of color and low-income populations through demand-side and supply-side solutions that create equitable access to good career-track jobs.

In 2020, the COVID-19 pandemic eliminated tens of millions of jobs across the United States almost overnight. As activity resumes, people returning to work are concerned about ongoing threats to their health, and many other workers—disproportionately Black and Latine—no longer have jobs waiting for them. City budgets have been devastated by reduced tax revenue, and many public workers have been furloughed. Also in 2020, nearly 10 percent of Americans participated in demonstrations and protests, calling for changes to address systemic racism. Spring brought record rains, flooding, and violent tornados. With summer came heat waves and record high temperatures. Fall brought hurricanes and wildfires. In 2020, the climate crisis crashed into an economic crisis against the backdrop of a centuries-long racial equity crisis.

To confront these compound crises, there is work to do: work to respond, recover, and repair, but perhaps most importantly, to reimagine. The opportunity to create healthier, more resilient, and more equitable cities is before us, but this undertaking will demand intentional efforts. If we do not address systemic inequalities in the status quo, we will end up with infrastructure that perpetuates exclusion and disproportionate pollution burdens, severe and escalating wealth and health inequities, and social safety nets so threadbare they are more likely to tear than cushion a fall.

Identifying where climate goals align with other city goals can strengthen partnerships and leverage additional resources. Interdepartmental engagement is important for several reasons. First, in facing compound challenges, cities will need to prioritize their efforts, and it will be incumbent upon climate staff to ward off the notion that we cannot address climate change until more immediate economic issues are addressed. Second, where climate action intersects with other priorities, leveraging the stakeholder relationships and expertise held by staff in other city departments will be crucial for aligning and pursuing dual goals. Third, cities will need to find ways to do more with less, and addressing climate change is a solution as much as it is an imperative.

Climate policies trigger investment, thus city climate action is a significant intervention in the local economy. Whether intentional or not, implementation of climate policy also exerts influence on the labor market. Sustainability staff and advocates understand that climate investment can have stimulating and job-creating impacts on the economy, but these stakeholders must also be aware that climate actions shape the economy, and they must recognize who the economy serves. Climate staff must therefore consider the distributional impacts upfront and act with intention to ensure climate actions are supporting good jobs and racial equity. How we design and implement city climate actions matter, and without due caution, well-intentioned efforts could actually drive down job quality and hinder access to opportunity.

This guide provides city staff, elected officials, and advocates with a strategic framework for folding workforce development into city climate plans. Through a coordinated set of policy actions and program design principles, city sustainability staff can support high-road workforce development. This approach ensures cities will be able to engage a qualified local workforce to meet increasingly challenging climate goals, while also directly addressing racial equity in their workforce programs. This document provides strategic guidance, best practices, policy actions, program design principles, and case studies for tackling the multifaceted crisis of the moment, while building the foundation to achieve long-term equity and climate goals.

Addressing Racial Equity in Race-Neutral Environments

Given the long history of systemic, institutionalized racism across the United States, addressing equity requires an intentional focus on racial equity. Unfortunately, backlash to affirmative action has resulted in many states prohibiting the use of race or gender criteria in admission, hiring, or contracting decisions. If your city is in a state with race-conscious or affirmative action laws, programs can explicitly designate beneficiaries or define eligibility based on racial, ethnic, or cultural identification. In other words, your workforce efforts can make racial equity an explicit focus.

If your city is in what is referred to as a "race-neutral" state, you will not be legally allowed to establish eligibility criteria or programming based on race (or gender). In such a case, efforts must be made to reduce barriers for disadvantaged workers, enforce anti-discrimination laws, and base targeted actions on criteria other than race, such as residence in low-income neighborhoods. In a race-neutral environment, it is essential to partner with community-based organizations that provide customized services and support to target populations such as returning citizens, refugees, opportunity youth, women, or individuals from under-resourced communities. Workforce efforts and legal agreements like project labor agreements or community workforce agreements can specify partner organizations with close ties to target populations.

photo: Service Employees International Union

HOW TO USE THIS GUIDE

This guide is designed to help city sustainability staff and presupposes no pre-existing knowledge or experience with workforce planning. It will help staff to:

- Clarify and prioritize their workforce goals across their climate portfolio;

- Identify and think critically about challenges;

- Identify and engage partners;

- Conduct a workforce assessment or "gap analysis";

- Determine the most effective workforce development interventions;

- Identify the optimal role for a city sustainability department to play in workforce development efforts; and

- Communicate and coordinate with city staff, community organizations, and other stakeholders.

This guide does not offer how-to guidance or best practices on community engagement, communications, or project management. There are excellent resources available on those topics, such as the *American Cities Climate Challenge Implementation Toolkit*, which provides how-to advice for accelerating and deepening climate action in cities.[3] Kapwa Consulting, an equity partner in the Climate Challenge, has provided workshops and frameworks on an equity approach to stakeholder engagement. By not offering guidance on these complementary actions, we do not mean to imply that they are not important; indeed, they are critical. This guide also does not assume that users have access to comprehensive workforce assessments, gap analyses, or bespoke economic or employment projections tied to climate goals. Such analysis is helpful but not a prerequisite to identifying and taking meaningful action.

Finally, while this guide presents comprehensive opportunities to approach green workforce development, it is also possible to choose *a la carte* tools. Whether your workforce goals are ambitious or modest, sweeping or specific, this guide will give you a starting place and a roadmap for systemic reform to create better climate and workforce outcomes in your city.

This guide is divided into two parts. The first part is a planning guide. It is formatted as a workbook that can be used to create a basic climate workforce strategic plan. The second part is an implementation guide. It references examples, case studies, and best practices from other workforce efforts. Hyperlinks are subject to change, but corresponding resources may still be available and locatable with a simple online search. As cities continue to engage in this work and develop prototype solutions, we will all learn more about the most effective approaches. We have tried to make this guide specific enough to get you started but not so prescriptive as to inhibit innovation.

WHY HIGH-ROAD WORKFORCE DEVELOPMENT?

High-road workforce development (HRWD) has two objectives: 1) improve the quality of jobs so that they are better able to support workers' economic self-sufficiency, upward mobility, and overall welfare; and 2) increase access to jobs for people who need them most and who have been historically excluded from career-track, family-sustaining employment. The goal of HRWD is to pursue progress on both objectives simultaneously.

Traditionally, in the U.S. economy, as job quality increases, access to jobs decreases (i.e., the better the jobs, the less likely they are to go to people of color and other historically excluded workers). This dynamic is shown in Figure 1. Equally problematic is that initiatives designed to increase job access, such as short-term training programs for disadvantaged workers, can flood the labor market, driving down wages and diminishing the power of workers. Through targeted interventions, high-road workforce development aims to eliminate this tug-of-war. Instead of job access and job quality remaining at odds, they work together to accelerate climate action. (The tradeoffs approach and complementary approach are both depicted in Figure 2.)

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3   Delivery Associates. 2019. *American Cities Climate Challenge Implementation Toolkit: A Strategic Brief to Accelerate and Deepen Climate Action in Cities.* Bloomberg Philanthropies American Cities Climate Challenge. Retrieved January 6, 2021 from https://drive.google.com/file/d/1znZflw5eYqsqD74BEXqeF_xRHBWFn7ja/view.

To meet climate goals, cities must have enough workers with the skills and experience required to implement climate actions. It is therefore tempting to implement training programs to prepare new workers with these skills—particularly people of color, displaced workers, and others historically excluded from good jobs.

But before developing a training program, it is important to understand basic supply–demand dynamics in the labor market: the more trained workers you add to the labor market relative to the jobs available, the lower you push wages.

If the goal of your climate plan is to improve equity, to find a balance between social and economic equity and rapid greenhouse gas (GHG) emissions reductions, or to build broad community support for your climate program, it is best not to lead with initiatives that increase the *supply* of workers before the jobs have materialized.
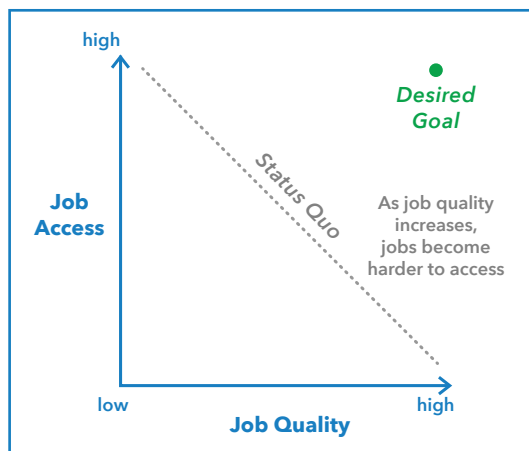
Figure 1. The Combined Goal of Job Access and Job Quality

Training does not create jobs, and the wrong kind of training can drive down industry wages.

This is not to say that workforce education and training is not important. Training is invaluable for skills-building, and training programs often provide valuable additional services like job readiness and job placement, mentorship, and other support services that are critical for ensuring that workers are prepared for real-world jobs. However, to avoid flooding the labor market and suppressing wages, the training must be driven by and responsive to the demand for workers. Cities can increase and shape demand through regulations, incentives, procurement, and direct investment.

The dual goals of high-road workforce development are to maintain or improve the quality of jobs, while enhancing access for workers who experience barriers to employment. We do not want "solar sweatshops and Walmart wind farms."[4] We do not want climate solutions predicated on the suffering of working people struggling to make ends meet in low-wage, dead-end jobs. Indeed, it is hard to imagine that solutions that depend on the unsustainable extraction of value from workers could correct the problems of unsustainable extraction of value from the natural world.

In the pursuit of equity, HRWD seeks to tip the scales in the favor of workers. The goal is, at a minimum, to maintain the labor market equilibrium between demand for and supply of workers and, ideally, to drive up wages, benefits, and the power of working people. Figure 3 depicts potential scenarios. In the first scenario, too many workers are trained relative to work available, driving wages down. In the second scenario, there are not enough workers to provide services for all who want them, and this puts upward pressure on wages. In the final scenario, training programs have calibrated the number of workers to the jobs available. Construction union apprenticeship programs work hard to achieve this calibration, thus helping to stabilize the construction industry and maintain equilibrium.

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4   Sharon Astyk and Aaron Newto. 2009. *A Nation of Farmers: Defeating the Food Crisis on American Soil.* Gabriola Island, BC: New Society Publishers. 310.
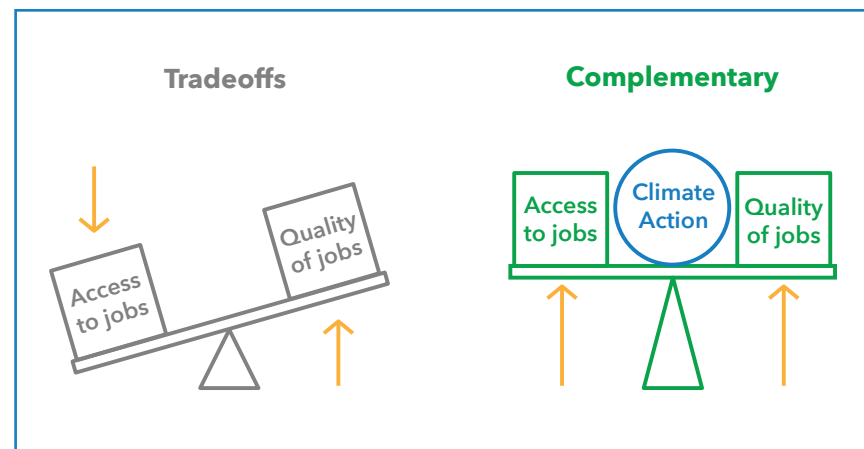
Figure 2. Balancing Job Access and Job Quality

Job Sites   **Wages**
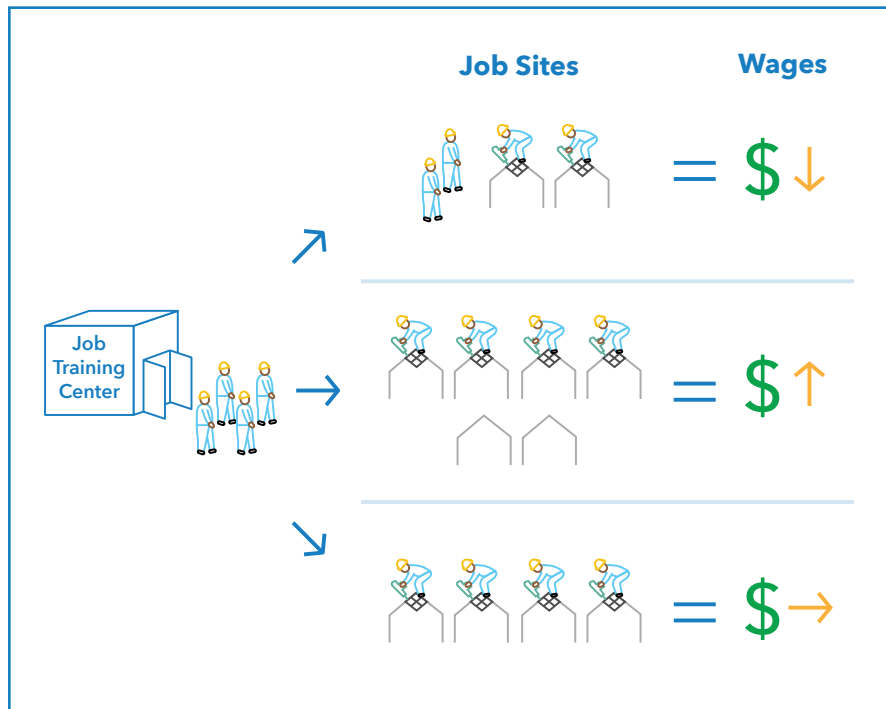
Figure 3. Workforce Supply and Demand Dynamics

This approach is not charity; while it does benefit workers, it also aims to build and retain skills in the workforce, which directly contributes to climate actions such as implementing high-quality building retrofits, building energy efficiency, and electrification. Conversely, poorly performed work, such as incorrectly installed solar panels or oversized HVAC systems, can not only lead to performance issues and corrective costs down the road, but also set back climate objectives by reflecting poorly on technologies or solutions. Skilled labor is key to the successful implementation of climate actions. When wages are too low, the most talented workers in the market will seek other opportunities. Workers who invest in training and skills development may not see an adequate return on their investment and leave the area or the industry to find market conditions that will reward them for their skills and experience.

In order to retain skills and further professionalize the workforce, it is important to take steps to increase the demand for skilled workers. This effort requires identifying the conditions (e.g., targeted hire standards, wage standards, and skill

standards), incentives, public investment, procurement opportunities, and other strategies that can generate the demand for skilled workers and pull workers into good jobs. Increased demand for skilled workers means that workers and employers who invest in training are likely to see a return on that investment.

To meet the increased demand for skilled workers, training is required, and it is imperative that both training programs and the jobs they lead to are made accessible to disadvantaged workers. This requires intentional recruitment strategies and cultivating inclusive learning and workplace environments. It may also require that programs provide support services like transportation, childcare assistance, or mentoring services to reduce barriers to participation.

High-road workforce development attempts to simultaneously improve the quality of and access to jobs. It is worker-oriented, seeking to invest in the development of human capital for the benefit of the climate, clean energy providers, consumers, and workers.

HRWD should be oriented around a goal of improving racial equity (although legal constraints may limit a city's ability to do so explicitly). If climate action is to be "high impact," in the sense adopted by the Climate Challenge, it must include racial equity as a twin goal with GHG emissions reductions. This approach emphasizes historically underserved voices, especially Black, Latine, and Native American voices, in policy design and implementation. It delivers significant and enduring co-benefits for these communities that lead to greater prosperity. HRWD helps create this high impact by ensuring not only that equity is realized, but also that workers have a stake in climate action.

High-Road Workforce Development Cheat Sheet

1) Emphasizes reliable, medium- to long-term demand-side interventions, such as new policies, funds, and technology shifts that create demand for skilled workers and opportunities for disadvantaged workers.

2) Stabilizes the workforce by retaining skilled workers in the local labor market.

3) Calibrates the training of workers to the jobs that are or will be available.

4) Targets training and support services specifically to address the needs of underrepresented or disadvantaged workers or others experiencing barriers to quality training or careers. Often this includes Black, Indigenous, and other People of Color (BIPOC), returning citizens, opportunity youth, women, refugees, and others.

High Impact Definition

- Contribute to significant GHG reductions; and

- Center historically underserved voices, especially Black and Brown voices, in policy design, development and implementation; and

- Deliver significant, co-defined benefits for these communities that lead to greater prosperity and endure for the long term.
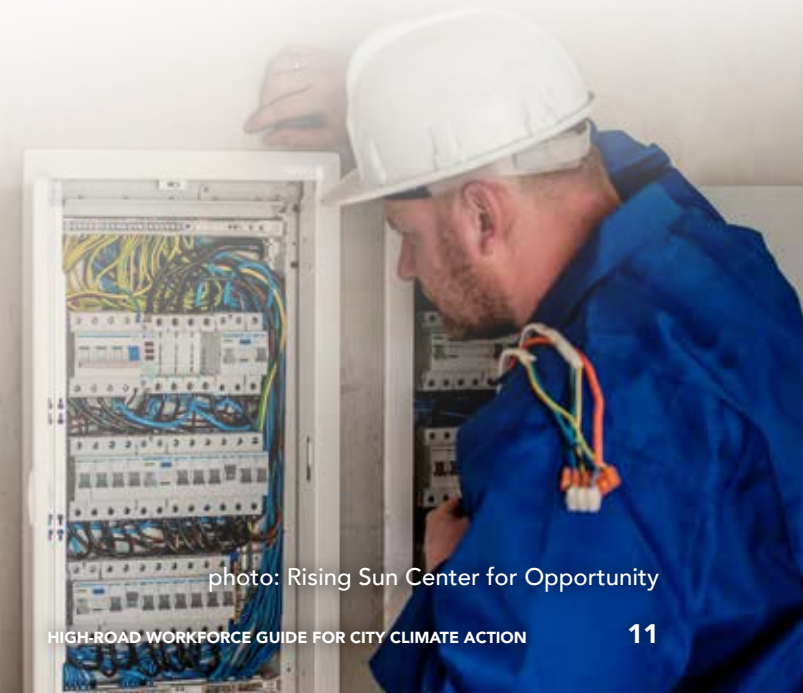
photo: Rising Sun Center for Opportunity

WORKFORCE DEVELOPMENT IN THE CONTEXT OF CLIMATE ACTION

Through the **American Cities Climate Challenge**, Bloomberg Philanthropies has partnered with 25 U.S. cities to accelerate efforts to tackle climate change. Together, the Climate Challenge cities are working to eliminate 40 million metric tons of carbon emissions by 2025.[5] These goals have the potential to drive investment to new markets and industries, creating new economic opportunities for city businesses and residents. Successful implementation of climate strategies will depend on the availability and engagement of human capital—the regional workforce.

Workforce development can transform local economies by delivering several interrelated benefits: more competitive businesses, greater economic mobility for residents, and increased regional economic growth. In the context of climate action, workforce development can contribute to GHG emissions reductions, while simultaneously improving economic opportunities for local residents. HRWD is a uniquely powerful tool that can play three critical functions: successful implementation of climate plans, enhanced economic inclusion and equity, and broader community support for climate action.

Successful Implementation: Workforce interventions can ensure that the local workforce has the skills necessary to implement climate programs. Reducing GHG emissions might require the expansion of electric vehicle (EV) charging infrastructure, the electrification or deep energy retrofits of buildings, or the application of urban design to reduce vehicle miles traveled. All of these goals require a skilled, trained, and stable workforce.

Economic Inclusion and Equity: Workforce development can address the equity goals embedded in many cities' climate plans. Often equity is thought of in terms of the delivery of services and access to benefits. Intentionally crafted workforce development efforts can expand equity efforts to also improve access to economic opportunity for city residents.

Community Support: Workforce development can broaden community participation and build political will for climate action by engaging labor unions, community organizations, and other agencies. It can also yield economic and employment benefits, which in turn strengthen and expand support for more ambitious climate action.

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5   Bloomberg Philanthropies. February 8, 2019. *Mike Bloomberg Announces Potential Impact of the Bloomberg Philanthropies American Cities Climate Challenge*. Bloomberg Philanthropies website. Retrieved January 6, 2021 from https://www.bloomberg.org/press/releases/mike-bloomberg-announces-potential-impact-bloomberg-philanthropies-american-cities-climate-challenge/.

WORKFORCE ISSUES THAT CAN SLOW CLIMATE PROGRESS

Achieving GHG reductions is dependent upon a skilled and engaged workforce. Furthermore, workforce–climate policy integration presents an enormous opportunity to revitalize our local economies and close the racial wealth divide. Realizing this potential requires overcoming several workforce-related challenges.

1) LACK OF A QUALIFIED AND AVAILABLE WORKFORCE

Meeting demand for clean energy, energy efficiency, and other sectors requires an adequately sized, appropriately skilled workforce. In a recent study, a staggering 80 to 91 percent of employers across energy efficiency sectors reported difficulty hiring qualified workers in 2019.[6] The leading obstacles for hiring were insufficient education, certifications, and hands-on training for technical skills; 26 percent of solar companies said it was "very difficult" to hire qualified workers in 2018.[7] This response indicates that either job seekers do not have the skills and experience clean energy employers desire or the skilled workers are not willing to work for the wages employers wish to pay. Since cities depend on businesses and workers to meet climate goals, there is a need to understand gaps in terms of both number of workers (quantitative) and skills and experience (qualitative) in the local labor market and to identify the appropriate mechanisms for closing those gaps.

2) AN AGING WORKFORCE AND AN INDUSTRY IN TRANSITION

The challenge of meeting demand for skilled workers is further exacerbated by the aging of the U.S. workforce. While demand grows for workers in the energy sector, a large portion of the utility and electricity sector workforce is nearing retirement age. According to a 2017 U.S. Department of Energy report on the electricity workforce of the 21st century, roughly 25 percent of employees in the

6   National Association of State Energy Officials (NASEO) and Energy Futures Initiative (EFI). 2020. *2020 U.S. Energy and Employment Report.* U.S. Department of Energy. Retrieved January 6, 2021 from https://www.usenergyjobs.org/.

7   The Solar Foundation and Solar Energy Industries Association (SEIA). 2020. *U.S. Solar Industry Diversity Study 2019.* The Solar Foundation. Retrieved January 6, 2021 from https://www.thesolarfoundation.org/diversity/.
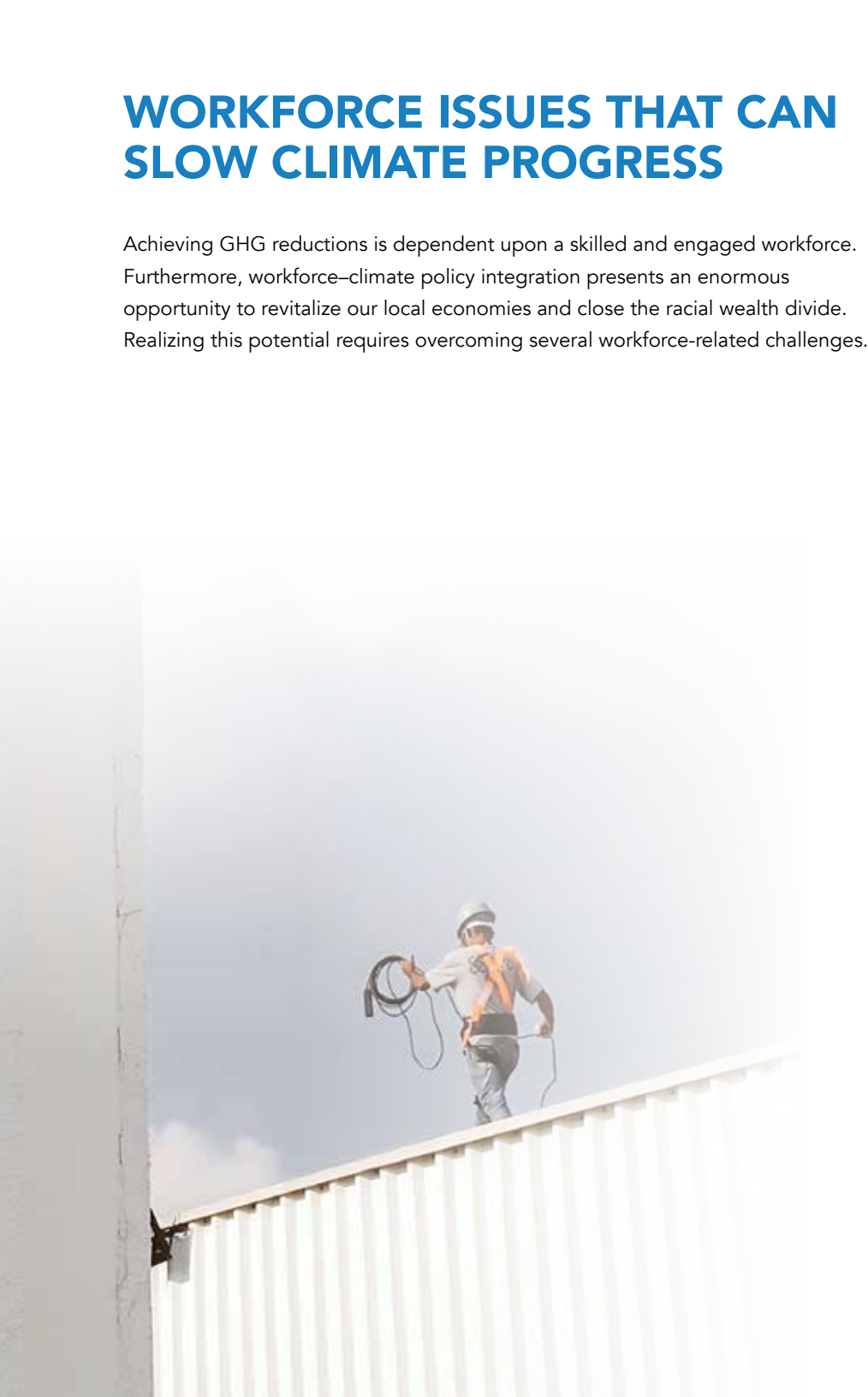
utility and electricity sector will reach retirement age in the next five years.[8] This demographic reality need not be a dire problem. With the energy industry in transition, workforce needs are shifting by sector and geography, and in terms of skill requirements. Cities should work with utilities and employers to ensure that recruitment and hiring processes align with long-term city sustainability and equity goals.

3) POOR QUALITY OF CLEAN ENERGY JOBS

Several studies indicate that pay and benefits are lower in the rapidly growing clean energy industry than the traditional construction and energy industries.[9] Workers in these more traditional industries are often represented by unions and have fought hard to secure strong wage, benefit, and safety standards. Newly emerging industries often lack such protections. In order to ensure that the clean energy transition does not undermine local labor standards and create precarious, low-paying jobs, cities must facilitate policies and regulations that protect workers and structure public investments to reward responsible employers.

4) RACE AND GENDER DISPARITIES IN CLEAN ENERGY WORK

Workers in the clean energy segments of the energy industry are more likely to be White and less likely to be union members than their counterparts in the fossil fuel segments of the industry.[10] In the solar industry, Black workers are less likely to hold management-, director-, and president-level positions than White workers.[11] In order to achieve an equitable clean energy transition, it is important for cities to ensure that clean energy jobs offer opportunities for economic mobility for city residents experiencing poverty, unemployment, or underemployment and those facing barriers to career-track employment. Creating inclusive and non-discriminatory workplace culture plays a huge part in retaining workers from underrepresented populations.

5) POLITICAL OPPOSITION OF LABOR UNIONS TO CITY CLIMATE PLANS

Many climate actions are designed to reduce dependence on fossil fuels. While some actions, such as expanding public transit or investing in infrastructure, are widely supported by unions, other actions, such as banning gas in buildings or accelerating retirements of fossil fuel power plants, can trigger backlash from powerful local unions, particularly building trades unions and utility workers. At the same time, clean energy work can be stubbornly low-road. It is important for cities to understand that climate plans and initiatives have workforce impacts and that those impacts can strengthen or weaken community support for climate action. Furthermore, supplier diversity targets are sometimes used as an excuse not to require labor standards that would improve the quality of jobs created—a decision that can further drive a wedge between a city's minority contractors and labor unions. City staff must resist the temptation to trade job quality for expediency or contractor diversity, when it is possible to support all three goals in concert.

8   U.S. Department of Energy. 2017. *Electricity Workforce of the 21st Century: Changing Needs and New Opportunities.* Transforming the Nation's Electricity Sector: The Second Installment of the QER. U.S. Department of Energy. Retrieved January 6, 2021 from https://www.energy.gov/sites/prod/files/2017/02/f34/Chapter%20V--Electricity%20Workforce%20of%20the%2021st-Century--Changing%20Needs%20and%20New%20Opportunities.pdf.

9   Betony Jones and Carol Zabin. July 2, 2015. *Are Solar Energy Jobs Good Jobs?* UC Berkeley Labor Center Blog. Retrieved January 6, 2021 from https://laborcenter.berkeley.edu/are-solar-energy-jobs-good-jobs/ ; Peter Philips. June 2020. The Quality of Jobs in Construction and Oil-and-Gas for High School Graduates. Institute for Construction Economic Research (ICERES)..

10   U.S. Department of Energy. 2017. *US Energy & Employment Public Data Files.* U.S. Department of Energy. Retrieved January 6, 2021 from https://www.energy.gov/jobstrategycouncil/downloads/us-energy-employment-public-data-files-2017.

11   The Solar Foundation and Solar Energy Industries Association (SEIA). 2020. (See p.13)

I. DEVELOPING A HIGH-ROAD WORKFORCE PLAN

Sustainability staff can, and should, work in tandem with their city's workforce and economic development departments to incorporate high-road workforce planning into their overall climate planning. The internal and external partnerships developed through workforce planning can also translate into support for the broader sustainability agenda.

A climate and clean energy jobs and workforce strategy must be much broader than just training programs. To successfully plan this type of comprehensive strategy, we suggest the following steps:

Step 1: Clarify the Goals and Priorities

Step 2: Identify the Challenges

Step 3: Identify and Engage Partners

Step 4: Conduct a Workforce Assessment or "Gap Analysis"

Step 5: Identify Potential Solutions

Step 6: Develop an Evaluation Plan

CLARIFY THE GOALS AND PRIORITIES

The right approach for a city will be driven by the city's climate and workforce goals, the commitment of local policymakers and elected officials to these goals, and the capacity and resources within the community.

What is motivating you to create a workforce development strategy for your climate work?

Cities often begin thinking about clean energy workforce development because they are concerned that a shortage of workers skilled in new technologies or emerging sectors could slow progress on climate goals. Local stakeholders and workforce development staff may also have specific goals for increasing economic opportunity for BIPOC workers, youth, or other specific populations that have been shut out of quality employment. Identifying these goals and how they intersect is an important first step.

The following are some examples of city workforce goals:

- Link climate actions to economic recovery and create jobs for unemployed workers.

- Ensure that local businesses instrumental to climate work have a ready pool of qualified workers.

- Drive down the costs of clean energy solutions (without resorting to low wages).

- Reduce unemployment.

- Increase the participation of BIPOC workers in climate-related jobs.

- Increase the share of local climate jobs held by city residents.

- Create opportunities for youth.

- Promote gainful employment for returning citizens and reduce recidivism

- Engage labor unions to support climate policy development and implementation.

- Increase local investments in climate action in order to create more jobs and promote economic recovery.

- Protect public and jobsite safety and reduce the risk of climate progress being stalled because of faulty or dangerous installation.

- Ensure that climate jobs are good, family-sustaining jobs.

- Protect the jobs of current workers and minimize job loss or worker displacement.

- Expand the skills and qualifications of the local workforce to attract new companies and to tackle increasingly complex challenges.

- Improve the quality of work performed to maximize energy benefits.

Note: We do not include on this list the goal of increasing the engagement of small, local, minority-, and women-owned business enterprises (MWBEs). As employers, these businesses can contribute to workforce goals in their hiring and training practices, but business owners themselves are not part of the workforce. Building the capacity of WMBEs and diversification of the local contractor base are essential to the long-term success of high-road workforce development. WMBEs often require extra support and training through bootcamps and other ongoing services. Supporting WMBEs requires a complementary business and economic development strategy.

Not all of the goals bulleted above complement each other. The workforce priorities in climate planning may be different than the workforce goals of the mayor, city council, economic development department, employers, labor unions, community members, and other public agencies. With strong commitment and adequate resources, workforce development in climate work can lead to win–win outcomes for multiple stakeholders, but the less alignment there is between various goals, the more coordination will be required. To determine potential alignment or areas of potential conflict, it is critical for stakeholders, including city climate staff, to have a clear definition of their workforce priorities and take the time to sort out challenges that arise from seemingly contradictory goals.

Creating a high-road workforce environment will require new partnerships. Dedicating enough time to build trust with and between partners is essential.

EXERCISE 1A. IDENTIFY GOALS

To the list below, add, rephrase, or cross out goals to suit the needs of your city.

City of _____ **Climate Workforce Goals**

- Link climate actions to economic recovery and create jobs for unemployed workers.

- Ensure that local businesses instrumental to climate work have a ready pool of qualified workers.

- Drive down the costs of clean energy solutions (without resorting to low wages).

- Reduce unemployment.

- Increase the participation of BIPOC workers in climate-related jobs.

- Increase the share of local climate jobs held by city residents.

- Create opportunities for youth.

- Engage labor unions to support climate policy development and implementation.

- Promote gainful employment of returning citizens and reduce recidivism.

- Increase local investments in climate action in order to create more jobs and promote economic recovery.

- Protect public and jobsite safety and reduce the risk of climate progress being stalled because of faulty or dangerous installation.

- Ensure that climate jobs are good, family-sustaining jobs.

- Protect the jobs of current workers and minimize job loss or worker displacement.

- Expand the skills and qualifications of the local workforce to attract new companies and to tackle increasingly complex challenges.

- Improve the quality of work performed to maximize energy benefits.

- _____

- _____

- _____

EXERCISE 1B. PRIORITIZE GOALS

Prioritization is easiest when choosing between only two options. The prioritization grid below provides an easy way to rank a list.[12]

First, enter the list of goals in the spaces below. The order does not matter.

Next, comparing one pair at a time, circle the number of the higher priority goal.

Continue with each pair, indicating the higher priority goal. You will compare goals 1 and 2; 1 and 3; 2 and 3; and so on.

You must make a choice between all pairs. Finally, add up the number of times you circled each number and write that in the second chart below. The goal whose number you circled the most is your highest-priority goal.

Example:

Ensure clean energy companies have a ready pool of qualified workers	1

| 1 | Reduce unemployment | 2 |
| (2) | | |

| 1 | 2 | Create opportunities for youth | 3 |
| (3) | 3 | | |

Goal #	Times Circled
1	0
2	2
3	1

Priority of Goals in Example:

1. Reduce unemployment

2. Create opportunities for youth

3. Ensure that local companies have a ready pool of qualified workers

---

12   Framework adapted from Richard N. Bolles. 2019. *What Color Is your Parachute?* New York, NY: Ten Speed Press.

							1
1/2							2
1/3	2/3						3
1/4	2/4	3/4					4
1/5	2/5	3/5	4/5				5
1/6	2/6	3/6	4/6	5/6			6
1/7	2/7	3/7	4/7	5/7	6/7		7
1/8	2/8	3/8	4/8	5/8	6/8	7/8	8

Count the number of times each item was checked and enter that number in the space below.

# of Times Checked							
1		2		3		4	
5		6		7		8	

Ranked Priority Goals:

1. _____

2. _____

3. _____

We recommend that you next try to combine these goals into a single statement that can be shared with partners and other stakeholders.

Goal Statement

_____

_____

_____

_____

_____

_____

Once you have arrived at a clear goal statement, it may be tempting to jump to the solution phase. The second section of this guide, Implementing a High-Road Workforce Plan, addresses how to translate goals into action and provides many examples of workforce programs and activities. However, we advise that before exploring solutions, you do a little more work to understand the specific challenges, identify the most appropriate approaches, and determine the most effective role for the city to play in pursuing the priority goals. Doing this legwork will help identify local partners, as well as avoid unintended consequences and wasted time, money, and other resources.

IDENTIFY THE CHALLENGES

A goal is a target, a future desired result. It is important to identify the barriers to reaching the goal or the local challenges that led you to prioritize this goal in particular.

For example, if your highest priority goal is to "increase the participation of unemployed and underemployed workers in clean energy jobs and address racial equity," you might identify the following challenges:

- Employers are hiring workers from their own networks, which do not include high numbers of BIPOC workers, to fill clean energy jobs in the city.

- Employers seem to have enough employees to meet current demand and are not hiring.

- Unemployed and underemployed workers in the city are not adequately trained to perform the tasks associated with clean energy work.

- There is not widespread knowledge of or interest in climate-related work.

Perhaps your highest-priority goal is to ensure there is an adequate supply of qualified workers to meet the growing demand for building-decarbonization services. The need to rapidly incorporate new heat pump technology can create a skills gap. A skills gap emerges when new skills are required and the curricula and credentials offered by available programs lag behind market demand. Figure 5 shows one of the causes of a skills gap.
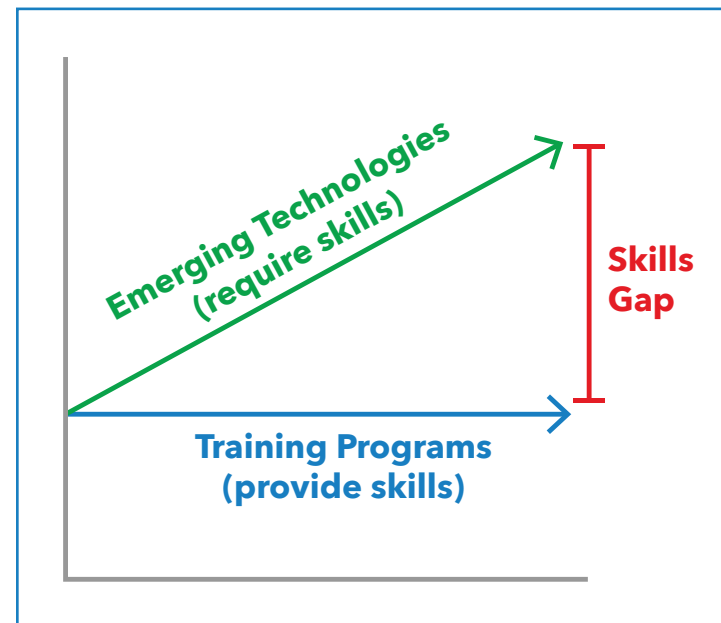
Figure 5. Skills Gap

EXERCISE 2A. IDENTIFY CHALLENGES OR BARRIERS

Below are some examples of specific goals and potential challenges. If your city's priority goals are identified below, circle them. If a goal is not listed, write it in. Next, write in or circle the challenges that best reflect your city's conditions. You might not know precisely what the challenges are, but working through this exercise will help you consider the challenges more thoroughly. People with different perspectives will identify different challenges, which is the point of this exercise. There is no wrong answer! Examples of challenges you might identify are listed below, but the lists are not exhaustive.

In the process of working through this exercise, you will think of people who can help identify additional challenges or vet your lists. Comparing your challenge analysis with that of a counterpart in your economic or workforce development department or those of outside stakeholders is the first step toward finding common solutions. Conflicts arise when people jump to solutions without developing a shared understanding of the challenges.

GOAL: Ensure that local businesses instrumental in climate actions have a ready pool of qualified workers.

CHALLENGES:

- Customers seeking clean energy work cannot find qualified contractors with a strong track record and the availability to meet their needs in a timely manner.

- Employers/contractors do not have the skilled workforce required by new technology.

- Education and training institutions are not providing students with the necessary knowledge and skills.

GOAL: Increase the participation of unemployed and underemployed workers, particularly BIPOC, in climate jobs.

CHALLENGES:

- Employers seem to have enough employees to meet current demand, and they are not hiring.

- Workers in our city are not adequately trained to perform the tasks associated with clean energy work.

- The workers we want to target are not aware of or interested in clean energy work.

GOAL: Drive down the costs of clean energy solutions.

CHALLENGES:

- Clean energy solutions are too expensive relative to business as usual.

- Labor costs are too large a portion of total project costs.

- Not enough customers see the value of investing in clean energy.

GOAL: Increase the share of local climate jobs held by city residents.

CHALLENGES:

- Employers are hiring workers from elsewhere to do the clean energy work in the city.

- City education and training institutions are not focused enough on clean energy.

GOAL: Engage labor unions to support climate policy development and implementation.

CHALLENGES:

- Some local labor unions are opposing our climate plans or critical pieces of our climate plans.

- Some local labor unions—especially those associated with fossil fuels—fear they will lose work as we implement our climate goals.

- Local labor unions do not understand our climate goals and do not know where they fit into the solutions.

- We do not know the potential employment impacts of our chosen climate solutions, so we do not know which unions to engage.

- Climate staff do not hold working relationships with local labor unions that would allow them to discuss our climate goals.

- Union labor cannot compete on cost against non-union contractors, so they are not getting the jobs.

GOAL: Increase local investments to create more climate jobs in the city.

CHALLENGES:

- The current level of investment in clean energy is insufficient to meet our climate goals.

- We do not have money to encourage clean energy investments through incentives or subsidies.

- We do not know which kinds of climate actions are big job creators.

- There are tradeoffs between low-cost climate solutions and big job-creating climate solutions.

- In the absence of tools to weigh the costs and benefits, the tendency is to equate low cost with cost effectiveness (as opposed to identifying solutions with the highest benefit-to-cost ratio), thus hindering the job potential of our climate plans.

photo: Service Employees International Union

GOAL: Ensure that climate jobs are good, family-sustaining jobs with comprehensive benefits.

CHALLENGES:

- Clean energy employers in our city are anti-union.

- There are enough qualified people willing to work for low wages that there is no market rationale for increasing employee compensation.

- There is a perception that measures like prevailing wage would increase costs without providing commensurate benefits.

- The city does not have much control over the compensation of jobs in the private sector.

GOAL: Protect the jobs of current workers and minimize job loss or worker displacement.

CHALLENGES:

- Our climate plan will accelerate an energy transition away from fossil fuels, which could trigger job loss.

- Some fossil fuel workers have specialized skill sets that do not transfer to other areas of work.

- We do not have funds to support worker transition (e.g., bridges to retirement, wage guarantees, or retraining, etc.).

- We cannot control the workforce decisions made by local employers.

GOAL: Expand the skills and qualifications of the local workforce to attract new businesses and employers to the region.

CHALLENGES:

- We do not have education or training institutions that focus on green or clean energy skills.

- We do not know what the employers we would like to attract are looking for.

GOAL STATEMENT: [Insert from Exercise 1B]

- _____

_____

_____

CHALLENGES: [Copy from examples above or draft your own]

- _____

- _____

- _____

SUB GOAL STATEMENT:

- _____

- _____

- _____

CHALLENGES:

- _____

- _____

- _____

SUB GOAL STATEMENT:

- _____

- _____

- _____

CHALLENGES:

- _____

- _____

- _____

EXERCISE 2B. REFRAME CHALLENGES

To choose the best solution for the challenges you have identified, it is helpful to consider the challenge from different perspectives. Therefore, one final activity can be useful: reframe the challenges. Trying to reword challenges can prompt out-of-the-box thinking and point the way to new solutions. This exercise may be challenging because it can reveal implicit assumptions, bias toward a particular way of seeing things, or preference for particular solutions. Try not to judge which framing is correct. The purpose of this exercise is to consider the challenge from different points of view. How might a current worker perceive this challenge? How might a currently excluded worker perceive this challenge? What about a clean energy business? An apprenticeship program coordinator? A workforce development officer?

In the table below, take the challenges you identified in Exercise 2A and try to find a way to frame each challenge differently. The point of this exercise is not to be comprehensive in exploring all possible perspectives, but rather to recognize that there are different ways of understanding a challenge. Thinking about the challenges differently can yield different types of solutions.

1. See the example below and then populate your own table in the space provided.

Table 1. Challenge Reframing Exercise: An Example

City-Identified Challenge	Alternative Perspective	From the Point of View of…
"Solar companies aren't hiring the workers that our community colleges are training."	"There isn't enough solar work to sustain all the firms working in this space." Or "We don't want to shoulder the risk of hiring random people."	A solar contractor
"There aren't enough qualified workers in our area to perform the residential heat pump installation jobs we need to meet our climate goals."	"Competition in the residential market is driven by low cost. My skills and experience aren't rewarded."	A skilled HVAC worker with heat pump expertise

Table 2. Challenge Reframing Exercise

City-Identified Challenge	Alternative Perspective	From the Point of View of…

IDENTIFY AND ENGAGE PARTNERS

If you worked through the exercises in Step 2, you have already begun to think about stakeholders. Potential partners are a subset of stakeholders. Stakeholders are the workers, employers, unions, and other organizations that will be affected—positively or negatively, directly or indirectly—by the implementation of your climate program. They are the people and organizations you are trying to serve and also those who can help or hinder you in reaching your goal. A key principle in community engagement is to listen to those most affected, so when you are considering potential partners, do not only think of people most eager to engage or those who have the greatest capacity to do so.[13] Stretching beyond the community of traditional climate or sustainability advocates will be key to success.

One of the reasons it is so important to consider the workforce implications of climate action is that city climate action has an inherent workforce dimension. The design and implementation of climate policy affects workers in the community, whether or not the effects are intentional. Without ensuring that this influence is positive, climate plan implementation may reinforce patterns that perpetuate low-road jobs and inequity.

It may be helpful to conduct the exercises below for different climate actions. The workforce partners may differ by climate action, but it's also possible that the specific workforce required for different climate initiatives will overlap. For example, transportation decarbonization strategy might include an expansion of transit operations, bicycle and pedestrian infrastructure, fleet electrification, and EV charging infrastructure. Workers, employers, and training programs for bicycle and pedestrian infrastructure will have more in common with those involved in landscape restoration and resilience than with programs designed for transit operators. Workers, firms, and training programs for EV infrastructure may be the same as those engaged in implementing building performance standards. Mapping the industries involved in different climate actions will be helpful in identifying the right partners.

---

13 See the Jemez Principles, six best practices for equity in organizing: be inclusive; emphasize bottom-up organizing; let people speak for themselves; work together in solidarity and mutuality; build just relationships; and commit to self-transformation from Southwest Network for Environmental and Economic Justice. 1996. *Jemez Principles for Democratic Organizing.* Jemez, NM: Meeting hosted by Southwest Network for Environmental and Economic Justice (SNEEJ), Dec. 1996 . Retrieved January 6, 2021 from https://www.ejnet.org/ej/jemez.pdf.

EXERCISE 3A. MAP CLIMATE ACTIONS TO INDUSTRIES

This exercise will best be done in partnership with city workforce and economic development staff, but starting to think about climate actions in terms of the industries they affect will help initiate the dialogue with economic and workforce development staff.

Table 3. Industry Categories[14]

1.	Agriculture, Forestry, and Fishing*
2.	Mining and Extraction
3.	Utilities (Electric, Gas, and Sanitary Services)*
4.	Construction* (includes new construction, building retrofits, land restoration, transportation infrastructure, EV charging infrastructure, clean energy or energy storage resources, etc.)
5.	Manufacturing
6.	Wholesale Trade
7.	Retail Trade
8.	Transportation* (includes the movement of people and goods)
9.	Information, Finance, Insurance, and Real Estate
10.	Services
11.	Education
12.	Health Care and Social Assistance
13.	Hospitality
14.	Public Administration

*These are the industries most likely affected by your climate plans.

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14   These categories are from the North American Industry Classification System (NAICS), the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy (https://www.naics.com/).

In the table below, list the city's priority climate actions. Choosing from the list of industries above, note the industries in your city involved in each action. Electric vehicle and heat pump purchases will require manufacturing, but unless the manufacturing takes place in your city, it will not be an impacted industry.

Based on your policy goals, identify the scale of future investment, projecting out about five years. Identify whether the majority of the investment will come from the public or private sector. Finally, note if you project a substantially new set of skills for which workers would need to be trained.

Table 4. Climate priorities by industry and projected investment

City Climate Action	Industry involved	Scale of investment over next 5 years ($)	Investment (public, private, or both)	Potential skills gap
Example 1. Expand cities bike lanes	4. Construction	$	Public	N
Example 2. Existing building retrofits to improve energy performance	4. Construction	$$$	Private	Y
Example 3. Urban greening and tree planting	1. Agriculture, Forestry	$$	Both	N
Example 4. Expand public transit operations	8. Transportation	$$	Public	N

EXERCISE 3B. BRAINSTORM POTENTIAL PARTNERS

For each significant industry identified above, use the following questions as guides to consider different potential partners. This is a brainstorming exercise. Be sure to name specific organizations or individuals. Note those with whom you already have a relationship.

Table 5. Potential partners

Industry/Industries:		
Related Climate Actions:		
1. What agencies, utilities, or jurisdictions in your region will influence consumer behavior or drive implementation of your climate action?		**Existing Relationship?**
Organizations	Individuals	
2. What decision makers, including elected officials, are particularly interested in climate, equity, or workforce issues?		
Organizations	Individuals	
3. What labor unions or organizations represent workers in the relevant industry?		
Organizations	Individuals	
4. What organizations in the community provide job- or apprenticeship-readiness training?		
Organizations	Individuals	

5. What community-based organizations, churches, or other institutions provide wraparound for opportunity youth or support services for other disadvantaged workers?		
Organizations	Individuals	

6. What other city departments, regional agencies, or associations engage with workforce development or economic development? These may be public (e.g., workforce boards) or private (e.g., chambers of commerce).		
Organizations	Individuals	

7. Which education and training providers provide occupational training or upskilling for relevant industries? These could be community college programs, apprenticeship programs, or private certification programs, etc.		
Organizations	Individuals	

8. Who are the contractors or other employers that are providing or are likely to provide goods and services related to the execution of your climate action?		
Organizations	Individuals	

9. Who are minority and women-owned businesses or contractors that you want to engage in the execution of your climate action?		

10. Which non-governmental organization (NGO) partners in the community are supportive of your city's climate, equity, or workforce goals?		
Organizations	Individuals	

EXERCISE 3C. REACH OUT TO YOUR CONTACTS AND CONDUCT MINI-INTERVIEWS

It is important to talk with your contacts about tackling workforce issues and gather information about what they are interested in and thinking about. These conversations should provide information about who might have an interest in and the capacity to work with the city on a high-road climate workforce initiative and what they might be able to offer. Start by inquiring internally about existing city relationships with labor; mayors or high-level city staff may have established relationships or have a history of engaging with labor. Remember to take notes.

It may be helpful to start an online document (e.g., Google Docs) to summarize each call in one paragraph immediately after finishing the conversation. Include the following information: name of person spoken with, organization, email, and phone number. Add green, yellow, and red color-coding to gauge the person's level of interest. It is important for city staff to demonstrate a commitment to a goal by leading these initial conversations, even if they are introductory, brief, and informal. There will be opportunities to outsource some of the ongoing communications later on.

Start the conversations by describing the city's workforce-related goals from Step 1. Explain that you are in the exploratory phase and want to leverage and build upon existing efforts. Here are some questions to consider asking in these conversations:

1. What do you think about the workforce goals we laid out?

2. What do you think we need to know or be aware of?

3. Could you tell us a bit about your organization? What programs or services do you offer? Who are your program participants?

4. What do you think might be a good role for you and your organization as we figure out how to meet these goals?

5. What goals are you working toward that pertain to workforce, economic equity, or climate issues? What are you interested in doing more of?

6. What do you think needs to be done differently in terms of achieving workforce, economic equity, and climate goals?

7. What are some of the challenges you or your organization are facing?

8. What are some gaps that you see in the community in terms of jobs, job quality, job access, skills, diversity and inclusion, or related issues?

9. (If appropriate) Would you be interested in joining a small working group to help us further our work?

EXERCISE 3D. IDENTIFY CORE WORKING GROUP

The purpose of this exercise is to assemble a core group of committed individual leaders in the community who represent distinct roles and different perspectives and who maintain different networks and relationships in the community.

It is important to select individuals who show interest and a willingness to engage in an initially ambiguous process. At this point, your goals are clear, and the challenges have been considered, but solutions have not yet been identified. It is important to engage the core working group before you have identified specific workforce solutions or actions so there is shared ownership of actions and solutions. This is also important so that each entity identifies for itself the role it can play within the workforce ecosystem.

If it is not possible to work with a building trades council, it will be important to convene other industry partners (i.e., local employers, utilities, agencies, or local unions) to assess employment trends, identify projected job openings, and determine the skills employers need. These partners may also have robust projections for the skills employers will need in the future. Engage the Phase I core group before bringing in additional partners in Phase II.

photo: Rising Sun Center for Opportunity

Table 6. Core Working Group

	Category	Individual, Organization
Phase I	City climate staff lead	
	Economic or workforce development, public works, facilities, equity office, or other city departments	
	Building trades apprenticeship coordinators council*	
	Pre-apprenticeship/job readiness training organization	
	Firms working in this space, WMBEs, and/or business organizations representing potential employers	
Phase II	Community-based organizations providing wraparound or support services	
	Environmental + environmental justice partners	
	Other cities, utilities, agencies engaged in climate/energy work	
	Additional contractors, businesses, employers	

*   *Many city climate plans involve construction activity. The construction industry can provide pathways to good-paying jobs through earn-as-you-learn apprenticeship programs. In many cities, the building and construction trades unions will be critical partners. A building trades council, or sometimes central labor council, usually coordinates activities among the various local unions.*

EXERCISE 3E. CONVENE THE WORKING GROUP

Wait until a meeting is necessary, but do not do too much planning before members come together at this session. Before convening the entire working group, be sure to speak with each member individually. Five-minute individual conversations can make a 50-minute group conversation far more effective. People may have very different ideas about the challenges and solutions, and it is important that members of the working group feel comfortable expressing their opinions and ideas. It is also important that members feel that their time is respected and being well spent.

Below are some tips for running effective diverse partner working group meetings on high-road climate workforce goals. These tips are oriented toward conference calls or online meetings (e.g., using Zoom) but are also good practices for in-person meetings:

1. **Develop and send out an agenda in advance.** Make sure people understand why the group is meeting and have a clear sense of purpose. The agenda will provide a compass for the meeting; you can use it to steer back toward the purpose if the conversation veers off course. In setting an agenda, keep in mind that the aim of a meeting is to create a shared pool of information, understanding, and agreement. More challenging issues may arise naturally, but if key topics are being avoided, invite the group to address them: "One of the issues we are here to discuss is…" or "An important item on the agenda today is…."

2. **Start on time. End on time.** It may be useful to schedule a 50-minute meeting instead of an hour. Starting at 10 minutes past the hour can give people a valuable break between back-to-back meetings, and there is nothing that requires 60 minutes that cannot be done in 50.

3. **Introduce the meeting with a reminder of the high-level science on climate change and the reason for meeting.** For example, you might say, "The climate is changing due to human activity. This science is undeniable. We also know that the burden will fall disproportionately on poor people, people of color, and other vulnerable members of our community. We need to do our part to address climate change and protect city residents, and as we do this, we want to ensure that we are creating good, career-track jobs and access to those jobs for city residents."

4. **Use interactive activities to engage all participants.** These may include group breakouts, brainstorming, or a rotation in which small groups discuss each key point for five minutes and then move on to the next. These techniques not only break the ice and draw out quieter participants but also speed up the process of gathering as much as much information as possible.

5. **Encourage everyone to speak.** Silence is difficult to interpret. It can mean general agreement or active listening; or it could mean that there is dissent, hostility, or disengagement. If members of the group have been silent throughout the meeting, you can use the "round robin" strategy, inviting each person to weigh in, reiterating that every perspective is valuable.

6. **End by reviewing next steps.** Take notes during the meeting and flag items that require follow up. Five minutes before the end of the meeting, review next steps—including identifying by name anyone who volunteered to do the follow-up and setting out reasonable expectations as clear progress indicators—and schedule the next meeting.

If there is a critical next step and no one identified to take it, ask for two volunteers to work together on it offline. It is essential for real work to get done between meetings, and expectations must be clearly understood by the entire group.

7.   **Send out minutes by email.** Keep notes as concise as possible; people are less likely to review dense text. But do provide all essential information. Include the date and time of meetings, the names of people present, agenda items discussed, decisions reached, and questions and answers.

In the body of the email, be sure to clearly indicate the next steps: action items with the name of the person responsible, and the date and time of the next meeting. We recommend using a single Google document to take notes, keeping the most recent meeting's notes at the top of the document and sharing the link each time this document is updated.

For more guidance on running effective meetings, see the enduring advice published by the Harvard Business Review in 1976.[15]

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15   Antony Jay. 1976. How to Run a Meeting. *Harvard Business Review*, the Magazine (March 1976). Retrieved January 6, 2021 from https://hbr.org/1976/03/how-to-run-a-meeting?cm_sp=Article-_-Links-_-Comment.

STEP 4

CONDUCT A WORKFORCE ASSESSMENT OR "GAP ANALYSIS"

Too often, a workforce development landscape includes programs that train participants for jobs that do not exist or that potential trainees are unable to access. Balancing workforce supply and demand is about making sure that interventions on one side of the labor market translate into benefits on the other side. One useful tool to better understand the issues surrounding your city's clean energy labor market is a workforce assessment or "gap analysis." A gap analysis draws on information about a labor market to identify employer needs, the characteristics and skills of local workers, and the gaps between the two.

Achieving clean energy and climate goals will require a continuous supply of qualified workers. Creating an oversupply of workers, however, can suppress wages and drive highly skilled workers to seek higher-paying opportunities, leaving the clean energy industry without the skills and qualifications needed to meet emissions reduction and energy savings goals.

Background research is essential to a successful outcome. The reason we suggest waiting until Step 4 to do background research is two-fold. The first three steps will help clarify and narrow your research questions. Then, your working group may be able to provide valuable information and resources that will make the research tasks easier.

You might have general workforce goals you want to align with your climate action plan, or you may have more specific workforce goals that relate to a particular action or sector (e.g., building decarbonization or transportation electrification). In either case, it is important to estimate the number of workers required to execute the actions. It is also important to recognize that jobs are created when money is spent, so when projecting the number of anticipated workers, your estimate should be based on realistic assumptions about how and to what extent city policy levers will trigger the desired investments. While it is tempting to think

that an ample supply of qualified workers will accelerate climate progress, training workers does not generally drive climate action. Finding the balance between oversupply (which can suppress wages) and undersupply (which can slow climate action) is the goal of this calibration.

The number of workers considered adequate is somewhat subjective. Employers generally want a large pool of qualified workers from which to hire. When there are more workers than there are jobs, wages go down. This oversupply can be good for employers—particularly employers for whom competition is driven by cost—but it can be bad for workers.

Employers also appreciate being able to hire workers who come to them fully trained and with relevant experience. For these reasons, frequently, firms that offer services important for the implementation of your climate action plan will push for publicly funded training, arguing that it is difficult to find qualified workers. Often though, rather than a general skills gap in the labor market, workers who have the skills and experience are not willing to work for the wages employers are offering. In this way, a wage gap can be disguised as a skills gap.

Some employers partner with labor unions in the construction industry to fund and operate apprenticeship training programs. These multi-year, earn-as-you-learn programs are finely tuned to labor market demand, so that the employers partnering with the labor unions and supporting apprenticeships are assured of a ready supply of trained workers. Workers who invest in training, in turn, are assured they will have jobs after they finish the training. In this balanced model, both employers and workers are invested in ensuring a sufficient supply of skilled labor with wages that remain high enough to attract and retain skilled workers.

Different perspectives will lead to different estimates of worker shortages. When resources are available, an economics firm can be enlisted to model projected jobs from your climate plan. For cities participating in the Climate Challenge, Inclusive Economics—a consulting firm specializing in strategy for an inclusive green economy—can provide help with job projections. For building decarbonization, Inclusive Economics has developed a simulator to rapidly estimate the employment impact of different policy scenarios. Otherwise, Exercise 4A can get you started.

EXERCISE 4A: ESTIMATE THE EMPLOYMENT IMPACTS OF YOUR PLANS

Refer to the priority industry or industries identified in **Exercise 3A** that will be affected by your climate policy. In most cases, this will be construction. Projects developing building electrification, energy efficiency, solar or other renewables, EV charging infrastructure, and public or active transit infrastructure all fall into the category of construction. A general rule of thumb is that construction investments create five to six full-time equivalent (FTE) jobs for one year (called a job-year) per $1 million in investment. Projects that are more capital intensive (e.g., replacing windows or water heating systems in buildings) will create slightly fewer jobs than projects that are more labor intensive (e.g., energy retrofits or transit infrastructure). Projects that pay lower wages will create more jobs (albeit lower-quality jobs) than projects where wages are higher. Wind and solar construction create two to three jobs per $1 million in investment. Residential weatherization creates eight to nine jobs per $1 million in investment.

Outside of the construction industry, job impacts are likely to be smaller, unless a region has a strong local supply chain. If the City of Los Angeles, for example, is purchasing new electric buses that are built in and around L.A., they will create more local jobs than a city that buys buses manufactured elsewhere. In general, local procurement has a much higher employment impact than non-local procurement. In fact, the regional economy always benefits from local procurement, even when the cost of local purchases is higher than non-local purchases. Local procurement of energy, vehicles, or other goods and services generates tax revenue, recirculates money in the local economy, and creates jobs. Even without a well-developed local supply chain, purchasing goods from local dealers or stores supports retail jobs in the local economy.

In a professional jobs analysis, you will most likely be provided with data for direct, indirect, and induced jobs. For the purposes of workforce development, direct jobs are the most pertinent. Indirect jobs are those created in the local supply chain, and induced jobs are those resulting from workers spending their earnings in the local economy. For workforce planning, you need to know roughly how many workers will be employed *directly* to implement climate actions, as well as what skills are required of those workers. Indirect and induced jobs are less relevant in workforce planning.

Here are the key steps in estimating the employment impact of your plan:

1. **Estimate your workforce needs in terms of FTE workers**, a unit that makes workload comparable across different contexts (e.g., part-time versus full-time workers). To estimate the number of FTE workers needed, you can use the multipliers (jobs/$million in investment) provided above. This calculation will give you "job years." If you hope to achieve this goal over a 25-year period of time, divide the total number of job years by 25. For example, if you have determined that a home can be electrified for an average of $25,000/each and you have 10,000 homes to electrify, the total cost (homeowner and incentive cost) of reaching this goal would be $250 million. Assuming five jobs are created per $million invested, this action would require 1,250 job years. If this goal would be achieved over 25 years, you would need 50 FTE workers per year to focus solely on electrifying homes.

2. **Next, try to determine how the work is distributed.** If one-third of the work is in HVAC, one-fifth is in plumbing, and the remainder is electrical work, you would need 16 HVAC workers, 10 plumbers, and 24 electrical workers. Does your city have enough workers? Do they have the requisite skills? Are workers retiring at a faster rate than they are being recruited? The answers to these questions will inform your workforce efforts.

3. **If other cities, utilities, or agencies in your region are pursuing the same goal, and if resources allow, you may want to conduct a regional workforce assessment or landscape analysis.** While requiring more resources and coordination, these assessments can be a valuable planning tool. A regional analysis would require that economic development agencies, state energy policy experts, utility providers, and community-based nonprofits coordinate to determine what the climate or clean energy job market will look like in the future. This analysis will provide insight into whether your workforce development program will train workers for jobs that are likely to exist in five, ten, or even twenty years.

Some cities, states, and utilities have enlisted third-party organizations to assess the renewable energy and energy efficiency workforce in their communities in order to identify prime areas of investment.

- The **City of Minneapolis** Sustainability Office commissioned a city-wide Renewable Electricity and Energy Efficiency Workforce Assessment by a third party consultant to assess the current renewable energy and efficiency job market in the city and recommend next steps for green workforce development.[16]

- The North Carolina Department of Commerce drafted Clean Energy & Clean Transportation in NC: A Workforce Assessment as directed by Section 6 of Executive Order 80.[17,18] The goal of this report was to "evaluate the current and projected workforce demand in North Carolina's clean energy and transportation sectors, assess the skills and education required for employment in these sectors, and recommend action to help North Carolinians develop such skills and education."

- The Connecticut Department of Energy and Environmental Protection commissioned a Survey of Connecticut Energy & Energy Efficiency Workforce Needs using a U.S. Department of Energy grant. The survey was designed to help businesses better target, develop, and retain qualified workers, particularly in entry-level positions.[19]

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16 Sandy Fazeli and David Foster. 2019. *Minneapolis Renewable Electricity and Energy Efficiency Workforce Assessment.* National Association of State Energy Officials / Energy Futures Initiative. Retrieved January 6, 2021 from https://www.naseo.org/data/sites/1/documents/publications/Minneapolis%20Workforce%20Development%20Assessment.pdf.

17 North Carolina Department of Commerce. 2019. *Clean Energy & Clean Transportation in NC: A Workforce Assessment.* Labor & Economic Analysis Division, Office of Science, Technology, & Innovation. Retrieved January 6, 2021 from https://files.nc.gov/ncdeq/climate-change/interagency-council/Clean-Energy---Clean-Transportation-in-NC-A-Workforce-Assessment-2019.pdf.

18 Roy Cooper. 2018. *Executive Order No. 80: North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy.* North Carolina Office of the Governor. Retrieved January 6, 2021 from https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition.

19 Connecticut Business and Industry Association. 2017. *2017 Survey of Connecticut Energy & Energy Efficiency Workforce Needs.* Retrieved January 6, 2021 from https://www.cbia.com/resources/workforce-development/workforce-reports-surveys/2017-survey-energy-energy-efficiency-workforce/.

NOTE:

Climate action generally requires spending money that would otherwise have been spent on other things (i.e., purchasing an electrical vehicle rather than an internal combustion engine vehicle, an air-source heat pump rather than a forced-air natural gas furnace, or a solar installation instead of a kitchen remodel). The alternative spending would also have created jobs. Unless new money is coming into the region to support climate action, such as from a federal stimulus package, job estimates represent a shift in jobs rather than new jobs.

While it is tempting to seize the opportunity to recruit new workers to fill these openings, it is important to determine whether there are, in fact, openings. Members of your working group may be able to help make this determination.

In 2008, the California Public Utilities Commission (CPUC) commissioned the University of California, Berkeley to create the California Workforce Education and Training Needs Assessment (2011), an inventory of current efforts and an assessment of the training and education resources necessary for successful delivery of the long-range goals set forth in the California Long-Term Energy Efficiency Strategic Plan.[20]

In 2013, the CPUC directed California's Investor-Owned Utilities (IOUs), which administer the majority of the state's energy efficiency and rebate programs, to develop a comprehensive plan to address workforce issues in their energy efficiency programs. The result was the report Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities produced by University of California, Berkeley.[21]

20 Carol Zabin, Karen Chapple, Ellen Avis, Jessica Halpern-Finnerty, T. William Lester, Sergio Montero, Michael Reich, Lynn Scholl, Peter Berck, Salafai J. (Susie) Suafai, Zach Church, Tory Griffith, Kate Stearns, Jane Peters, Nathaniel Albers, Elaine Gaertner, Evgeniya Lindstrom, John Carrese, and Joshua Freely. 2011. *California Workforce Education and Training Needs Assessment*. University of California, Berkeley. Retrieved January 6, 2021 from https://laborcenter.berkeley.edu/pdf/2011/WET_Part1.pdf.

21 Carol Zabin, Jessica Halpern-Finnerty, Megan Emiko Scott, Betony Jones, Robin Walther, Cecilia Estolano, Alex Paxton, Cynthia Guzman, Linda Collins, Anjana Richards, and Peter Simon. 2014. *Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities.* University of California, Berkeley. Retrieved January 6, 2021 from https://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/.

EXERCISE 4B: ASSESS WORKFORCE ECOSYSTEM CAPACITY

Labor market and workforce ecosystems are made up of a wide variety of individuals and institutions. Imperfect information or a lack of resources in training institutions can lead to unmet needs for both employers and workers. Addressing these problems requires identifying current and projected needs, the entities best prepared to help meet those needs, and factors affecting the entities' ability to achieve the desired results. For example, a local training partner may be highly effective in delivering training but lack the funding to develop specialized programs for new skills; technological innovations may be outpacing the local educational system's ability to adopt new curriculum.

Beginning to understand which institutions can be leveraged to resolve unmet needs requires a broad understanding of your city's workforce development ecosystem. To gain this understanding with the help of your working group, it would be useful to:

1. Identify the education and training providers that train new workers in the broad occupational skills required. Are there community college HVAC programs? What registered apprenticeship programs exist?

2. Determine whether the core occupational curricula in these programs sufficiently cover the technology required. For example, are new HVAC workers trained in the selection, sizing, and installation of air-source heat pumps? Are electrician apprentices trained in the installation of EV charging stations?

3. Determine how current workers learn new skills. Are there short-term training opportunities for already licensed workers that provide "stackable credentials"—training that builds upon what they already know and prepares them to incorporate emerging technology into the portfolio of services they are qualified to provide.

4. Determine what organizations are providing job training and placement support for workers with barriers to employment. Assess how successful they are. What are their placement rates? What communities or types of individuals are these organizations reaching? What support do they provide?

5. Determine whether there are other communities or types of individuals whose needs are going unmet. What are the barriers? What support services are needed?

6. Determine who is driving demand for workers in this arena. What other cities or agencies have complementary climate goals or policies?

EXERCISE 4C: MAP THE WORKFORCE ECOSYSTEM

While limited resources or capacity can stymie the efforts of individual organizations, even a well-resourced organization will be limited in its efficacy without strong partnerships. The strength of a workforce ecosystem is a function of the strength of the relationships between different individuals and institutions. It may be useful to create a diagram of the labor market ecosystem in your city. Figure 6 shows an example of the organizations involved in workforce development related to green infrastructure (broadly defined) in the San Francisco Bay Area. While this map is not exhaustive, it shows clearly is that the local building trades councils are the hubs, connecting agencies with local training providers. This ecosystem reflects the widespread city and agency focus on creating career-track employment for disadvantaged workers, and the building trades' efforts to partner with local training organizations to diversify their workforce. The map also shows that most of the organizations receiving state funds for green infrastructure implementation are siloed, disconnected from the broader workforce ecosystem.

This exercise does not need to be laborious or comprehensive. The map below was created in an afternoon, using PowerPoint, from information that was already known.

1. In a single slide, start by creating a box for every organization identified in Exercise 4B, using a color code for what role each organization plays.

2. If you know that there is an existing partnership between two boxes, or nodes, formalized by a memorandum of understanding (MOU) or other contractual agreement, draw a line connecting them. Reserve the connecting lines for formal institutional relationships; do not use them for informal working relationships or social networks.

3. Add to this map as you learn more through interviews and community engagement. It can be a living, working document. Do not be afraid that you are not capturing everything that is going on in your community. The purpose of this map is to capture what you and your immediate network know and also reveal what you do not yet know.

4. Determine what additional information you need before you can make an informed decision about a strategic workforce intervention.

Community-based Training Programs

Agencies Involved in Green Infrastructure

Community-based Training Programs

Santa Clara TOP

San Mateo TIP

North Bay TIP

CityBuild

San Francisco Conservation Corps

Community Colleges

Alameda County

City of Berkeley

City of Oakland

East Bay Municipal Utility District

Port of Oakland

Oakland Army Base

Bay Area Rapid Transit

CalTrans

Oakland Unified School District

City/County of San Francisco and SFPUIC

City of Richmond

Local Building Trades Council/ Apprenticeship Programs/ Central Labor Council

West Oakland Jobs Resource Center

Cypress Mandela

Rising Sun

Future Build

Richmond Build

San Jose Conservation Corps

California ReLeaf

Affordable Housing Projects

AC Transit East Bay

Recology East Bay

GRID Alternatives

Ecology Action

Build it Green

Climate Program Grantees

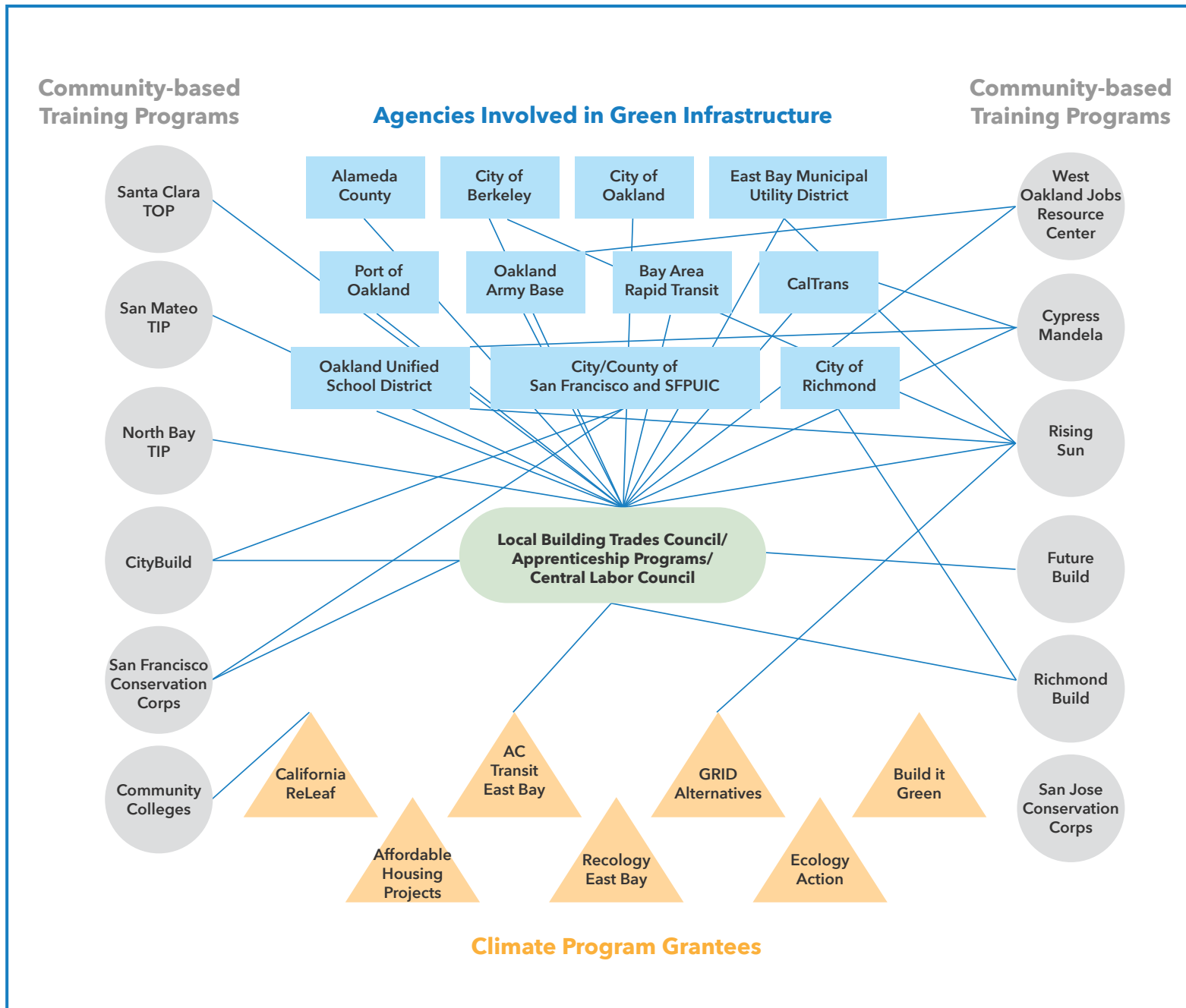*Figure 6. Workforce Ecosystem Map: Example*

IDENTIFY POTENTIAL SOLUTIONS

There are multiple solutions to each problem. The purpose of Steps 1 to 4 is to help you decide on the right solution given your goals, challenges, partners, and research. Steps 1 to 4 are "no regrets" actions. No matter the solution you choose, ultimately the right solution will be the one that can be successfully implemented to address a key challenge and contribute to meeting your priority goals. The key to success will vary by city. It will depend on political will, relationships with partners in the community, relationships between local government agencies, financial resources, availability of staff, and other factors.

For example, if there are a lot of training providers and programs, but the workers trained have trouble getting good jobs, city efforts to drive up demand for trained workers will be more useful than creating another training program. Conversely, if there is a lot of clean energy and other construction work but too few skilled workers or not enough disadvantaged workers participating, a training-side intervention such as a pre-apprenticeship program could be most useful. Maybe there are enough training programs and demand for workers is strong, but the programs and potential employers are not effectively connected. In this case, the best role for a city might be as a connector between training providers and employers, soliciting input from employers on the skills they need or helping create pipelines to employment for training graduates.

Figure 7 shows the different partners (in boxes) in a workforce ecosystem. The blue and green arrows depict the value the partners provide each other. The extent to which this value is codified in partnership agreements will influence how effectively the ecosystem is supporting workers in their career trajectories. All relationships in the local workforce ecosystem have a demand-and-supply dynamic. For example, an apprenticeship program can generate demand for graduates from a community-based apprenticeship-readiness training program and provide a supply of skilled and trained workers for local employers. Solidifying these demand-and-supply relationships can improve outcomes for workers, employers, and the community as a whole.

city or local agency

provide a diverse, stable, and qualified workforce able to perform quality work to meet climate targets

Supply of Workers

establish targeted hire requirements and skill standards

employers/ contractors

provide skilled and trained workers to

sign contractual agreements to hire from

apprenticeship programs or community college

support trainee preparation and readiness for success in

Demand for Workers

sign partnership agreement/MOU

community-based training programs

participate in

recruit participants from
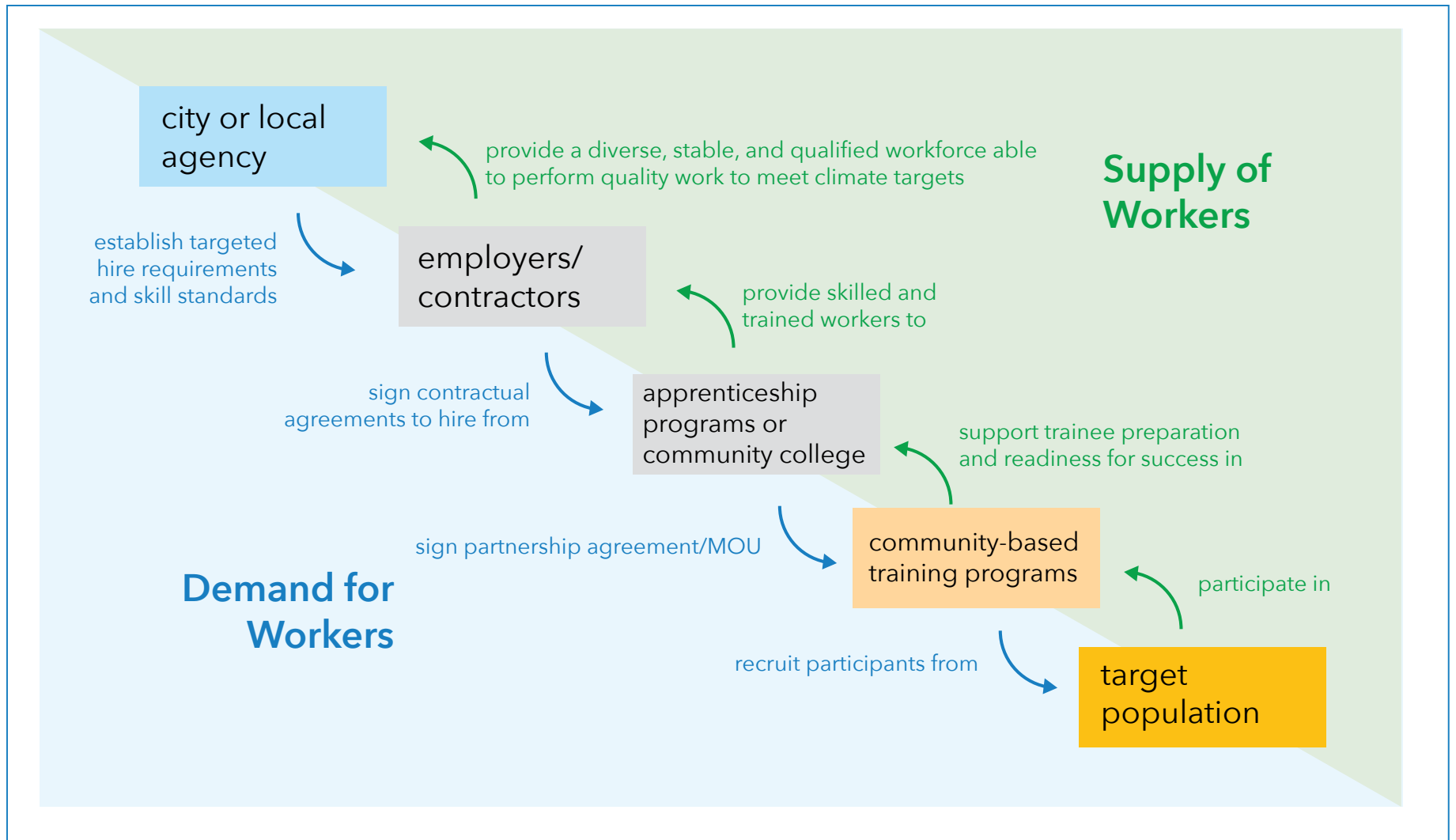
target population

Figure 7. Relationships Among Partners in a Workforce Ecosystem

EXERCISE 5A. IDENTIFY TARGETED SOLUTIONS

The list below provides potential solutions that a city can pursue. Circle or star those that seem most appropriate given the results you obtained with Exercises 1 to 4. For more information on potential solutions, see the **Developing a High-Road Workforce Plan** section of this guide. Many solutions will require modifications to existing statutes, requests for proposals (RFPs), or standard contracts. The guidance here is not legal advice.

1. **Procurement.** This is where a city has the greatest leverage in influencing workforce outcomes.

   a. Evaluate your city's RFPs and contracts with service providers related to the city's energy or climate goals. Do the requirements reflect the city's workforce goals?

i.	If you want to engage local workers, are there local hire requirements?	

   i. If you want to engage local workers, are there local hire requirements?

   ii. If you want to provide jobs for disadvantaged workers, are there targeted hire requirements?

   iii. If you want to engage WMBEs, are there supplier diversity criteria in procurement processes?

   iv. If you want to support skills building, are there skill standards?

   v. If you want to provide good, living-wage employment, are there living-wage or prevailing wage requirements?

   vi. Do the RFPs and contracts name specific partners to foster linkages in the local workforce ecosystem?

   vii. If the city is procuring electricity for its own operations, is there a set-aside for local renewable projects to stimulate local investment and job creation?

   b. Articulate goals and standards for job quality and job access in community benefits agreements (CBAs) or project labor agreements (PLAs) for large construction projects or investments. Specify apprenticeship targets for each trade as well as the apprentice-to-journeyperson ratio. Identify specific target populations.

   c. Engage local worker and contractor representatives in developing city-wide workforce and targeted hire standards for all construction projects.

   d. Employ best value contracting or performance-based contracting, rather than selecting for lowest cost.

   e. Support WMBEs through training and capacity building to enable them to competively bid on projects.

2. **Convening.** The city can convene local and regional partners to pursue a coordinated strategy.

   a. Serve as a connector between employers and training providers in your area, helping gather employer feedback to guide curriculum development and create pipelines to employment.

   b. Partner with the local workforce development board and economic development agency to get them thinking about the city's climate and clean energy future and ways they can support the goals.

   c. Coordinate work with other cities, utilities, and agencies in the region to assess labor market demand and coordinate strategies.

3. **Sticks and Carrots.** In climate-related ordinances, a city can specify workforce criteria as part of the regulatory process or as a requirement to qualify for incentives.

   a. Pass local ordinances, like reach codes, to regulate new construction or retrofits that specify skill and licensing criteria. More stringent skill and licensing standards work to drive up job quality and ensure worker and public safety.

   b. Develop a responsible contractor policy or contractor pre-qualification process requiring firms to demonstrate: 1) a history of excellent work performance as evidenced by client interviews; 2) adherence to labor and wage law; 3) no code violations; 4) Occupational Safety and Health Administration (OSHA) certification; 5) evidence of employing a skilled workforce; and 6) diversity, equity, and inclusion plan. Provide incentives (e.g., promotion, permit streamlining, etc.) for firms that meet the criteria.

   c. Aggregate small projects. For example, a city-wide push to upgrade electrical service and panels to make homes electric-ready could create the economies of scale necessary to attract firms able to meet more stringent workforce standards. Aggregated projects must include skill standards and local or targeted hire criteria to promote job quality and diversity and inclusion.

   d. Adopt strict quality assurance and quality control processes such that inspections evaluate the quality of work to ensure modeled energy savings are achieved, such as installation in accordance with manufacturer specifications. Rigorous inspections during and after installation require contractors to invest in a skilled workforce to perform to the level required.

   e. Adopt stronger and more widely applied building performance standards to stimulate more investment in deep building retrofits.

4. **High-Road Training Partnerships.** Sometimes there is a gap in the education and training ecosystem, which means that either certain skills will not be adequately incorporated into curricula or certain individuals will be unable to access career-track training opportunities. A city can partner with training providers and employers to fill these gaps. The document ACCC Workforce Best Practices: Green Job Readiness and Job Training Programs and accompanying Case Comparison provide more detail.

   a. Provide funding or supply resources to an existing training organization to develop a new program or cohort to serve a target population of disadvantaged workers. Training for workers with barriers to employment requires intensive case management, mentoring, and support services such as child care, transportation vouchers, and counseling, etc.

b.   Provide technical assistance to incorporate green skills into existing training programs (e.g., incorporating specific air-source heat pump or variable refrigerant flow [VRF] training to curriculum for certified apprenticeship or community college programs).

c.   Work with local utilities and agencies to create career pipeline training opportunities, so when participants complete the training, they automatically qualify for employment with the utility or agency (example: LA Utility Pre-Craft Training Program).

d.   Partner with local firms or nonprofits, such as solar installers, to provide on-the-job training opportunities for students enrolled in pre-apprenticeship or community college programs. It is important that participants receive job-readiness training and other support in addition to hands-on training (example: Rising Sun Opportunity Build).

e.   Solicit commitments from local employers and apprenticeship programs to agree to "first source" hiring from city-supported training or pre-apprenticeship programs. Such commitments help ensure job or training placement for students.

f.   Work with the local building trades council to develop new MC3 apprenticeship readiness programs that incorporate direct hire from these programs. MC3 stands for Multi-Craft Core Curriculum, which was developed by the Building Trades National Apprenticeship and Training Committee. It is a 120-hour curriculum designed to expose students to construction opportunities and prepare them with the basic skills needed to gain acceptance into and succeed in certified apprenticeship programs. Participants need support to pass apprenticeship exams, which are most difficult in the electrical, pipefitters, mechanical, and other energy-related trades.

Some apprenticeship programs have waived math or other requirements for MC3 program participants. There are hundreds of MC3 programs across the country, run by high schools, community colleges, community-based organizations, or the building trades themselves. Some serve exclusively women, opportunity youth, refugees, returning citizens, or other target populations. Many programs add onto the 120-hour curriculum to make it a longer, more robust program. Some even customize the program around climate or energy opportunities (example: Los Angeles Orange County Apprenticeship Readiness Programs).

g.   Establish upskilling training that offers stackable credentials for current workers to gain education and training in emerging technology (examples: EVITP, CALCTP, discussed below).

## EXERCISE 5B. GATHER RELEVANT EXAMPLES

Use the **Developing a High-Road Workforce Plan** section of this guide to find examples and best practices from other cities. Identify those most relevant to your situation. Reach out to staff of other city projects or conduct more research to find out what worked or did not work and what those cities would have done differently.

DEVELOP AN EVALUATION PLAN

After identifying and clarifying 1) your city's motivation for engaging in clean energy workforce development, 2) the partners needed to envision and ultimately help you carry out your intervention, 3) the workforce gaps that your intervention seeks to fill, and 4) potential solutions, a critical next step is to envision what constitutes success. This vision for success should be based on your city's goals translated into concrete, attainable, and measurable metrics. Establishing too many metrics of success can bog down a program. Attempting to "be everything for everyone" can make it difficult for a program to focus on the metrics that matter most.
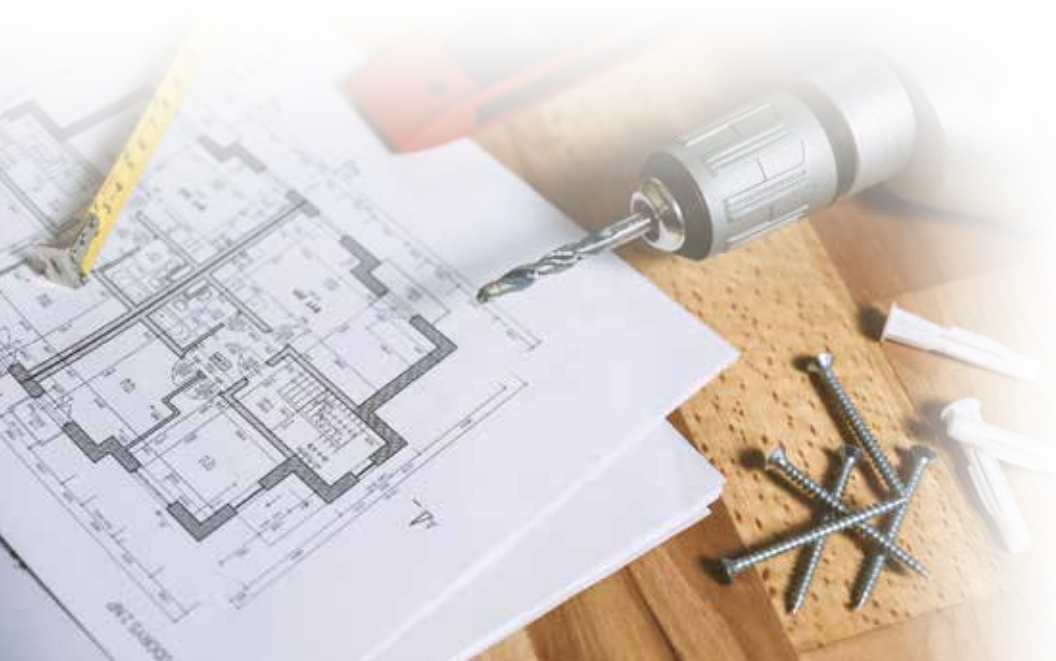
EXERCISE 6A. IDENTIFY METRICS OF SUCCESS

Metrics to evaluate success for high-road workforce programs should be tailored to local goals and designed to measure lasting returns for both workers and employers. These measures should derive from the first four steps of planning: setting goals, identifying challenges, identifying stakeholders, and identifying workforce gaps. Federal workforce performance metrics provide a standard set of measures for participant outcomes. Many cities have online labor monitoring and compliance systems for large public works projects that could be used to generate customized reports. LCPtracker is one such platform with a tool called Workforce Manager that tracks participants throughout a workforce system and promotes collaboration among community partners to facilitate worker advancement.[22] Sustainability staff may be able to coordinate with the city workforce department to track relevant metrics, such as those in the lists below.

Participant Metrics for Evaluating Training Programs

- Rate of training program completion

- Attainment of industry-recognized credentials (e.g., OSHA training, North American Board of Certified Energy [NABCEP], Multi-Craft Core Curriculum [MC3], and Electric Vehicle Infrastructure Training Program [EVITP] certification)

- Placement and retention in career-track jobs, certified apprenticeship programs, or continuing education

- Starting wages and benefits

- Short- and long-term economic outcomes

  - Increases in earnings, both initially and over time

  - Employment retention post-graduation at specific intervals: 60 days, six months, and one year

  - The quality of jobs students enter after graduating and how long they remain in those positions

- Demographic analysis of all participant outcomes by race, gender, ethnicity, geography, education, and other factors

Employer Metrics for Evaluating Workforce Programs

- Ability to attract and hire qualified workers

- Diversity of workforce

- Worker retention

- Capacity to take on new work

- Access to new business opportunities

- Degree of certainty with bidding

- Customer satisfaction

- Improved work processes

- Wages and benefits offered

Once you decide what metrics you want to use, you will be able to determine what information the city will need to gather through reporting or other means. Then, you will need to determine the best way to gather and monitor this information.

Evaluating workforce development interventions should use these metrics to determine whether specific efforts are helping further the city's goals for a clean energy workforce. Identifying the metrics in advance of designing and implementing an initiative will aid in its success.

22   LCPtracker. *Workforce Manager*. LCPTracker website. Retrieved January 6, 2021 from https://lcptracker.com/lp/workforcemanager/demo.

EXERCISE 6B. ASSESS PROGRESS AND REALIGN SOLUTIONS

Cities should periodically revisit the planning steps to confirm that existing strategies still align with goals. In conducting this progress assessment, they should address the following questions:

1. Are the goals identified in Step 1 still the right goals? Are we trying to solve the right problem? Does our understanding of the problem need to be revised?

2. Have we identified new or previously unnoticed challenges that need to be incorporated into our analysis from Step 2?

3. Do we have the right partners at the table? Do they understand their role and are they engaged? Are there other partners or stakeholders that we should bring in?

4. Have the gaps identified in Step 4 changed?

5. How have the workforce development institutions performed compared with our assessments in Step 4?

6. Do resources need to be redistributed to support the most effective programs and strategies for implementing the solutions identified in Step 5?

II. IMPLEMENTING A HIGH-ROAD WORKFORCE PLAN

Implementing a high-road workforce plan as part of a city's climate efforts requires carefully planned policy and program design to ensure both job quality and equitable job access. Some climate-related jobs—such as installation of utility-scale renewables, transit infrastructure, or deep energy retrofits of large commercial buildings—require highly skilled and trained workers. To attract and retain a qualified workforce, higher pay and better benefits are typically required. In public works construction, there may be a prevailing wage standard, ensuring the higher pay that attracts workers with more skills. Even outside of public contracts, large or aggregated small projects can create the economies of scale necessary to adopt more stringent contracting conditions.

In contrast, in smaller scale and less centralized or disaggregated work—such as residential retrofits or rooftop solar—skills, training, and safety standards are typically lower or not enforced. Under these conditions, worker pay tends to be lower, retaining a skilled workforce is difficult, and pathways to career advancement are lacking.[23]

Low job quality and barriers to access and advancement can have political ramifications for community buy-in to climate strategies. Unionized workers in the high-skill, high-job-quality utility sector may be worried about distributed rooftop solar installation eroding labor standards throughout the industry. Without levers to improve career-track job access, underrepresented or disadvantaged individuals may not see their future in a low-carbon economy. Community organizations advocating for employment for unemployed city residents may come to view green jobs training programs as merely another low-wage, dead-end opportunity that fails to deliver upward mobility.

Fortunately, city staff have many opportunities to improve both quality and equitable access to jobs in the climate landscape. Cities can leverage their contracting and procurement processes to ensure that construction contractors provide access to high-quality jobs for disadvantaged city workers. They can partner with utilities to help establish efficiency rebate programs that rely on contractors with a proven track record of providing high-quality work and good jobs. They can partner with city and state agencies to generate demand for climate jobs through low-income solar installation programs that provide on-the-job experience for individuals engaged in particular training programs. They can fund clean energy and construction training programs for city workers to get started on a career path. Cities can establish skill standards for clean energy and climate projects within city limits. They can work with employers to commit to interviewing or hiring workers from specified training programs.

The range of workforce interventions is vast. Some solutions work to "pull" workers into training opportunities and jobs by conditioning investments or incentives on specific workforce criteria. These are demand-side interventions. Other solutions work to "push" workers into the labor market by providing education, training, and support services. These are supply-side interventions. Optimally, cities will undertake a coordinated approach to demand- and supply-side interventions, as depicted in Figure 7 in Part 1, engaging a range of organizations and partners to coordinate their programs and activities around the city's climate ambitions. The sections below detail and provide examples of demand- and supply-side interventions to inform and inspire cities to develop their own solutions.

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23   Betony Jones and Carol Zabin. July 2, 2015. (See p.14)

A.

DEMAND-SIDE SOLUTIONS: CREATING GOOD JOBS AND ENSURING EQUITABLE ACCESS

1.

POLICIES, PROGRAMS, AND INVESTMENTS THAT DRIVE PRIVATE-SECTOR WORKFORCE DEMAND AND CREATE JOBS

Cities can adopt policies to stimulate demand for low-carbon technologies or services using their regulatory power and public investment portfolio. For example, changes to building codes, benchmarking ordinances, and municipal retrofits all stimulate investments in better buildings. Cities can adopt new standards for buildings that require private entities to make investments to reduce emissions or install EV charging infrastructure. These investments create demand for the workers needed to install new systems and equipment, construct new facilities, retrofit buildings, and maintain efficient systems. Please note that while these policies and investments create jobs, they do not automatically create high-quality jobs or jobs that are equitably accessible.

a.

BENCHMARKING AND TRANSPARENCY ORDINANCES

Benchmarking and transparency ordinances require building owners to track and report their energy (and sometimes water) consumption and share that information with local government and the public. These initial metrics act as a "benchmark" and allow building owners to compare their building's energy use to similar buildings in the region and understand the scale of opportunity for energy improvements in their buildings.

Benchmarking and transparency ordinances create few direct jobs, but they generate demand for building retrofits, which in turn creates jobs.

b.

BUILDING PERFORMANCE STANDARDS

Cities have also passed ordinances that require building owners to increase energy efficiency through prescriptive actions that reduce energy consumption over time until they meet a threshold considered to be efficient for their building type and size.[24] These policies create immediate demand for energy auditors and engineers to perform audits, as well as for construction workers, lighting technicians, and building energy system managers. Large building retrofits create four to six jobs per $1 million spent.

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24 For local ordinance examples see: California Energy Commission. *Exempted Local Benchmarking Ordinances.* Retrieved January 6, 2021 from https://www.energy.ca.gov/programs-and-topics/programs/building-energy-benchmarking-program/exempted-local-benchmarking.

In **Washington D.C.**, Building Energy Performance Standards (or BEPS) require private buildings greater than 50,000 square feet and city buildings over 10,000 square feet to meet specific energy targets, which will stimulate market demand for energy auditing, retrofit, and inspection services. For work on their own buildings, cities have direct influence over the quality of jobs created and who can access them.

c.

CHANGES TO BUILDING CODES

Updating building codes to encourage or require more efficient construction standards generates demand from construction employers for workers with building skills related to energy efficiency or building energy performance. These policies generally do not generate demand for new jobs, but rather require workers already in the labor market to upgrade their skills to meet new demands or become adept in working with new technologies and building equipment.

d.

RENEWABLE PORTFOLIO STANDARDS OR ELECTRICITY PROCUREMENT

Renewable portfolio standards require utilities to generate or procure a certain percentage of their electricity from renewable sources like wind and solar. City renewable electricity procurement standards are similar but undertaken at the level of local government rather than by the utilities. These policies generate demand for investments in the construction, installation, and maintenance of renewable energy generation resources. This approach creates demand for workers in the construction and utility sectors. If the renewable development occurs locally and with targeted hire standards, these policies can create local jobs and other economic benefits. In fact, local economic analysis shows that the local

economic benefits exceed the negative economic impacts of more expensive energy.

The clean energy procurement plan of the **City of Chicago** requires a minimum of 50 percent of the renewable electricity delivered by 2025 to be from newly built projects, a requirement that ensures new energy projects are built. In addition, the plan prioritizes proposals that include local projects, support local suppliers, leverage the local workforce for construction and operations, encourage diversity in developer and supplier leadership teams, and support other community benefits. The more local development there is, the more clean energy jobs there will be for city workers.

Beyond prioritizing local projects, cities can establish set-asides for local projects, cooperative ownership structures, and projects that commit to union labor and targeted hire criteria. These types of quantifiable targets generate good and inclusive local jobs.

e.

MARKET TRANSFORMATION PROGRAMS

In addition to the above-mentioned regulatory policies, cities can partner with utilities and state agencies to create programs that provide incentives, rebates, and no-to-low-cost services for individuals to invest in clean energy and other climate solutions. For example, cities can work with utilities to establish programs that provide customers with appliance rebates, retrofit incentives, or no-to-low-cost weatherization services. Cities can also partner with utilities and state agencies to create and fund programs that create jobs through low-income solar installation, building electrification, EV charging infrastructure, or energy efficiency improvements. In order to ensure that these programs achieve efficiency goals and provide good jobs, program designers can require participants to use pre-approved contractors with a proven track record of delivering high-quality work with high-quality working standards.

These types of downstream programs need a ready supply of local workers to perform the work. They offer an ideal opportunity to either create or partner with a local training organization to provide a pipeline of trained workers that meet the city's equity goals. Training organizations often provide these training opportunities to residents from target populations (i.e., low income, underrepresented, unemployed/underemployed, women, returning citizens, opportunity youth, etc.), providing more equitable access to local clean energy jobs.

In 2018, the Mayor's Office of **Nashville, Tennessee**, announced the launch of the NES Home Energy Uplift (HEU) Program, a weatherization program for limited-income homeowners in Davidson County. The program was created through a collaboration with Nashville Electric Service (NES) and the Tennessee Valley Authority (TVA) and receives funding from the TVA and the Federal Home Loan Bank of Cincinnati.[25] The City of Nashville was awarded a $300,000 grant from the Southeast Sustainable Communities Fund (SSCF) to create an energy efficiency workforce training program at the Nashville Career Advancement Center (NCAC). The program addressed the need for retrofit technicians for the Home Energy Uplift Program, while providing low-income or unemployed/underemployed Nashvillians with training, industry-recognized certification, and career pathways in the energy efficiency sector.[26]

PUSH Green, a nonprofit community-based energy efficiency program in **Buffalo, New York**, is working with local residents and contractors to create an equitable, community-controlled energy efficiency retrofit economy. In order to ensure demand for skilled energy efficiency retrofit providers, PUSH Green provides opportunities for workforce volunteers to engage in customer outreach campaigns in neighborhoods across Erie County to educate residents about the benefits of energy efficiency improvements.[27] PUSH Green is funded by People United for Sustainable Housing (PUSH Buffalo) and the New York State Energy Research and Development Authority (NYSERDA).

In **Washington, D.C.**, the Department of Energy & Environment (DOEE) and the Department of Employment Services (DOES) partnered in 2017 to create Solar Works D.C., a solar installation and job training program targeting low-and moderate-income residents. The DOEE and DOES awarded a $950,000 grant to GRID Alternatives Mid-Atlantic to administer Solar Work's job training program. Participants in the 12-week training program complete GRID Alternative's Installation Basics Training (IBT) program and earn industry-relevant skill certificates by demonstrating competency in real-world solar installations. Solar Works D.C. is financed through the District of Columbia's Renewable Energy Development Fund by utility-compliance fees (fees that utilities have to pay if they do not reach city-mandated renewable energy goals).[28]

25 *Mayor Briley, TVA and NES Celebrate 200th Home Weatherized Through Home Energy Uplift Program.* August 8, 2019. Metropolitan Government of Nashville and Davidson County, Tennessee. Retrieved January 6, 2021 from https://www.nashville.gov/News-Media/News-Article/ID/8808/Mayor-Briley-TVA-And-NES-Celebrate-200th-Home-Weatherized-Through-Home-Energy-Uplift-Program.aspx.

26 Thomas Mulgrew. December 2, 2018. *Mayor Briley Announces Funding to Support Workforce-Training for NES Home Energy Uplift Weatherization Program.* Metropolitan Government of Nashville and Davidson County, Tennessee. Retrieved January 6, 2021 from https://www.nashville.gov/News-Media/News-Article/ID/8137/Mayor-Briley-Announces-Funding-to-Support-WorkforceTraining-for-NES-Home-Energy-Uplift-Weatherization-Program.aspx.

27 People United for Sustainable Housing (PUSH) Buffalo. PUSH Green. Retrieved January 6, 2021 from https://www.pushbuffalo.org/push-green/.

28 Nicole Javorsky. December 26, 2018. *Inside the Bill That Set the 'Strongest Clean Energy Requirement in the Nation.' Washington, D.C., is on track to set a more ambitious timeline for fighting climate change than any state.* Bloomberg CityLab. Retrieved January 6, 2021 from https://www.bloomberg.com/news/articles/2018-12-26/inside-washington-d-c-s-ambitious-climate-change-bill.

f.

EXPANSION OF WALKING AND BICYCLING INFRASTRUCTURE

Expanding the city's active transportation infrastructure, enhancing the safety of active transportation, and reducing barriers for individuals to depend on active transportation can drive demand for non-motorized transportation vehicles like bicycles and scooters. This demand, in turn, supports local bicycle shops and bike mechanics and can even signal a friendly environment for entrepreneurs making and selling related accessories. It may be more accessible for small businesses to produce accessories and clothing for active transportation than for cars and trucks.

g.

PUBLIC INVESTMENTS, SUCH AS FOR BUILDING RETROFITS, EV CHARGING, TRANSIT INFRASTRUCTURE, OR ELECTRIC BUS PURCHASES

Local governments can design public investments in clean energy and climate action in ways that promote high job quality and job access for disadvantaged workers. It's important to be aware that public spending creates jobs, but without intention, local governments can inadvertently create jobs elsewhere or support the creation of low-road dead-end jobs. Often state and local governments fail to extract as much local economic value out of their spending as they could. Utilizing the demand mechanisms outlined below will ensure this does not happen. Whether cities are upgrading their own buildings to use less energy, installing EV charging stations, expanding transit infrastructure, or even electrifying public buses, these efforts can support good jobs and equitable access to them when designed intentionally.

2.

DEMAND MECHANISMS TO IMPROVE JOB QUALITY IN THE PRIVATE AND PUBLIC SECTORS

a.

CREDENTIALING AND OTHER SKILL STANDARDS

Establishing skill requirements and demonstrated achievement of an industry-recognized credential for workers on clean energy and energy efficiency projects is one lever within the city toolkit that can improve job quality, work performance, and ultimately, market transformation. While most job-quality levers require the use of public money, credentialing or skill standards can be used regardless of the source of funding. Even for private-sector investments, cities or utilities can establish skill standards to ensure adequate and public and worker safety and consumer protection.

Credentialing systems can achieve a variety of purposes in labor markets and workforce development ecosystems. Effective systems operate industry-wide and are designed based on input from employers, providing clear signals to workers about the skills employers need and that will also help advance their careers.[29]

Some industries and occupations will already have an existing system of credentials. In these instances, policies to "green" the sector may want to consider how these credentialing systems, as well as the curriculum for the educational and training institutions that support them, can be updated to reflect new skills needs. Current workers may need to re-enter

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29   Sarah White, Laura Dresser, and Joel Rogers. 2012. G*reener Reality: Jobs, Skills and Equity in a Cleaner U.S. Economy*. Madison, WI: Center on Wisconsin Strategy. Retrieved January 6, 2021 from https://www.cows.org/greener-reality-jobs-skills-and-equity-in-a-cleaner-us-economy_1.

training programs and "upskill" to meet shifting labor market demands. Even when industries do have such credentialing systems, however, they can often be complex and disorganized.[30] There may be overlapping or competing credentials. Some employers may value and use existing credentials in their hiring and promotion decisions, while others may not. Industry partnerships can help bring order to these systems by standardizing systems among employers and offering workers clarity on how to acquire the skills necessary to advance their careers.

In addition to adopting skill standards, cities can promote credentialing systems by encouraging their use among contractors (either as a type of contract standard or as an incentive in a "best value contracting" system) and recipients of public monies in the form of tax credits or rebates.

> Building Skills Partnerships in **Los Angeles**, California, convenes industry leaders—including SEIU United Service Workers West, the Building Owners and Managers Association of Los Angeles, the National Green Building Council, and janitorial service companies—to develop, implement, evaluate, and modify a standardized credential and career pathway system. Workers gain English-language skills, marketable skills, and opportunities for advancement. Building owners and managers get a workforce with the skills necessary to meet the region's mandatory and voluntary high-performance building standards.[31]

b.

CONTRACTOR PRE-QUALIFICATION OR RESPONSIBLE CONTRACTOR CRITERIA

In order to streamline the bidding process, cities may choose to pre-qualify firms based on: demonstrated evidence of a skilled workforce (using skill standards or credentials); a history of quality workmanship; no citations or evidence of wage, labor, or building code violations; and other responsible employer criteria. Providing a pre-approved list of vendors is also useful for private-sector consumers seeking qualified contractors. Having contractors pre-qualify can save time and money for both city staff and contractors and point private consumers to qualified firms. Pre-qualification can include being added to a list of approved vendors so that city staff do not have to assess whether they meet established standards. It can also be coupled with a fee waiver to encourage contractors to devote the time up front to qualifying. Cities must be proactive in providing the resources for small, minority-, and women-owned business enterprises (MWBEs) to pre-qualify to bid on contracts.[32]

> The Washington State Department of Transportation (WSDOT) requires contractor pre-qualification to bid on highway construction projects. In addition to the list of prequalified contractors, WSDOT also maintains a "small business roster" of contractors certified to bid on small works projects of $300,000 or less. This system, which also tracks whether businesses are small and minority- or women-owned, allows smaller businesses that would not be competitive for large public contracts to benefit from public works projects.

30   Sarah White, Laura Dresser, and Joel Rogers. 2010. *Greener Skills: How Credentials Create Value in the Clean Energy Economy.* Madison, WI: Center on Wisconsin Strategy. Retrieved January 6, 2021 from https://www.cows.org/greener-skills-how-credentials-create-value-in-the-clean-energy-economy.

31   California Workforce Development Board. 2018. *The High Road to Janitorial Services.* California Workforce Development Board website. Retrieved January 6, 2021 from https://cwdb.ca.gov/wp-content/uploads/sites/43/2019/11/High-Road-to-Janitorial-11-25-2019.pdf.

32   Denise Fairchild and Kalima Rose. 2018. *Inclusive Procurement and Contracting: Building a Field of Policy and Practice.* PolicyLink / Emerald Cities Collaborative. Retrieved January 6, 2021 from https://www.policylink.org/resources-tools/inclusive-procurement-and-contracting.

The Delaware Sustainable Energy Utility has a [Responsible Contractor Policy](#) requiring contractors and subcontractors that perform work valued at more than $25,000 on any public facility or public works project to meet 15 specific criteria indicating employer responsibility and evidence of a skilled workforce. The goal of the policy is to ensure that firms receiving public contracts provide adequate wages and benefits to their employees; utilize fair business, employment and training practices; and have a positive impact on local communities.

3.

PUBLIC SECTOR MECHANISMS TO IMPROVE JOB QUALITY

Leveraging city contracts and procurement processes can take many forms, but the most common are wage requirements, procurement standards, and best value contracting.[33]

a.

WAGE REQUIREMENTS

Wage requirements establish a minimum wage and specified fringe benefits for all workers on a particular project or in a particular locale. Two examples include living-wage ordinances, which set a minimum wage for all employees at firms doing business with the city, and prevailing wage ordinances, which operate like living-wage ordinances but establish minimum wages by occupation based on area standards.[34]

b.

CONTRACTING AND PROCUREMENT STANDARDS

Contracting and procurement requirements are standards to which all firms must adhere in order to do business with the city. Cities can require contractors to hire city residents, members of apprenticeship programs, or graduates of other training programs to fill a certain portion of the work hours associated with the contracted project. Such standards establish labor or environmental standards for firms from which a municipality buys goods or procures services. Because cities often purchase goods manufactured far away, enforcement can be challenging. Policies that encourage municipalities to purchase goods manufactured locally or regionally not only makes enforcement easier, but can also improve local economies and reduce a city's environmental footprint.

The organization [Jobs to Move America](#) has developed a fully customizable public procurement policy called the [U.S. Employment Plan](#), which has been used by city governments and transit agencies to attach labor standards to procurement of buses and other transit vehicles. In 2017, the **Los Angeles** Department of Transportation (LA DOT) committed to electrify its transit fleet by 2030 and to condition its purchases on local hire criteria specified in the U.S. Employment Plan. Following this demand commitment, a training partnership has been established among the Los Angeles County Workforce Department, bus manufacturer Proterra, United Steelworkers (USW) Local 675, Jobs to Move America, and Citrus College to provide a nine-week training program for electric bus manufacturing jobs.

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33 Joel Rogers and Satya Rhodes-Conway. 2014. *Cities at Work: City Policies to Rebuild the Middle Class.* Center on Wisconsin Strategy (COWS)/Center for American Progress (CAP) Action Fund. Retrieved January 6, 2021 from https://community-wealth.org/content/cities-work-progressive-local-policies-rebuild-middle-class.

34 Prevailing wage ordinances can be extended beyond municipal contractors to also include firms that receive public subsidies and firms that provide services to buildings where the city leases space. For more, see Cities at Work: Progressive Local Policies to Rebuild the Middle Class.

c.

BEST VALUE CONTRACTING

Under a best value contracting system, contracts are awarded based on a determination of which firms provide the most value in terms of cost and additional criteria. RFPs (requests for proposals) ask firms to submit information relating to their environmental, social, and governance (ESG) performance, including their hiring, employment, and labor practices. Firms receive points based on their answers. Cities may choose, for example, to allocate one point to a firm that has never violated wage and hour law and five points to a firm that pays workers a living wage and provides health insurance. Firms may also receive points for adopting hiring and promotion criteria based on relevant skills certification systems.

> The Performance Based Studies Research Group at Arizona State University has tracked hundreds of projects across 41 industries that have used their best value contracting tools and has found consistent cost savings and added value over traditional delivery models.[35]

d.

SUPPLIER DIVERSITY PROGRAMS

Cities can support equity and increase the number of small, minority-, and women-owned contractors that they do business with by instituting preferences for contractors who meet this definition. For small projects, cities may give preference to small MWBEs as part of a best value contracting program. Larger projects often encourage primary contract

recipients to set targets for the number of minority- and women-owned subcontractors they will hire over the course of the project. The Emerald Cities Collaborative and PolicyLink produced a comprehensive guide to Inclusive Procurement and Contracting: Building a Field of Policy and Practice that details specific strategies to streamline city procurement to increase participation of small MWBEs.[36] Minority contractors are more likely to hire minority workers, so supplier diversity at the firm level can increase diversity in the workforce.

> The Chicago Anchors for a Strong Economy connects small businesses to large anchor institutions, such as utilities, hospitals, universities, and corporations that invest, purchase, and hire from local businesses across the **Chicago** area to support neighborhood economic vitality. The network has committed $50.6 million in revenue to 236 small businesses and created 180 jobs.

> As part of a multi-billion-dollar investment into upgrading the city's water and sewer infrastructure, the **San Francisco** Public Utility Commission established the Contractor's Assistance Center where contractors can gain access to information about projects and the technical and financial resources needed to compete for subcontracts.

> In 2010, **Seattle** Mayor Mike McGinn signed the Outreach to Women and Minority Businesses Executive Order, which required every department in the city government to publish annual plans and voluntary goals for inclusion of MWBEs in consulting and purchasing contracts every year. In 2014, Mayor Ed Murray signed the Equity in City Contracting Executive Order, which strengthened Seattle's efforts to include MWBE participation in city contracts and made it easier for MWBEs to pursue city contracts. The order required departments to promptly pay invoices, support MWBEs by providing technical assistance, and increase accountability and coordination to ensure fair and

35   Dean Kashiwagi. 2011. *Case Study: Best Value Procurement/Performance Information Procurement System Development*. Journal for the Advancement of Performance Information and Value 3, no. 1 (January). Retrieved January 6, 2021 from http://journal.cibw117.org/index.php/japiv/article/view/104/103.

36   Denise Fairchild and Kalima Rose. 2018 (See p.58)

equitable treatment among all businesses competing for public works, purchasing, and consulting contracts.

High standards in terms of safety and work quality create barriers that prevent some contractors from competing for city projects. Meeting high standards in terms of insurance and bonding needed to compete for city RFPs can be especially challenging for small contractors, contractors of color, and veteran-, disabled-, and women-owned contractors. Rather than lower standards that endanger the safety of workers on city contracts, cities can support these contractors to acquire the insurance and bonding necessary to be eligible for city contracts.

○ Merriwether & Williams Insurance Services in **Oakland, California**, supports small, local, minority- and women- owned contractors to obtain insurance and bonding and help them navigate the process of applying to compete for public works contracts.

4.

DEMAND MECHANISMS TO IMPROVE JOB ACCESS IN THE PRIVATE AND PUBLIC SECTORS

a.

LOCAL AND TARGETED HIRE

In addition to supporting businesses owned by women and people of color, cities may wish to increase the number of city residents hired to perform work by city contractors through local hire agreements.

In order to prioritize equitable job access, cities can take local hire agreements a step further through targeted hire initiatives. Targeted hire initiatives create institutional mechanisms to ensure that a fair share of jobs created by public dollars benefit disadvantaged workers, who often have trouble accessing the renewable energy and energy efficiency workforce pipeline. Targeted hires can refer to a range of worker characteristics, such as veteran status, gender, race, ethnicity (if allowed—some states have policies prohibiting racial quotas), residency in a low-income zip codes, prior incarceration, disability, or long-term unemployment.[37] Targeted hire initiatives can be implemented through policy tools such as community workforce agreements, workforce participation goals, project labor agreements, and contract provisions, or institutional structures such as executive orders, resolutions, and ordinances.

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37   Lucero E. Herrera, Saba Waheed, Tia Koonse, and Clarine Ovando-Lacroux. 2014. *Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry*. UCLA Labor Center. Retrieved January 6, 2021 from https://www.labor.ucla.edu/wp-content/uploads/2018/06/Exploring-Targeted-Hire.pdf.

The State of Minnesota set [Workforce Participation Goals](#) for publicly funded construction contracts that exceed $100,000 and have more than 40 full-time employees. The workforce participation goals are expressed in percentages of the total hours of employment and training of women and minorities used on the project. Each region of Minnesota has different workforce participation goals, depending on the demographics of the region. The goals were last updated in 2017 with guidance from an advisor taskforce, comprised of contractors, unions, members of the various trades, and the public.[38]

b.

SETTING PROJECT STANDARDS THROUGH AGREEMENTS

Cities can also leverage public subsidies, zoning, and other approval processes to encourage private developers and related employers to enter into agreements with community organizations or labor unions. These agreements are often known as:

- **Project Labor Agreements** (PLAs)—between developers, contractors, and unions;

- **Community Workforce Agreements** (CWAs)—generally between developers, contractors, and unions, but expanded to include local or disadvantaged worker hiring targets; and

- **Community Benefits Agreements** (CBAs)—between developers, contractors, unions, or community-based organizations, covering a wider array of issues.

All the various agreements create equitable access to jobs while ensuring that projects are completed by skilled workers, are not interrupted by labor disputes, and do not significantly raise project construction costs.[39]

> *" There's a lot of construction going on, but if it's not union construction or under a PLA, we don't have the leverage for placing underserved populations on construction sites. If the agreement doesn't come with a prevailing wage requirement and language that prioritizes local workforces and populations, it makes it harder for us to place folks. "*
>
> **– Rayna Lehman, Director, AFL-CIO Community Services, San Mateo Trades Introduction Program**

Project Labor Agreements (PLAs) are made between project developers, building and construction trades unions, and all relevant contractors and subcontractors. The agreements generally cover wages and benefits for employees. They may also set target percentages of apprentices or journeyperson trades workers. They may also include commitments to "set aside" a certain number of subcontracts for women- or minority-owned contractors.

In 2014, the **Boston Housing Authority** (BHA) facilitated a project labor agreement (PLA) between Ameresco, Inc., and the Building and Construction Trades Council of the Metropolitan District (Metro BTC) for the $66.7 million energy efficiency rehabilitation of 13 public housing properties.[40]

38 Minnesota Department of Human Rights. 2017. 2017 *Minnesota Workforce Goals Report.* Minnesota Department of Human Rights. Retrieved January 6, 2021 from http://thealliancetc.org/wp-content/uploads/2017/07/2017-Workforce_Goals_Report_Final_MDHR-c2.pdf.

39 Joel Rogers and Satya Rhodes-Conway. 2014. 131. ([See p.59](#))

40 Ameresco. 2014. *City Celebrates Largest Public Housing Energy Efficiency Project in Nation's History.* City of Boston, Massachusetts – Office of the Mayor. Retrieved January 6, 2021 from https://www.ameresco.com/city-celebrates-largest-public-housing-energy-efficiency-project-nations-history/.

This PLA created approximately 600 jobs for local union workers and public housing and low-income city residents and helped establish the Building Pathways Program, a free, six-week pre-apprenticeship program aimed at connecting those underrepresented in the construction industry with opportunities in the building trades.[41]

A 2011 Bay Area Rapid Transit (BART) Project Stabilization Agreement contained local and targeted hire provisions and supported the engagement of pre-apprenticeship and apprenticeship programs in **Alameda County, California**.

The Cleveland University Hospital PLA includes provisions requiring participating contractors and unions to use "commercially reasonable" efforts to provide the graduates of the Max Hayes High School's construction training program with employment opportunities and entry into a labor-management apprenticeship program.

Community Workforce Agreements (CWAs) are similar to project labor agreements but may include local or disadvantaged worker hiring targets. They are generally negotiated among project developers, building and construction trades unions, as well as local community organizations representing low-income or otherwise disadvantaged city residents. As with project labor agreements, cities often encourage or require their use on public works projects or development projects benefiting from public subsidies.

CWAs typically contain the following provisions:

- Goals to hire workers or contractors from specific populations that are underrepresented in the industry (women, minorities, low-income communities, returning citizens, opportunity youth, and veterans);

- Job-quality standards (family-sustaining wages, health care and other benefits, opportunities for advancement);

- Support for minority- and women-owned business enterprises during the project bidding process; and

- Compliance enforcement mechanisms.[42]

In addition to the apprenticeship requirements included in many project labor agreements, many CWAs include requirements that local contractors hire a certain portion of their workforce from among the graduates of a local training program. These types of interventions are a great way for cities to create pathways to employment from training programs to career-track construction jobs. CWAs can also create set-asides for women- and minority-owned subcontractors.

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41 Building Pathways. *Free Building Trades Apprenticeship Preparedness Training*. Retrieved January 6, 2021 from https://buildingpathwaysboston.org/programs/.

42 Art Lujan, Lyle A. Balistreri, and Loree K. Soggs. 2013. *Community Workforce Agreements: Pathway to Career Opportunities.* Jobs for the Future. GreenWays / Jobs for the Future. Retrieved January 6, 2021 from https://jfforg-prod-new.s3.amazonaws.com/media/documents/CommunityWorkforceAgreements_030413.pdf.

The **City of Seattle, Washington**, has used executive orders, community workforce agreements, and city ordinances to increase the diversity of the workers hired for city-funded public construction projects. In 2015, the city entered into a CWA with Seattle King County Building and Construction Trades Council and Northwest National Construction Alliance to ensure stable and consistent working conditions for construction laborers. The CWA created a Priority Hire program, which requires a percentage of the labor hours on city projects worth $5 million or more be performed by workers from economically distressed neighborhoods and sets aspirational goals for project hours performed by women and people of color (a 1998 referendum instituted "race-neutral" language that prohibits public agencies in Washington State from setting legally binding hiring quotas by race or gender). In addition, 15 percent of labor hours on city construction projects must be performed by apprentices.[43]

In 2009, the Clean Energy Workforce Portland (CEWP) project, a pilot funded by the American Recovery and Reinvestment Act of 2009, provided energy efficiency improvements to 500 homes in **Portland, Oregon**. It was the first home retrofit program to include a community workforce agreement. CEWP's CWA required that contractors: hire 80 percent of their employees locally; have 30 percent of work hours completed by employees of color, women, and low-income residents; and have 20 percent of contracts go to businesses owned by women or people of color.[44] The CWA also required that workers be paid a family-sustaining wage and receive either health insurance coverage or additional wages.

Community Benefits Agreements (CBAs) can include elements of PLAs or CWAs but also cover issues related to a firm or development's relationship with the community. CBAs are often community led and derived from community campaigns. CBAs can include a variety of elements to support community needs. For instance, an agreement may stipulate that a housing development build a park nearby for public use. They may include remediation of a nearby Superfund site or they may involve agreements to pay permanent employees certain wages or offer certain benefits at retail stores on a commercial development site. Community and labor coalitions negotiating CBAs with developers then agree to support and promote the project.[45]

The Nashville Soccer Stadium Development CBA is the first such agreement in Tennessee to protect community priorities in a private development. It covers the redevelopment of a mixed-use parcel adjacent to the proposed Major League Soccer stadium. Stand-Up Nashville, a coalition of labor and community-based organizations, negotiated the agreement with Nashville Soccer Holdings. The CBA establishes a Joint Committee with community representatives to oversee implementation and ensure compliance. The CBA includes a 20-percent set-aside of all housing units built for affordable and workforce housing and a commitment to build a childcare facility, provide retail space for small businesses, and offer community outreach to support and resource local soccer coaches. Labor standards include a wage floor for stadium workers, a commitment to establish a hiring program for stadium workers targeted to individuals with barriers to employment, and numerous criteria to support responsible and minority contractors in construction.[46]

43   City of Seattle. *Priority Hire.* Department of Finance and Administrative Services Purchasing and Contracting website. Retrieved January 6, 2021 from https://www.seattle.gov/city-purchasing-and-contracting/priority-hire.

44   Green For All. 2010. *Clean Energy Works Portland: A National Model for Energy-Efficiency Retrofits.* Green For All. Retrieved January 6, 2021 from http://www.reimaginerpe.org/files/9.29_VC_Clean%20 Energy%20Works%20Portland%20-%20policy%20brief%20-%201-20-10-7.pdf.

45   Ibid. 129.

46   Stand-Up Nashville. *Community Benefits Agreement.* September 4, 2018. Stand-Up Nashville website. Retrieved January 6, 2021 from https://standupnashville.org/historic-community-benefits-agreement-reached/.

B.

SUPPLY-SIDE SOLUTIONS: TRAINING AND PREPARING A QUALIFIED, INCLUSIVE WORKFORCE

Successful supply-side workforce development initiatives train and prepare workers to meet the demands of local employers while prioritizing equity. Critically, a number of studies have found an overabundance of workforce training programs relative to current demand for clean energy and energy efficiency jobs.[47] Governments often establish clean energy workforce training programs without first assessing the need and labor market demand for such programs. Cities must assess both the needs of employers and the roles being filled by existing workforce development institutions, as well as the ability of those institutions to achieve training goals.

But simply training a specific number of workers in clean energy is not enough. Instead, cities should have goals that emphasize the skills development of a broad set of workers who often are not specialized clean energy workers, but whose actions impact energy use.

The most successful training programs will focus on broad, career-oriented occupational training, rather than training for a single job. Training to prepare workers to become solar installers, for example, should be oriented toward a longer-term career path, such as electrician or sales manager. This focus is also useful for interventions aimed at increasing access to clean energy careers for disadvantaged workers.

An understanding of the existing workforce development infrastructure— including labor market intermediaries, government agencies, and employer–labor partnerships—is important to prevent program duplication and to leverage existing programs rather than circumvent them.[48]

1.

CREATING INDUSTRY-LED SKILLS-BASED PARTNERSHIPS

Creating a workforce with the skills necessary to build a sustainable economy is primarily about leveraging existing workforce development institutions in order to "green" existing occupations and less about training workers for specific new occupations in clean energy and energy efficiency. The majority of the occupations needed to create a sustainable, low-carbon economy are blue-collar occupations in the building and construction trades.

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47   Carol Zabin et al. 2014. (See p.41)

48   Worker-owned cooperatives are not specifically mentioned in the guide, but the principles of high-road workforce development apply, regardless of the ownership structure of a firm.

a.

INDUSTRY-RECOGNIZED CREDENTIALING SYSTEMS

Training students to achieve relevant, industry-recognized credentials is one way to ensure that training provides participants with skills that are valued in the labor market. The Center on Wisconsin Strategy (COWS) report Greener Skills: How Credentials Create Value in the Clean Energy Economy created a list of best practices for credentialing systems. Credentialing systems that create the highest returns for both employers and workers are:

1. meaningful in the labor market;

2. transparent;

3. embedded in a pathway to future employment;

4. standardized; and

5. portable (not limited to a particular region or city).

Whenever possible, training providers should seek to provide students with industry-recognized credentials that meet the needs of local employers.

b.

SUPPORT CURRENT WORKER TRAINING TO MEET CLEAN ENERGY GOALS

Building a clean, low-carbon economy mostly requires workers from existing occupations, primarily blue-collar construction workers. The creation of specific new occupations in clean energy and energy efficiency is relatively small proportionally in terms of the impact of climate and energy policies on existing labor markets. Achieving emission reductions and energy savings goals requires current workers to incorporate an understanding of alternative energy systems, appliances and technologies, and efficiency practices into their current job skills.

One challenge in this process is that most construction workers receive on-the-job training with few opportunities for continuing education currently built into the career track. There may be opportunities, however, for cities to assist existing workforce development institutions to develop curriculum and to train incumbent workers to receive industry-recognized credentials in emerging clean energy and energy efficiency technologies.

> After **New York City** passed Local Law 87, which requires building owners to complete an energy audit and undertake retro-commissioning measures every 10 years, the city's Office of Sustainability created the NYC Accelerator. The NYC Accelerator Training Resources include free and low-cost courses for building owners, operators, and managers to learn how to operate their buildings more efficiently.[49] The NYC Accelerator Trainings webpage also directs people toward other, more specialized building efficiency courses in the city offered by partner organizations like the Urban Green Council.

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49   NYC Accelerator. *Ways to Save Energy and Water.* New York City website. Retrieved January 6, 2021 from https://www1.nyc.gov/site/nycaccelerator/ways-to-save-energy-water/ways-to-save-energy-water.page.

In 2015, the cities of **San Francisco** and **San Jose, California**, in partnership with the investor-owned utility Pacific Gas and Electric (PG&E), launched a community-based energy savings initiative called Step Up and Power Down. The goal of the initiative was to collaborate with businesses to inspire employees to adopt energy-saving actions in the workplace. PG&E offered free Enhanced Operation and Maintenance Training to building operators who wanted to seriously improve their building's energy performance.[50]

C.

STACKABLE CREDENTIALS LEAD TO CAREER ADVANCEMENT

When offering technology-specific training, it is important to think about how that training interacts with broad occupational training systems. One-time training on specific technology is more effective when built into broad occupational training, but it should complement, not replace, broad occupational training. For this reason, designing specific training to "stack" on top of occupational licensing and credentialing systems is better than offering one-time training that may not lead to career advancement.

" *Solar is not a stand-alone career. A kid coming out of here might funnel into being an electrician so they could do electrical and solar [and] work as lineman or inside wireman, for example. With our training, a contractor can keep the same person working in different facets of work."*

– Art Shanks, Cypress Mandela, Oakland, CA

Stackable credentials are an interlocking series of credentials that demonstrate a worker has accomplished a greater specificity of skills within a particular trade. They are often designed to be achieved sequentially and "stack" on top of broad occupation-wide credentials or licenses, such as an electrician's license. Training current workers to receive stackable credentials equips them with demonstrable skills needed to advance in their career and provides employers with necessary skills to construct, install, and maintain clean energy and energy efficiency technologies.

- California Advanced Lighting Controls Training Program (CALCTP) is a partnership among the California utilities, IBEW, and industry partners. Licensed electricians are eligible to participate in CALCTP, which certifies workers to install and conduct inspections on advanced lighting control systems. Several thousand workers statewide have attained their certification, which is required for state building code inspections and for utility-administered, ratepayer-funded commercial lighting projects.

- Electric Vehicle Infrastructure Training Program (EVITP) is a training program for licensed electricians to learn how to properly and safely install EV charging infrastructure.

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50   Pacific Gas & Electric Company (PG&E). *PG&E and California Cities Surpass Energy-Saving Goals for Step Up and Power Down Initiative.* April 06, 2017. Pacific Gas & Electric Company (PG&E) website. Retrieved January 6, 2021 from https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20170406_pge_and_california_cities_surpass_energy-saving_goals_for_step_up_and_power_down_initiative.

Building Skills Partnership developed a [Green Janitor Certification Program](#) (GJEP), an environmental education program for janitors. The program provides a hands-on energy management and green cleaning training to address the Operations and Maintenance (O&M) practices that enable buildings to meet green performance standards. The Green Janitor Certification Program was designed and piloted in collaboration with the U.S. Green Building Council-Los Angeles chapter (USGBC-LA), the Building Owners and Managers Association of Greater Los Angeles (BOMA-GLA), industry experts, building owners, and SEIU-United Service Workers West at Constellation Place in **Century City,** California. Its mission is to improve the quality of life for low-wage property service workers and their families by increasing their skills, access to education, and opportunities for career and community advancement and participation. Since 2007, BSP has trained more than 4,000 low-wage janitors in the following regions: **Los Angeles**, Orange County, San Diego, **San Jose**, **Oakland**, and **Sacramento**. It has recently expanded to cities outside of California.

2.

BUILDING THE WORKER PIPELINE: FROM PRE-APPRENTICESHIP TO REGISTERED APPRENTICESHIP

a.

REGISTERED APPRENTICESHIP PROGRAMS: THE GOLD STANDARD

Registered apprenticeship programs are the gold standard of supply-side workforce development initiatives. Apprenticeship programs provide participants with an earn-as-you-learn paid training opportunity to get hands-on training working on actual public works and other construction projects. Apprenticeship programs train workers on all of the skills they need to be successful journeypersons in a specific construction trade. These programs set workers on a direct career trajectory and provide them with the concrete skills, on-the-job training, and industry-recognized certifications they need to succeed in a specific field.[51] Participants in registered apprenticeships typically receive family-sustaining wages, healthcare coverage, and retirement benefits from day one. Typically, applicants to apprenticeship programs must be 18 years of age and in good physical health, possess a high school diploma or a GED, pass a drug test, and be legally able to work in the United States.

Since registered apprenticeships are extremely competitive, have complex entry requirements, and can be difficult to navigate, pre-apprenticeship training programs are an effective way to support disadvantaged workers' access to apprenticeship programs.

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51 U.S. Department of Labor. *Apprenticeship Toolkit: Advancing Apprenticeship as a Workforce Strategy*. U.S. Department of Labor website. Retrieved January 6, 2021 from https://www.dol.gov/apprenticeship/toolkit/toolkitfaq.htm#1a.

Pre-apprenticeship programs provide training and support services to prepare disadvantaged workers for apprenticeship programs. They are usually offered without charge to participants by nonprofit organizations, community colleges, or unions. The most successful pre-apprenticeship programs collaborate with industry and unions to design curricula according to industry needs.

This partnership can facilitate a strong transition for participants into apprenticeship, often through direct entry agreements. Pre-apprenticeship programs are particularly effective when coupled with articulation agreements with registered apprenticeship programs. These arrangements help provide unions with a supply of qualified workers and help union contractors to be more competitive when bidding on projects that require proportions of their workforce to come from disadvantaged communities.

photo: Rising Sun Center for Opportunity

b.

PRE-APPRENTICESHIP PROGRAMS CREATE EQUITABLE ACCESS TO HIGH-ROAD JOBS

Quality pre-apprenticeship programs have significant potential to provide a sustainable pathway out of poverty and raise the skill level of disadvantaged or underrepresented workers. Pre-apprenticeship programs promote equitable access to careers that have historically been inaccessible to women, returning citizens, and people of color, including immigrants, who have been disproportionately affected by structural racism.

Most pre-apprenticeship programs are designed to prepare individuals to enter and succeed in a registered apprenticeship program. Pre-apprenticeship programs usually teach fundamental skills including math, science, writing, and computer literacy, as well as soft skills like resume building and interview prep and more occupation-specific skills such as elements of weatherization or solar installation. By aligning pre-apprenticeship training programs with actual registered apprenticeship positions, workers greatly increase their likelihood of having a career rather than just a short-term job.

The federal Department of Labor identifies core elements of "a quality pre-apprenticeship," including:

1. Approved curriculum for training;

2. Recruitment, educational, and professional development to guide underrepresented individuals on a path to long-term success;

3. Access to financial, mentoring, or other necessary support services;

4. Hands-on training opportunities working with apprentices or journey-level workers on a project site, which is valuable for giving participants a better idea of what a job in construction or manufacturing would be like; and

5. Linkage to a registered apprenticeship program formalized through an articulation agreement or facilitated entry.

The North America's Building Trades Unions (NABTU) sponsors comprehensive Building Trades Apprenticeship Readiness Programs (ARPs) in more than 100 locations throughout the United States. Building Trades ARPs are designed to prepare interested young people and adults transitioning to new careers o enter and succeed in registered apprenticeship programs.[52] ARPs teach NABTU's Multi-Craft Core Curriculum (MC3), a standardized, comprehensive, 120-hour construction curriculum that provides students with nationally recognized industry credentials to address critical workforce skill sets.

The Utility Pre-Craft Trainee Program in **Los Angeles, California**, developed by the International Brotherhood of Electrical Workers (IBEW) Local 18 in partnership with the Los Angeles Department of Water and Power (LADWP) is an earn-and-learn, pre-apprenticeship training program in which entry-level trainees work full time weatherizing homes and small businesses, while learning skills and preparing for civil service exams and career opportunities with the utility. Trainees receive $16 per hour plus health and retirement benefits and are union members represented by IBEW Local 18.[53] Trainees receive on-the-job training to install energy efficiency measures for LADWP's Home Energy Improvement Program and Small Business Direct Install program, as well as solar installations on properties owned by LADWP.[54] While in the program, trainees can take the city's civil service exam. If they pass, trainees have the opportunity to continue working within LADWP.[55] The vast majority (88 percent) of hires are still working, either in the UPCT program (54 percent) or as full-time, permanent employees of LADWP or the City of Los Angeles (34 percent).

Building Futures, a workforce partnership program in **Providence, Rhode Island**, helps prepare low-income men and women to attain careers in the commercial construction industry through the registered apprenticeship system. Trainees of Building Futures participate in a five-week pre-apprenticeship training program, where they receive 200 hours of hands-on basic skills training; attend workshops on financial literacy, construction-relevant math, labor history, and apprenticeship survival; and earn OSHA 10,

52 North America's Building Trades Union (NABTU). *Apprenticeship Readiness Programs (ARPs): Preparing for the Building Trades*. North America's Building Trades Union (NABTU) website. Retrieved January 6, 2021 from https://nabtu.org/apprenticeship-and-training/apprenticeship-readiness-programs/.

53 Megan Emiko Scott and Carol Zabin. 2016. T*raining for the Future II Los Angeles's Utility Pre-Craft Trainee Program: Progress to Date*. University of California, Berkeley. Retrieved January 6, 2021 from https://laborcenter.berkeley.edu/pdf/2016/Training-for-the-Future-2.pdf.

54 Ellen Avis and Carol Zabin. 2013. *Training for the Future Workforce Development for a 21st Century Utility Los Angeles's Utility Pre-Craft Trainee Program*. University of California, Berkeley. Retrieved January 6, 2021 from https://laborcenter.berkeley.edu/pdf/2013/training_future13.pdf.

55 Cynthia Strathmann. 2012. *Clean Power, Good Jobs: Realizing the Promise of Energy Efficiency in Los Angeles*. Los Angeles Alliance for a New Economy (LAANE). Retrieved January 6, 2021 from http://www.repowerla.org/wp-content/uploads/2012/02/RePower-LA-Clean-Power-Good-Jobs-Report-February-2012.pdf.

First-Aid/CPR, and RI State Apprenticeship Council certification.[56] While in the program, trainees receive a small stipend to cover transportation and living expenses. Participants who successfully complete the pre-apprenticeship program are counseled on potential construction trades that fit their interests and aptitudes and are placed on a waitlist for openings in their preferred trade apprenticeship program. Building Futures has an articulation agreement with 17 unions in the Rhode Island Building and Construction Trades Council. The agreement stipulates that as long as they meet the entry-level criteria for the trade, Building Futures' graduates can become union members without waiting for the union to open up the apprenticeship enrollment process.[57]

Opportunity Build, offered by the nonprofit organization Rising Sun Center for Opportunity in **Oakland, California**, is a 12-month program for low-income adults who are interested in entering a union apprenticeship or starting a career in construction or solar. During the short-term, nine- to eleven-week training program at the Oakland facility, students are trained on and receive an industry-recognized credential, the Multi-Craft Core Curriculum (through a partnership with the Alameda County Building Trades Council). They receive OSHA-10, CPR, and First Aid certifications, undergo hands-on construction training, and learn green building concepts. After completing the training program, participants benefit through ongoing case management, job placement assistance, and the alumni network. Opportunity Build specializes in working with women and returning citizens.

RichmondBUILD Green Careers Academy in **Richmond, California**, is a public–private partnership focused on training and development of local disadvantaged community members in the high-growth, high-wage construction and renewable energy field. Students participate in a 12-week program where they receive

industry-wide certifications in construction, Multi-Craft Core Curriculum (MC3), hazardous materials (HAZWOPER 40), OSHA 10, confined spaces, and First Aid/CPR. Participants also receive hands-on training and instruction in installing solar through a partnership with GRID Alternatives Bay Area. Approximately 90 percent of graduates are placed in construction jobs at an average starting wage of $18.33 an hour.[58]

C.

ARTICULATION AGREEMENTS OR FACILITATED ENTRY

Articulation agreements dictate that if a participant completes a pre-apprenticeship program in good standing, they are guaranteed either a union apprenticeship or a job. The demand-driven training model depends on strong connections to industry and a firm number of pre-apprentice openings based on available apprenticeship or job openings.

Cities can encourage articulation agreements by incorporating pipelines into apprenticeship programs as part of a community workforce agreement or community benefits agreement. Or they may emerge as part of the agreement between training providers and employers in an industry partnership.

Facilitated entry refers to formalized agreements with sponsors that can reduce barriers and help pre-apprenticeship graduates find a placement, while not necessarily guaranteeing a job or apprenticeship at the conclusion of a pre-apprenticeship program.

56   Building Futures Rhode Island. *Construction Pre-Apprenticeship*. Building Futures Rhode Island website. Retrieved January 6, 2021 from http://www.bfri.org/construction-pre-apprenticeship/.

57   Workforce Strategies Initiative. 2010. *Building Futures – Providence, Rhode Island*. The Aspen Institute. Retrieved January 6, 2021 from http://www.aspenwsi.org/wordpress/wp-content/uploads/BuildingFutures.pdf.

58   City of Richmond, California. *RichmondBUILD Green Jobs Training Academy*. City of Richmond website. Retrieved January 6, 2021 from http://www.ci.richmond.ca.us/DocumentCenter/View/4642/RichmondBUILD-Fact-Sheet-6-09?bidId=.

The [San Mateo Trades Introduction Program](link) (TIP) prepares workers for certified apprenticeship programs. In recognizing that 80 percent of applicants to the plumber's apprenticeship failed the math test, TIP negotiated with the local plumbers apprenticeship program to modify their standards so a candidate with a TIP graduation certificate does not have to take the initial math test. This accommodation made many more TIP trainees eligible for the competitive apprenticeship program.

d.

GREENING EXISTING EDUCATION AND TRAINING CURRICULA

The most efficient and effective way to create a renewable energy and energy efficiency workforce is to build on the foundation of an existing local construction workforce development training program. Working with local labor unions, community-based nonprofits, and utilities that are already administering building construction training programs or registered apprenticeships, cities can encourage, support, and incentivize these partners to incorporate training for renewable energy and energy efficiency jobs into their current curriculum.

Laney Community College in **Oakland, California**, has a nationally recognized [Environmental Control Technology (ECT) program](link) that offers certificates and associate degrees in Residential and Light Commercial Heating Ventilation Air Conditioning (HVAC) as well as Commercial HVAC systems. Energy efficiency and related sustainability-themed courses can also be found in different departments including Carpentry, Engineering, Architecture, Construction Management, and Electrical Technology. Laney's ECT program was so successful that the National Science Foundation awarded it a grant to create the [Building Efficiency for a Sustainable Tomorrow (BEST) Center](link). BEST brings together two-year community and technical colleges, universities, and industry partners to support advanced

educational programs in heating, ventilation, and air conditioning. Through participation in the BEST Center network, faculty and community colleges nationwide have access to model courses and curricula online, design specifications for high-quality instructional laboratory installations, and discounted lab supplies and equipment.[59]

Madison Area Technical College (MATC) in **Madison, Wisconsin**, offers a [Renewable Energy Certificate program](link) for students interested in the design, engineering, economic analysis, installation, maintenance, and repair of various types of renewable energy systems.[60] MATC has the largest solar photovoltaic system in the state of Wisconsin, which serves as a hands-on laboratory for students in the renewable energy program.[61]

The Office and Economic Workforce Development of **San Francisco, California**, created the [CityBuild Academy](link) in 2006 in partnership with City College of San Francisco, various community nonprofit organizations, labor unions, and industry employers. CityBuild Academy is an 18-week pre-apprenticeship and construction skills training program for San Francisco residents. CityBuild offers classroom instruction, industry certifications, hands-on training, career readiness classes, individual case management, and job placement assistance.[62] In 2010, CityBuild incorporated "green construction" into the curriculum and

59 Madeline Patton, ed. 2016. *Advanced Technological Education Centers Impact 2016-2017*. Tempe, AZ: Maricopa County Community College District. Retrieved January 6, 2021 from https://www.atecenters.org/wp-content/uploads/PDF/ATEIMPACT_2016-17.pdf.

60 Madison Area Technical College. *Renewable Energy Program*. Madison Area Technical College website. Retrieved January 6, 2021 from https://madisoncollege.edu/program/renewable-energy.

61 Hannah Flood. June 14, 2018. "Madison College Installs State's Largest Rooftop Solar Energy Project." *NBC15/WMTV*. Retrieved January 6, 2021 from https://www.nbc15.com/content/news/Madison-College-installs-states-largest-rooftop-solar-energy-project-485442241.html.

62 San Francisco Office of Economic and Workforce Development (OEWD). *The CityBuild Academy (CBA)*. Office of Economic and Workforce Development website. Retrieved January 6, 2021 from https://oewd.org/city-build.

now teaches green building practices such as solar installation, weatherization, and energy efficiency.[63]

In some cases, employers such as utilities may even assist with funding or provide scholarships for programs that help provide them with the skilled workers they need:

- Lane Community College's Energy Management Technician program in **Eugene, Oregon**, prepares students for careers in residential and commercial building energy systems management. The Eugene Water and Electric Board (EWEB) has committed funding for scholarships: $5,000 per recipient for students that live or work in the EWEB service area.[64] In part as a result of this supportive funding, the utility now has a pool of skilled workers from which they can hire.

- In Michigan, the Power for America Training Trust Fund and the Utility Workers Union of America (UWUA, AFL-CIO) created a Department of Labor-certified Renewable Specialist Apprenticeship Program that provides participants with advanced training in the renewable energy sector, including offshore and onshore wind, solar generation, and battery storage. This apprenticeship is an earn-while-you-learn program. Students earn salary and benefits from the first day they enter the program. Once they have completed the three-phase, 30-month-long apprenticeship, the graduates are guaranteed a job with Consumers Energy, one of Michigan's largest utility companies.[65]

3.

ADDITIONAL SUPPORTS FOR BUILDING AN INCLUSIVE CLEAN ENERGY WORKFORCE

Jobs within the renewable energy and energy efficiency sectors are predominantly held by White men. According to the 2020 U.S. Energy and Employment Report and 2018 National Solar Jobs Census, women make up 24 percent of the energy efficiency workforce, 26 percent of the solar workforce, and 32 percent of the wind workforce, compared to 47 percent of the national workforce. The percentage of people of color in the renewable energy and energy efficiency sectors is also lower than the national average. Black workers make up 8 percent of the energy efficiency workforce, 7.6 percent of the solar workforce, and 8 percent of the wind workforce, compared to 12 percent of the national workforce.[66,67] Latine and Asian workers are also underrepresented.

Providing clean energy and climate-related workforce development training programs can be a way for a city to improve racial equity by helping historically marginalized people obtain high-road jobs in a growing industry. However, historically marginalized populations face multiple barriers to employment that a workforce development program cannot easily fix. Due to discriminatory housing policies that resulted in decades of disinvestment in many low-income communities of color, participants may lack access to reliable transportation, require childcare services, have limited English skills, lack a high school diploma or GED, or may be experiencing homelessness, in recovery from drug addiction, or facing challenges re-entering the workforce post incarceration. These obstacles make it more likely that participants will drop out of a training program or lose their jobs upon securing employment.[68]

63   Workforce Strategies Initiative. 2010. *CityBuild – San Francisco, California*. The Aspen Institute. Retrieved January 6, 2021 from https://www.aspeninstitute.org/wp-content/uploads/2017/07/CityBuild.pdf.

64   Lane Community College. *Energy Management Program – EWEB Scholarship*. Lane Community College website. Retrieved January 6, 2021 from https://www.lanecc.edu/science/energy/eweb-scholarship.

65   Steve Hanley. August 19, 2019. *Power For America & Utility Workers Union Launch Renewable Energy Apprentice Program*. CleanTechnica. Retrieved January 6, 2021 from https://cleantechnica.com/2019/08/19/power-for-america-utility-workers-union-launch-renewable-energy-apprentice-program/.

66   NASEO and EFI. 2020. (See p.13)

67   The Solar Foundation. February 2020. *National Solar Jobs Census 2019*. The Solar Foundation. Retrieved January 6, 2021 from https://www.thesolarfoundation.org/national/.

68   Alicia Mazzara and Gabe Horwitz. July 7, 2014. *The 7 Habits of Highly Effective Workforce Programs*. Third Way. Retrieved January 6, 2021 from https://www.thirdway.org/report/the-7-habits-of-highly-effective-workforce-programs.

As a result, even the most carefully designed workforce training programs can fail if training providers do not address these additional barriers to employment.

To maximize work training program results, cities should partner with organizations that can provide comprehensive support services that enhance student success in training and transitioning to work.

It is equally important to track the graduation rate and job trajectory of all demographics of students in order to measure the success of the program and identify achievement gaps. Programs must constantly be reflecting, responding, and adapting to new challenges. Best practices include participant feedback sessions and surveys directly after training as well as six- and twelve-months post training to understand the efficacy of the program.

Supply-side initiatives help underrepresented workers prepare for opportunities in the clean energy and energy efficiency labor market. In order to ensure that these individuals are included in the clean energy and energy efficiency workforce, however, cities must look to demand-side policies, including local and targeted hiring criteria or requirements, best value contracting and procurement policies, and set-asides for women- and minority-owned contractors.

It is important to note that to retain underrepresented groups once they are hired into clean energy jobs, a company needs to create an inclusive and non-discriminatory workplace culture. Diversity, equity, and inclusion (DE&I) training for companies and employees is instrumental. Mentorship programs or affinity groups within the company can also be effective. Promoting inclusiveness in the workplace will help advance both company and city equity goals.

a.

PROVIDING SUPPORT SERVICES

Training programs for unemployed or disadvantaged workers must respond to the needs of their target population. Every participant faces different challenges completing the program and finding employment. The most successful programs offer individualized case management services to participants during the training program and through their first year of employment. Specialized case managers meet with participants before the beginning of the program and perform an in-depth assessment to identify each participant's barriers to success. Case managers can design a support strategy that includes multiple public services such as: federal Pell Grants, child care, food stamps, housing subsidies, mental health services, and Medicaid.

Case managers can also connect participants with support services provided by the program or local institutions. Once participants start the program, case managers should meet with them on a regular basis to provide career counseling, monitor their progress, and identify new hurdles as they arise. After graduates begin working, programs should continue to provide case management for at least a year to ensure long-term success.

- Opportunity Build, a program of Rising Sun Center for Opportunity in **Oakland, California**, employs one full-time case manager who meets with participants at the beginning of the program and conducts a strengths-based assessment. The case manager meets frequently with individuals to check on their progress, connects them to Rising Sun's support services, and provides them job placement assistance. Rising Sun provides graduates with case management services for the first year after they get their first job.[69]

- The Energy Coordinating Agency (ECA) is a nonprofit organization focused on providing energy efficiency services to low-income families in **Philadelphia, Pennsylvania**. In 2019, the ECA won a $200,000 Keys to the Community Grant from the Philadelphia Foundation to help a full class of returning citizens complete ECA's Pathways HVAC Training Program by providing them with comprehensive support services and case management while completing the 24-week program.[70]

b.

PROGRAM COST BARRIERS

Most workforce training programs are 30 to 40 hours a week and last from five to twelve weeks. Low-income participants will not be able to successfully complete these intensive programs and take advantage of the career pathways and services they provide if they cannot financially support themselves and their families while participating. Rent, utility bills, and family financial needs cannot be put on hold during training.

Ideally, program participants are provided a living wage while attending a training program. Living wages are based on city ordinances. If the cost is too prohibitive, participants should, at a minimum, be provided with a training stipend for transportation and lunch while they are in the program, and the training organization should receive funding for individualized support services such as child care, record expungement, etc.

- Many workforce training programs (such as the B'more Green Training Program in **Baltimore** and the Building Pathways Program in **Boston**) are free for city residents, though unpaid, which is a significant barrier for many participants.

- Model workforce training programs (such as Solar Works D.C. in **Washington D.C.** and the Utility Pre-Craft Trainee Program in **Los Angeles**) offer training stipends or wages for participants so they do not need to seek additional sources of income while in the program and can focus their full attention on training.

69   Rising Sun Center for Opportunity. *Opportunity Build.* Rising Sun website. Retrieved January 6, 2021 from https://risingsunopp.org/programs/opportunity-build/.

70   Philadelphia Foundation. *Training for HVAC Careers – Support Those Returning from Prison with Skills for Well-Paying HVAC Jobs.* Philadelphia Foundation website. Retrieved January 6, 2021 from https://www.philafound.org/vote/support-those-returning-from-prison-with-skills-for-well-paying-hvac-jobs/.

c.

HIGH SCHOOL DIPLOMA OR GED

While many entry-level jobs in the renewable energy/energy efficiency sectors do not require a four-year college degree, most require applicants to have a high school diploma or GED. Additionally, most workforce development programs (many listed in this document) require participants to have a high school diploma or GED to apply. This requirement makes it impossible for those who did not graduate high school or earn a GED to enter the workforce. Some programs offer educational services, including GED classes, as part of the workforce development program.

- The Urban Corps' Construction Apprenticeship Readiness Program (CARP) of **San Diego County, California**, provides educational training alongside skills training to help participants earn a GED.[71] They partner with a community-based organization that provides community members with job-readiness training, including free GED classes. This support creates a direct pipeline from the job readiness program to the workforce development program.

- Reconnecting All through Multiple Pathways (RAMP), a program in **San Francisco, California**, offered by the Office of Economic and Workforce Development (OEWD), helps young people (ages 18 to 24) who are struggling to transition into the workforce by providing them with job readiness training, paid work experience, educational services (including GED classes), and intensive support.[72] All graduates of RAMP are automatically accepted into the CityBuild Academy Program.

d.

PROFESSIONAL SKILLS DEVELOPMENT

Professional skills refer to a broad set of skills, competencies, behaviors, attitudes, and personal qualities that enable workers to effectively navigate their environment, work well with others, perform well, and achieve their goals.[73] Individuals entering or re-entering the workforce can often benefit from professional skills development alongside technical training to improve career readiness and ensure graduates can obtain and keep a job.

Successful programs offer career readiness (professional skills) training as part of the workforce program's curriculum, including:

- Life skills such as time management, anger management, conflict resolution, communication, goal setting, and teamwork; and

- Career skills such as interview skills, resume writing, work ethic, goal setting, and oral presentation skills.

- Opportunity Build, a program of Rising Sun Center for Opportunity in **Oakland, California**, provides participants with professional skills training including resume writing, interview prep, effective communication, time management, conflict resolution, teamwork, and setting and following through on employment goals.[74]

71   The Corps Network. *2019 Project of the Year: Urban Corps of San Diego County – Construction Apprenticeship Readiness Program*. Corps Network website. Retrieved January 6, 2021 from https://corpsnetwork.org/2019-project-of-the-year-urban-corps-of-san-diego-county-construction-apprenticeship-readiness-program/.

72   San Francisco Office of Workforce Training and Development (OEWD). *Young Adult Services – Reconnecting All through Multiple Pathways (RAMP) Program*. Office of Economic and Workforce Development website. Retrieved January 6, 2021 from https://oewd.org/young-adult-services.

73   Laura H. Lippman, Renee Ryberg, Rachel Carney, and Kristin A. Moore. 2015. *Key 'Soft Skills' That Foster Youth Workforce Success: Toward a Consensus across Fields - Executive Summary*. Child Trends, Inc. Retrieved January 6, 2021 from https://www.childtrends.org/publications/key-soft-skills-that-foster-youth-workforce-success-toward-a-consensus-across-fields-executive-summary.

74   Rising Sun Center for Opportunity. *Opportunity Build*. (See p.75)

e.

DRIVER'S LICENSE

A majority of workforce training programs and entry-level construction jobs require that applicants have a valid driver's license. This requirement is a significant barrier to employment for people without driver's licenses or people who have had their licenses suspended or revoked due to failure to pay fines, fees, or other legal penalties. This requirement disproportionately affects low-income people of color who are more likely to not have a driver's license (especially in states without school-sponsored driver's education classes). Due to systemic racism, low-income people of color are also more likely to have their licenses revoked because of unpaid driving tickets or failing to pay citations for non-driving offenses.[75]

Providing case management and legal support services to participants with suspended licenses and helping participants regain their driver's licenses through payment plans, community service, or alternate arrangements addresses one of the biggest barriers to employment.

The Center for Driver's License Recovery and Employability (CDLRE) in **Milwaukee, Wisconsin**, provides low-income county residents age 18 and above with suspended or revoked Wisconsin driver's licenses, with free legal representation and case management, as long as they are at or below 200 percent of the federal poverty level and have no pending Operating While Intoxicated (OWI) offenses. Legal services include helping identify alternatives to financial obligations in court, such as affordable payment plans or supervised community service, as well as assistance with administrative Department of Transportation (DOT) suspensions, issues concerning correction of records, and negotiations for payment plans with private insurance companies. Case management provides the necessary program arrangements and support to help ensure program completion.[76] The CDLRE is a public–private partnership that includes Wisconsin Community Services, Legal Action of Wisconsin, Milwaukee Area Technical College, and the City of Milwaukee Municipal Court.

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75   Alana Semuels. June 15, 2016. *No Driver's License, No Job*. The Atlantic. Retrieved January 6, 2021 from https://www.theatlantic.com/business/archive/2016/06/no-drivers-license-no-job/486653/.

76   Wisconsin Community Services. *Workforce Development*. Wisconsin Community Services website. Retrieved January 6, 2021 from https://wiscs.org/programs/policy_and_workforce/.

f.

CHILD CARE

Lack of affordable child care can make it difficult for low-income parents, especially single parents and mothers, to successfully participate in workforce training programs. Child care is expensive, subsidies are limited, and care is often not available during the evening and weekend hours when many parents need coverage.[77] Programs can provide participants with free child care or link participants to community-based organizations that provide free child care.

- Project QUEST, a workforce development nonprofit organization in the **San Antonio, Texas**, provides assistance with child care as part of its comprehensive support services. QUEST receives a subsidy from the City of San Antonio to pay for child care. This subsidy pays for child care at all times when participants are in class or studying on campus.[78]

g.

TRANSPORTATION ACCESSIBILITY

People will not be able to participate in a training program if it is too difficult or expensive to get to it. Since most low-income people do not have reliable access to a personal vehicle, the training program must be accessible by public transportation, and participants should be provided with a transportation stipend for the bus/metro fare or gas.

- Opportunity Build gives participants a $500 transportation and lunch stipend for its nine- to eleven-week training program.[79]

Lack of reliable transportation may remain an issue for graduates of the program in their first job. If workers do not have a personal vehicle, they may have to spend a significant amount of time in transit. This barrier may limit the graduates' ability to stay in the job. Helping participants purchase or lease a car can overcome this barrier. Partnerships or facilitated connections to local organizations that sell used cars to low-income workers at an affordable rate should be leveraged.

- Working Wheels, a nonprofit in **Asheville, North Carolina**, takes donated cars, makes needed repairs, and sells them to low-income working families and individuals at an affordable price. Working Wheels partners with case managers at local social service agencies (such as Habitat for Humanity, Steadfast House, and Green Opportunities) to refer program participants to buy a Working Wheels Vehicle. Local mechanics donate time and energy to fix the cars at a discounted rate. Working Wheels is funded by a grant from the Asheville Merchants Fund.[80]

77   Gina Adams and Shayne Spaulding. August 16, 2018. *Child Care Support Is Critical for Advancing Job Training and Workforce Development*. Urban Wire - The Blog of the Urban Institute. Retrieved January 6, 2021 from https://www.urban.org/urban-wire/child-care-support-critical-advancing-job-training-and-workforce-development.

78   Ida Rademacher, Marshall Bear, and Maureen Conway. 2001. *Project QUEST: A Case Study of a Sectoral Employment Development Approach*. Economic Opportunities Program of the Aspen Institute. Retrieved January 6, 2021 from https://assets.aspeninstitute.org/content/uploads/files/content/docs/PQCASESTUDY.PDF.

79   Rising Sun Center for Opportunity. *Opportunity Build*. (See p.75)

80   Working Wheels. *Transforming Donated Cars into Working Wheels for Working Families*. Working Wheels website. Retrieved January 6, 2021 from https://workingwheelswnc.org.

h.

FLEXIBLE SCHEDULES

Low-wage workers often work long hours, multiple jobs, and irregular shifts, making it difficult for them to engage in training programs. Sometimes workers do not know in advance when they will be called in and may not be able to commit to a strict training schedule. Programs must recognize that these challenges are unavoidable and should remain flexible, understanding that it may be impossible for all participants to stick to an ideal training plan. To accommodate these workers, some programs offer individualized training programs that include self-paced, online learning and flexible classroom hands-on training, while other programs offer night and weekend classes.

> Opportunity Build offers a night and weekend training program to accommodate people who work in low-wage jobs during the day, but want career advancement into a high-road field or for those who need to provide child care during the day.

CONCLUSION

Implementing a High-Road, Inclusive Clean Energy Workforce Plan requires both private- and public-sector demand-side strategies as well as an investment in industry-driven workforce training programs that focus on creating equitable access for underrepresented community members. City staff play a pivotal role in ensuring that climate jobs are good jobs that are accessible to all. City staff can specifically intervene through the following recommendations:

Demand-Side Solutions

Implement policies and programs that generate private-sector demand.

Develop procurement and contracting standards that incentivize high-quality jobs and labor standards.

Create policies that encourage and support small, minority-, and women-owned contractors.

Set project standards through project labor and community workforce/benefits agreements.

Develop local and targeted hire goals.

Ensure high-quality jobs and industry standards through credentialing.

Supply-Side Solutions

Create industry-led, skills-based partnerships.

Green existing workforce development curricula.

Provide incumbent workers with training and upskilling opportunities.

Promote registered apprenticeship programs.

Invest in pre-apprenticeship programs for underrepresented populations.

Encourage articulation agreements between pre-apprenticeship and apprenticeship programs.

Fund organizations that provide wraparound and comprehensive support services.

With thoughtful and participatory planning, city sustainability staff can facilitate high-road workforce development and ensure that climate actions support job quality and job access for city workers.

NOTES