



Training the Future Climate Workforce

AT A GLANCE

A Market Scan of Training
Providers and Technologies

Developed by



With support from



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Introduction

In the face of the urgent threat of climate change, the U.S. economy stands at the threshold of a transformation that could mitigate worst-case climate scenarios while opening new opportunities for economic advancement. The Inflation Reduction Act is projected to create an estimated [9 million new U.S. jobs](#) over the next 10 years, up from an estimated [900,000 in the United States](#) green economy today.¹ These estimates likely undercount the overall impact, because the number of jobs requiring sustainability- and climate-focused skills will likely increase substantially throughout the U.S. economy in the coming years.

In June 2023, Jobs for the Future (JFF) published a [report](#) arguing that the projected surge in green economic activity will open new pathways that could lead to quality jobs for people from populations that have long faced barriers limiting their access to economic advancement opportunities. This market scan carries that work forward with the goal of identifying training programs and other workforce development initiatives that are best positioned to prepare workers for promising new jobs in the green economy.

¹ The UN Environment Programme defines the green economy as an economy focused on zero-carbon energy technology, climate change mitigation, and environmentally-sustainable growth.

What are green jobs?

For the purposes of this paper, we define green jobs as roles that require the knowledge and skills that are in demand at businesses and organizations engaged in efforts to mitigate climate change and support the transition away from a carbon-based economy. Our definition also includes positions whose purpose is to make the operations of existing businesses and organizations more environmentally friendly and sustainable.

This definition is based on one the [U.S. Bureau of Labor Statistics](#) developed when it first began tracking green jobs. However, while that definition reflects the general focus of the training programs we discuss in this market scan report, it's now more than a decade old and doesn't adequately capture the current complexity of the rapidly evolving green economy.

Many of these new jobs have the potential to improve economic advancement opportunities for millions of workers who don't have advanced degrees: [One study](#) found that, on average, green jobs tend to pay 21% more than jobs in other industries—and the pay premium is even greater for green jobs without college degree requirements.

However, questions remain about whether [training providers will be able to keep pace](#) with the rapid growth of the green economy and prepare an adequate number of people to fill the millions of newly created jobs. Community and technical colleges, which are well positioned to prepare workers for jobs in skilled trades, have experienced [years of declining enrollments](#) and cuts in funding and therefore many of them aren't able to offer extensive green skills training.

As they respond to the challenge of preparing workers for the green economy, training providers and workforce development leaders have an opportunity to help advance diversity, equity, and inclusion (DEI) in the labor market. Black, Latine, Indigenous workers, people from low-income backgrounds, and residents of rural communities are disproportionately harmed by climate change. Yet these populations remain [underrepresented in the current green workforce](#). Green jobs pathways that are intentionally designed with DEI goals in mind will help close equity gaps in U.S. society.

What are green jobs?

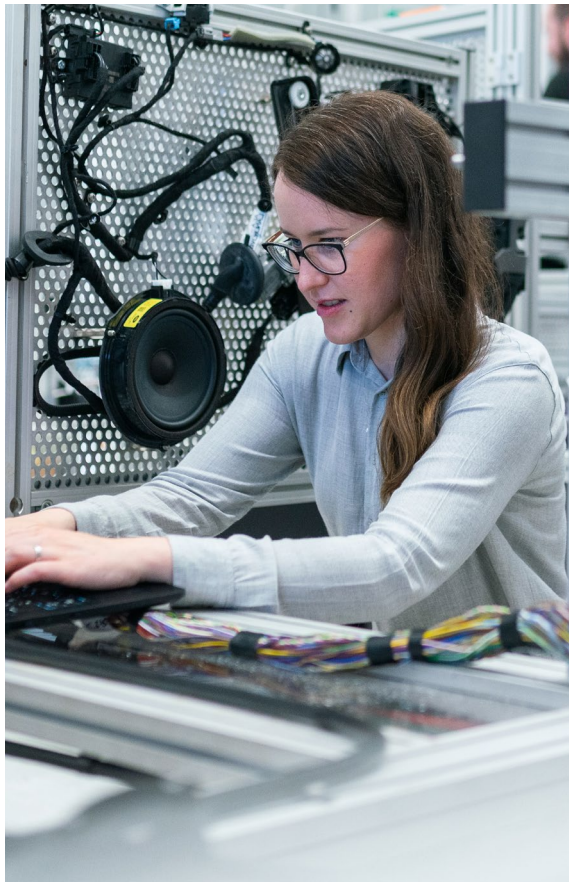
At Jobs for the Future, we believe a more expansive and nuanced definition of green jobs is needed, and we began to explore the increasingly complex range of factors that make a job a green job in our June 2023 report [Growing Quality Green Jobs](#).

Ultimately, we believe that nearly all jobs will one day be green to some degree because workers throughout the economy will need some knowledge of climate mitigation and other ecological concerns as the need to promote environmental sustainability becomes a priority for all organizations and business processes.

The Inflation Reduction Act promises to [accelerate training initiatives](#) that build green talent. \$370 billion dollars will flow to a wide range of initiatives that focus on everything from the development of walkable urban infrastructure to transitions to non-carbon-emitting modes of transport and advances in home energy efficiency. Many of these initiatives include funding for training and workforce development, [with over \\$4 billion in grants eligible to support workforce training](#). With that much money set to be invested, it's imperative to gain a clear understanding of what types of training programs exist and how well they work, so that funds can be directed to those that are most effective.

With the support from the [Ares Charitable Foundation](#), Jobs for the Future (JFF) has mapped the current landscape of programs specifically designed to train new and incumbent workers for green jobs.

This market scan report can serve as a guide for investors and policymakers that are looking to back innovative workforce solutions that can support the growth of the green economy and provide workers with opportunities to develop skills that will put them on pathways to quality jobs in that economy.



It highlights training programs that show promise for *impact*, *equity*, and *scale* in the following ways:

- ▶ **Impact:** As we vetted training providers, we looked for programs that have proven track records of successfully connecting workers with jobs that substantively improve their opportunities for economic advancement.
- ▶ **Equity:** We also sought training providers that are developing and implementing programs designed to reverse systemic biases that have long limited career advancement opportunities for people from low-income backgrounds; Black, Latine, Indigenous workers; and people with records of arrests, convictions, or incarceration.
- ▶ **Scale:** Finally, we recognized that it was essential to not only identify what works today but also find ways to expand successful training programs so they're accessible to learners of all backgrounds.



This research has identified a nascent training market that's struggling to scale quickly and effectively. Some exemplar programs demonstrate laudable success in preparing workers for emerging jobs while also serving populations that face systemic barriers to quality employment. However, many of these programs serve small cohorts of 20 to 30 workers and have only prepared workers to take the first step into entry-level green jobs, such as solar panel installation technician roles. Program providers need more funding and improved access to granular labor market intelligence that would enable them to develop comprehensive pathways into green careers.

However, combining complementary models can create opportunities for scale. For example, private training programs can grow more quickly when they partner with government entities that can help recruit workers and provide funding. And nonprofit organizations with limited budgets may be able to serve more participants if they use emerging technologies like virtual reality (VR) and immersive learning that can support remote learning and cost less than other instructional models. Likewise, training providers focused on diversifying the workforce and promoting equitable access to jobs can enhance their recruitment efforts by working with public workforce agencies and nonprofits serving young people who aren't connected to school or work.



“The existential threat of climate change requires that we equip and empower people for green jobs. The Ares Charitable Foundation and JFF understand that a commitment to a just transition must include a focus on diversity, equity, and inclusion. This is why we are partnering to help better ensure access to the knowledge, resources, and opportunities needed to participate in the growing green economy. Not only will we look to data to help inform how best to make this happen, but we will also identify exemplars whose viable solutions can inspire practical actions.”

—Michelle Armstrong, Head of Philanthropy and Executive Director, Ares Charitable Foundation





Understanding the Landscape

Milestones in Climate / Green Jobs Development

Our current era is defined by the need for massive public investment and focused collective action to transform the economy in ways that both mitigate climate change and address inequities in the U.S. economy and society. Here's a timeline of significant events in policy and society that have driven workforce trends in the green economy:

► 2006: First “Clean Technology” Boom

- The concentrated emergence of technologies focused on climate change mitigation and non-carbon emitting energy sources led to an investment boom, where venture capitalists (VC) poured [more than \\$25 billion](#) into startups. The number of U.S. green jobs grew by [9.1%](#) from 1998 to 2007 and were expected to grow even further in light of [Barack Obama's 2008 presidential campaign pledge](#) promising investments that would generate 5 million new green jobs over the next 10 years.

► 2010: U.S. Bureau of Labor Statistics (BLS) launches its first study on green jobs

- Under the [Consolidated Appropriations Act](#), the BLS was [awarded \\$8 million](#) to track the [distribution, wages, and trends of green jobs](#) across industries.
- The BLS defined green jobs and classified them in three major (consolidated) categories: renewable energy production, energy efficiency, and environmental management.

► 2011: First “Clean Technology” Bust

- After several high-profile startup [failures](#), the industry faced immense backlash that [cost VCs half of their initial investments](#). Most of the expected green jobs [never materialized](#), with only [28,854](#) people (less than 1% of Obama's pledge) employed in the clean energy sector.

Milestones in Climate / Green Jobs Development

► 2013: BLS Green Jobs Project Defunded

- As a result of across-the-board federal budget cuts in 2013, the BLS stopped collecting green jobs data, leaving followers of green economic trends with an increasingly [outdated definition of green jobs](#).

► 2022: Inflation Reduction Act (IRA) passed

- Promoted by President Joe Biden, the IRA could lead to as much as [\\$800 billion](#) in government spending on efforts to fight climate change and lead to the creation of an estimated [9 million green jobs in the next 10 years](#).
- The legislation includes provisions for investments of [\\$60 billion in environmental justice](#), expanding resources for green initiatives like solar power development and job training programs in [communities that are home to people of color and families with low incomes](#), and in [Indigenous](#), and [rural](#) communities.



The Market Today

The current combination of public and private investment, consumer interest, and policy activism related to clean energy and the green economy has created a market that's poised for rapid growth. Worldwide green economic activity is expected to grow to [\\$10.3 trillion in 2050](#), which would represent 5.2% of global GDP. This surge will help generate a wave of new jobs and spur an evolution in skill needs in the U.S. labor market. The surge is estimated to create over 9 million jobs over the next decade. While a majority of those will focus on the development and expansion of clean energy, it will also spur job growth in related areas like manufacturing, buildings programs, and transportation.

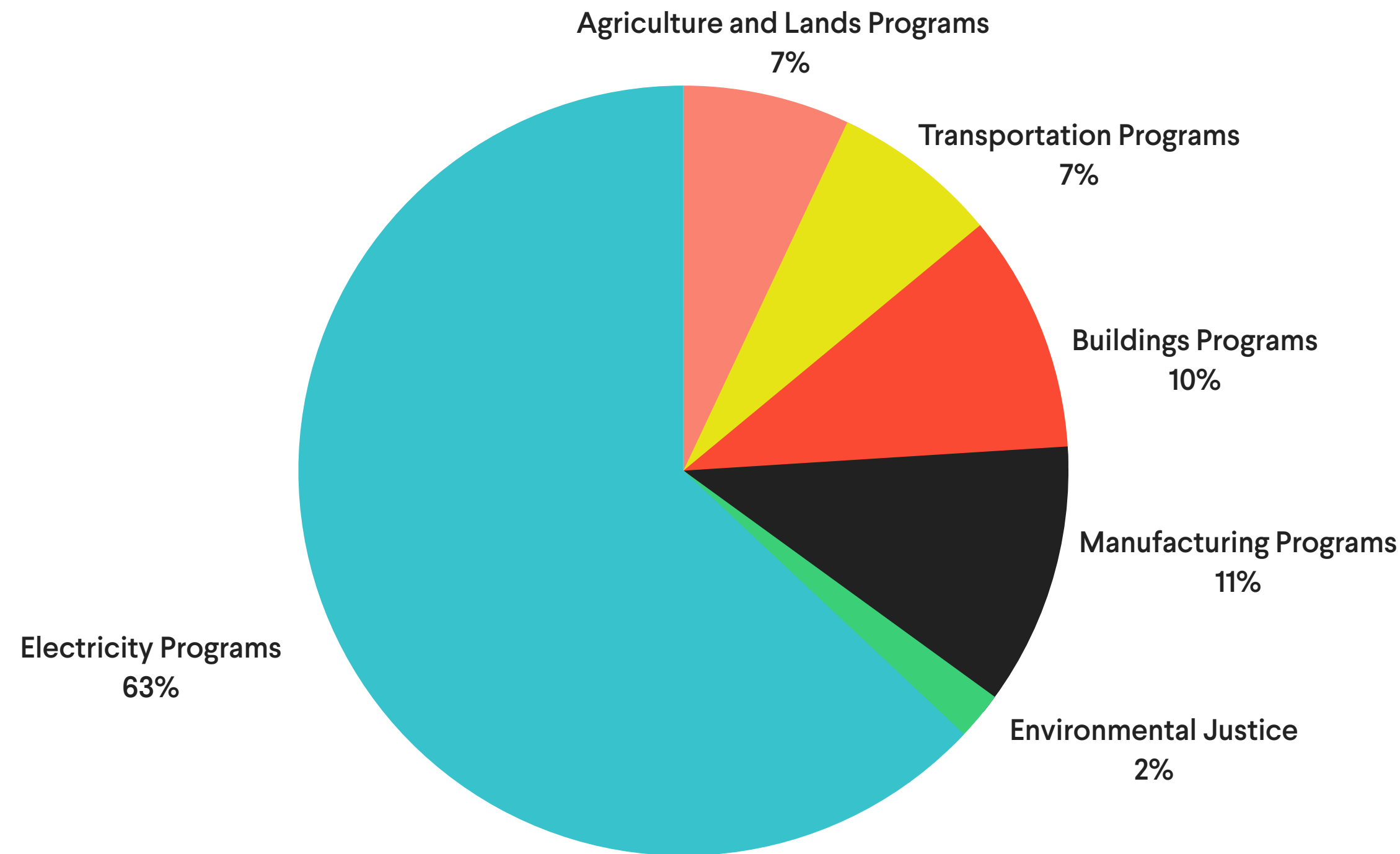
Both public and private investment will contribute to the growth of the green economy:

- ▶ Public investment: The United States is taking strides to increase its role in the global transition to clean tech, most notably passing the [Inflation Reduction Act](#) in 2022. With provisions to advance clean energy initiatives, including incentives for U.S. companies to boost domestic electric vehicle (EV) production, the IRA will directly invest \$370 billion over the next 10 years.

- ▶ Private investment: Venture capitalists increasingly view the green economy as an [investment](#) opportunity that benefits people and communities while promising strong financial rewards. Given the massive levels of public investment and the potential for widespread consumer and business adoption of cleaner technologies, startup investments in this space offer the potential for outsized financial returns. As an indicator of their interest, venture capitalists invested in climate tech at [historically high](#) levels in 2022 with more than \$70 billion in investment globally, nearly double the level of investment in 2021. At the current pace of investment, VCs will have invested [more than \\$100 billion](#) in clean tech by the end of 2023, and clean tech investments already account for [14 cents of every dollar invested](#) globally.



Inflation Reduction Act Job Creation Estimates



Breakdown by type of economic activity of the estimated 912,000 jobs that will be created per year over 10 years as a result of combined public and private investments driven by the Inflation Reduction Act.

Source: Job Creation Estimates Through Proposed Inflation Reduction Act, Political Economy Research Institute, University of Massachusetts, Amherst, August 2022.
<https://peri.umass.edu/publication/item/1633-job-creation-estimates-through-proposed-inflation-reduction-act>

This wave of new investment could help address a supply-and-demand [mismatch in the green labor market](#) by creating new employment opportunities that people seek—and quality training programs will be needed to build a workforce that’s prepared for those opportunities. Research shows that [young people are eager to work in the green economy](#), but they either can’t find available jobs or feel they don’t have the skills those jobs require.

A [2022 Accenture survey](#) found that 77% of young people in the Asia Pacific region, 57% in Europe, and 52% in the United States aspire to work in the green economy in the next 10 years. And a [2020 survey](#) conducted for Good Energy found that 57% of people ages 18–34 in the UK want to work in an environmentally sustainable business. However, in a [2022 Plan International survey](#) of 2,229 people ages 15–30 in 53 countries, 29% of respondents said they don’t know how to find green jobs, and only 9% said they had applied to or currently hold a job that addresses the impacts of climate change. Moreover, only 29% said they feel that their education has fully prepared them for a green job, suggesting that a skills gap—whether perceived or actual—could have implications for how quickly the green economy grows.

Employers also cite a skills gap. According to LinkedIn's [2022 Global Green Skills Report](#), the number of jobs that required green skills—such as knowledge of environmental remediation, recycling, OSHA policies, climate change, and renewable energy—had grown at an annual rate of 8% over the previous five years. However, the supply of green talent had grown by just 6% per year over the same period. A [GitHub analysis](#) of LinkedIn's data projects a skills gap in 2026 when demand for workers with green skills will surpass supply.

The U.S. economy needs a robust green jobs training ecosystem to create a workforce with the skills needed to take on these new jobs and ensure that workers of all backgrounds can access career opportunities in this high-growth sector. As the green economy matures, those opportunities will ideally include quality jobs, which JFF's [Quality Jobs Framework](#) defines as positions that offer compensation and benefits that enable workers to support themselves and their dependents and also provide workers with a sense of agency, a healthy and stable work environment, and opportunities to build skills and advance in their careers.

JFF's recent *Growing Quality Green Jobs* report argues that green skills will increasingly be infused in most jobs across the economy. While many of the immediate training opportunities identified in this market scan report focus on programs in which participants build skills for entry-level technical roles, training providers that want to keep pace with the evolution of the labor market will have to expand and adapt their offerings to ensure that workers and learners can prepare for the full range of future green career opportunities.



The Importance of Building a Diverse and Inclusive Green Workforce

Communities that experience disproportionate burdens of environmental hazards stand to benefit the most from the booming demand for green skills. However, the people who live in those communities also make up the most underrepresented demographic segment in the green jobs workforce. For example, Black workers represent 18% of the overall U.S. workforce but hold only 8% of clean energy jobs.

Diversifying the green talent pipeline is not only a moral imperative but a market necessity; the projected green skills shortage could cause startups and venture capitalists investing in the green economy to miss growth targets. Leaders throughout the learn and work ecosystems must make an intentional effort to expand the green labor supply by ensuring that recruiting efforts and training programs are accessible to people of all backgrounds.





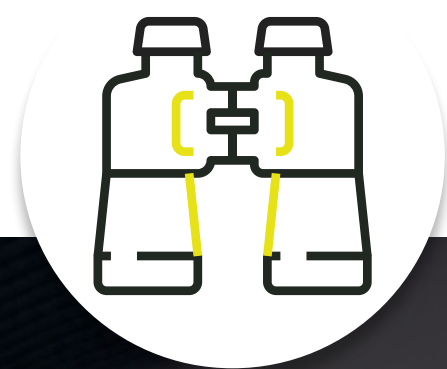
Mapping the Market

Market Segmentation

To make sense of the complex green jobs training market, we compiled a list of more than 800 programs that aim to prepare and train workers for green jobs, including courses, products, and services offered by startups, established training providers, and internship programs. Our emphasis was on programs focused on advancing racial and economic equity through green jobs, but we also included programs that reached out to broader markets that include all learner and worker populations.

We ultimately pared the list down to a little more than 100 companies and organizations at the forefront of this workforce development effort that are dedicated to helping learners and workers explore green career opportunities, expand their networks, develop job-aligned skills, and ultimately prepare for success in the green workforce of the future.

Through further research and analysis, we categorized the green workforce development ecosystem into the following segments:



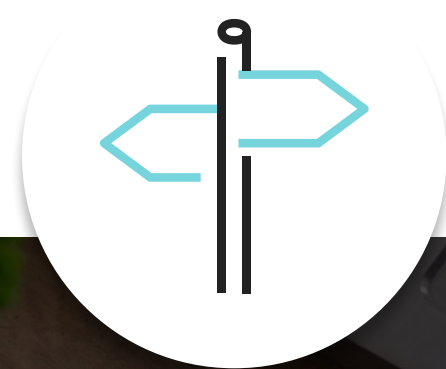
**Awareness, Exposure,
and Exploration**



**Entrepreneurial
Advancement**



**Training and Workforce
Development**



**Ecosystem
Navigation**



**Policy and
Advocacy**

No single program or pathway in isolation can lead workers and learners directly to significant economic advancement opportunities. The organizations in each segment offer programs, services, and supports that complement the offerings of organizations in other segments. Organizations in the awareness, exposure, and exploration segment will play an important role in steering workers toward available jobs and aligned training programs. Those in the entrepreneurial advancement segment will offer supports that enable startup businesses to grow and scale, creating new jobs and economic opportunities for workers. Training providers will help workers develop the skills needed for careers in the green economy, while ecosystem navigation tools will augment career mobility by connecting workers with emerging opportunities.

No matter the area of focus, all organizations will need additional investments, resources, and partnership opportunities to scale their operations and improve their products and services so they can be part of a training and education ecosystem capable of fully meeting the workforce needs of the emerging green economy.



How We Selected Companies / What's Not Included

For the purposes of this market scan, we focused primarily on developers of tech platforms and providers of direct training and education programs whose mission is to prepare adults to land green jobs and network within the green economy.

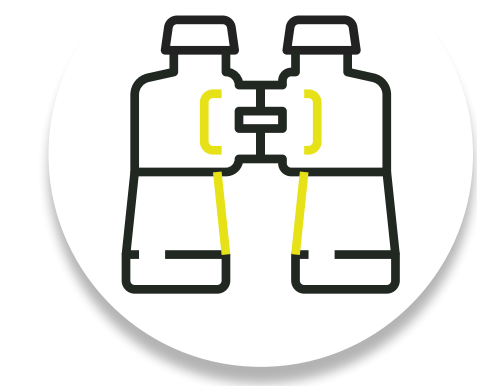
As a result, this scan doesn't discuss programs and institutions with innovative approaches to training and development, including the following:

- ▶ Community colleges, universities, and other educational institutions with broad missions that extend beyond clean technology or green jobs.
- ▶ Organizations and initiatives that have laudable missions to advance economic equity but don't focus specifically on climate issues or green jobs. This group includes programs that serve young people who aren't connected to work or learning or those that provide general workforce training for non-college-going youth.

- ▶ Initiatives or programs that serve current K-12 students. We chose to focus on programs for adults who can move directly into full-time jobs because of the urgency to build a green talent pipeline for jobs that need to be filled today or in the near future.

The pages that follow include more in-depth looks at the types of work organizations are doing in the five market segments identified above.

Segment 1: Awareness, Exposure, and Exploration



The Awareness, Exposure, and Exploration segment of the market includes organizations that offer or are developing green-focused job boards, messaging platforms that help people interested in green careers build community, or educational tools that jobseekers can use to better understand employment opportunities. The programs, products, and services offered by organizations in this segment will enable workers with experience in other fields to understand what types of jobs are available in the green economy and to build professional networks that ease their transitions to new career paths.

Examples of Organizations and Programs in This Segment

- ▶ Internship providers
- ▶ Organizations that host online communities like message boards and offer professional networking platforms



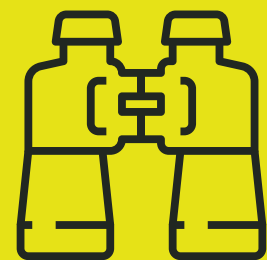


Key Challenge in This Segment

Organizations in this segment may struggle to attract external investment because they may have difficulty showing that they can deliver concrete returns on investment (ROI), a common challenge for these types of organizations outside of the green economy as well. But organizations doing this type of work will play critical roles in building the green workforce by offering people exposure to emerging career paths and providing networking opportunities that can guide them to job-specific training programs.

Key Opportunity in This Segment

Research shows that climate concerns are top of mind for teens and young adults, and many [aspire to jobs in the green economy](#) but are often held back by a lack of knowledge about what jobs exist and what training or preparation is needed. Given their strong interest in green jobs, these young workers will likely have a great deal of interest in the emerging solutions in this segment that provide greater exposure to available jobs and pathways.



MAPPING THE MARKET

Awareness, Exposure and Exploration















Segment 2: Entrepreneurial Advancement



The Entrepreneurial Advancement segment of this market includes accelerator and incubation programs that provide resources and services to startups and early-stage growth organizations. These organizations typically offer both leadership development experiences for key executives and opportunities for targeted networking with funders and companies offering complementary products and services. Some may make direct equity investments in participating companies and organizations they serve.

Examples of Organizations and Programs in This Segment

- ▶ Leadership development programs
- ▶ Business incubators and accelerators
- ▶ Entrepreneurs-in-residence programs



Key Challenge in This Segment

Companies led by founders who are members of demographic groups that are underrepresented in the startup economy may have difficulty accessing incubators and accelerator programs that provide valuable resources such as additional capital, guidance, and operational support. That's because startups have to raise capital to even qualify for these programs, and founders who are new to this ecosystem may lack the professional networks or social capital and technical skills needed to do that.

Key Opportunity in This Segment

Accelerators and incubators can drive greater social impact by specifically targeting startups led by people from groups that are underrepresented in the green economy, such as Black, Latine, and Indigenous people. These startups face challenges they must overcome before they can start growing at scale, like attaining licenses, developing effective recruiting and hiring strategies, and gaining expertise in financial accounting.





MAPPING THE MARKET

Entrepreneurial Advancement



Segment 3: Training and Workforce Development



The Training and Workforce Development segment of this market includes direct training providers that help workers develop job-aligned skills, provide certifications for specific roles or occupations, and offer participants a range of wraparound services that make it easier to juggle training, their current jobs, and other responsibilities as they transition into the green economy. This segment also includes organizations developing technology tools and infrastructure, such as VR-based training systems, that make it possible to scale their offerings and reach more learners.

Examples of Organizations and Programs in This Segment

- ▶ Community-based organizations that offer job training
- ▶ Fellowships and apprenticeship programs
- ▶ Tech-enhanced immersive learning platforms



Key Challenge in This Segment

Relatively few scalable solutions exist in this sector of the market because a wide range of available jobs exist and many of them require highly customized hands-on training. As a result, cohort-based training programs (in which a group of learners engage in synchronous training) remain the norm, and it's difficult to scale this model to the extent necessary to fill all of the emerging roles in the green economy.

Key Opportunity in This Segment

Given the current shortage of talent needed to fill green jobs, an opportunity exists to create “talent marketplaces” that subsidize worker training by allowing recruiting employers to access new talent by directly buying into training programs or subsidizing worker participation.





MAPPING THE MARKET

Training and Workforce Development



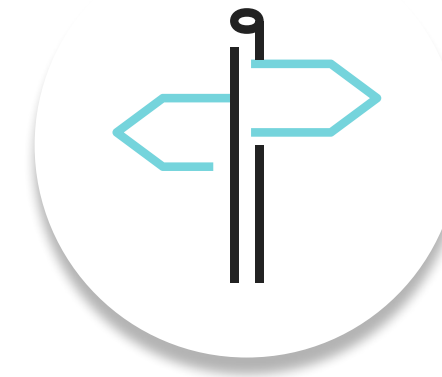


MAPPING THE MARKET

Training and Workforce Development



Segment 4: Ecosystem Navigation



The Ecosystem Navigation segment of this market is made up of organizations that help workers understand how skills they already have may be applicable in the green economy. It includes companies that use data models to map in-demand green skills to skills that people have developed in their current jobs. It also includes boot camps designed for experienced professionals who aim to network as they build new skills.

Examples of Organizations and Programs in This Segment

- ▶ Career advising platforms
- ▶ Green economy boot camps



Key Challenge in This Segment

Career-advising platforms and programs in this segment often take a passive approach to building community, placing the onus for engagement and outcomes on the personal motivation of individual workers. As a result, people who lack professional social capital may not receive the full benefit of the services and resources these organizations offer.

Key Opportunity in This Segment

Artificial intelligence (AI) technologies could transform the career navigation market by providing more personalized interactivity in tools that assess workers' current skills and recommend new job opportunities and future training and education opportunities. This would allow providers of ecosystem navigation tools and services to scale their impact by improving worker interactions without incurring significant increases in expenses.



MAPPING THE MARKET

Ecosystem Navigation



Segment 5: Policy and Advocacy



The Policy and Advocacy segment of this market includes organizations that promote public investment in innovative green workforce development solutions, as well as organizations that want to ensure an equitable and inclusive transition to a green economy by building pathways to quality jobs. These organizations play a critical role in shaping public policy in partnership with direct services providers and training organizations.

Examples of Organizations and Programs in This Segment

- ▶ Nonprofits focused on environmental justice
- ▶ Alliances and partnerships that advocate for climate justice





Key Challenge in This Segment

Policy advocacy organizations may not always have strong lines of communication with people in frontline jobs and workers who are members of populations that face systemic barriers to economic advancement. Without input and guidance from those groups, they might promote policy solutions and public-sector investment strategies that are unlikely to close the opportunity gap that locks many workers out of pathways to quality jobs.

Key Opportunity in This Segment

Given the rapid increase in the number of green jobs expected in coming years, the U.S. economy faces an urgent need for innovative policies that, among other things, better define emerging green occupations, delineate career pathways, codify licensure practices, and help fund emerging training and workforce development initiatives like those highlighted in this report.



MAPPING THE MARKET

Policy and Advocacy



A woman with long blonde hair and a man with dreadlocks are looking at a laptop screen. The woman is wearing a dark blue short-sleeved top, and the man is wearing a dark blue turtleneck. They are both looking down at the screen with focused expressions. The background is a blurred office environment with a white wall and a blue curtain. The text "Trends to Watch" is overlaid in a large, white, serif font on the left side of the image.

Trends to Watch

Trends to Watch

Existing green jobs training programs largely prepare workers for technical entry-level roles, rather than more senior managerial positions.

Most training providers profiled in this scan train workers without college degrees for entry-level, technical roles in the green economy, such as electric vehicle (EV) service technicians, solar panel installers, and home weatherization techs. These jobs typically pay \$25 per hour or more. That may represent an increase over what trainees had earned in previous jobs, but in many markets, it falls short of a living wage that covers the local cost of living for workers and their families—one of the criteria JFF uses to define a quality job.

Given the ongoing evolution of the green labor market, pathways to quality jobs and career advancement opportunities remain undefined for many roles in the green economy. Anecdotally, we've found that some workers in entry-level technical roles can quickly advance to managing teams through exceptional

performance on the job. One organization, the Los Angeles Cleantech Incubator (LACI), views the ideal career path as one that leads from worker to owner, rather than manager. LACI's view is that ownership is the path to wealth-building and small businesses can drive the growth of the green economy. Therefore, the organization actively recruits people who have already been trained for technical roles to participate in its business incubator program.

It's likely that many green management roles are currently filled by people with degrees from postsecondary programs whose coursework is relevant to a particular sector of the green economy, but those types of programs weren't within the scope of this analysis.

Many nonprofit community-based organizations (CBOs) in the green workforce development market could benefit from partnerships with for-profit startups with greater capacity to scale programming.

Nonprofits and CBOs play an important role in training workers for emerging green jobs, especially because they're able to connect people without college degrees to mid-tier roles that pay better than entry-level jobs. These organizations will continue to provide critical pathways for workers.

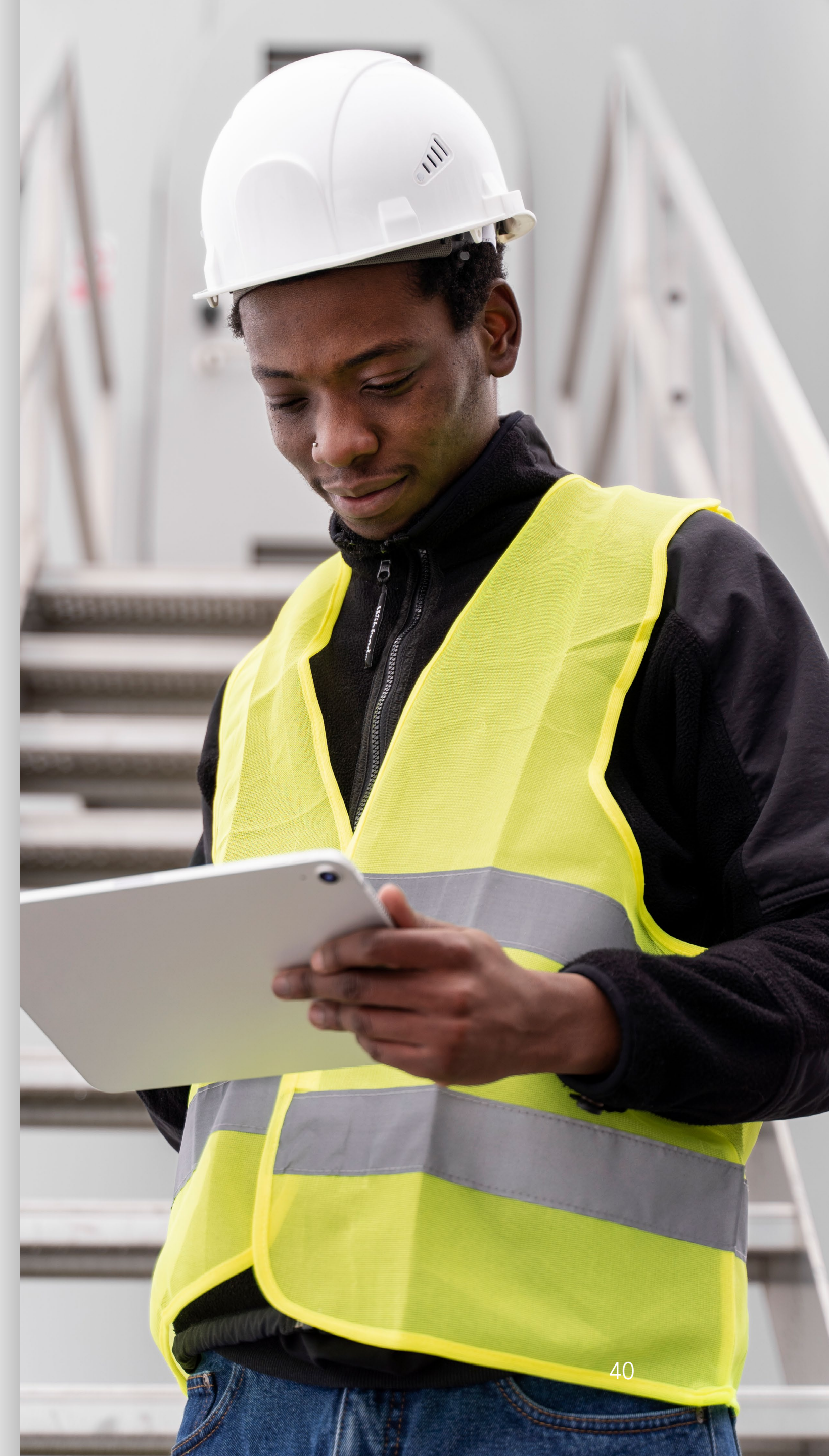
Heightened VC investment in clean technologies indicates optimism in the prospects for growth and profitability of green economy startups. There isn't data specifically on VC investments in green job training initiatives, but the overall VC interest in clean tech could be considered a leading indicator of future investments in green workforce initiatives.



Opportunities for scale might exist at the intersection of these models. Startup-led training programs display the strongest growth when paired with public agencies that can provide recruitment support, while high-quality nonprofit training programs could benefit from privately-funded innovations in training technology, including VR-based and immersive learning systems.

Wraparound supports play a critical role in training programs by enabling workers to meet basic needs while they complete programs and navigate the transition into green careers.

In our research for this market scan, we found many innovators embedding high-quality wraparound supports in their programming, often with the goal of diversifying the green workforce by opening up pathways for members of populations currently underrepresented in green jobs and quality jobs in general, including Black, Latine, and Indigenous workers, and people with criminal records.



Here are examples of organizations offering supports for program participants who may need assistance with transportation, housing, or child care needs:

- ▶ **Transportation:** PGE Project Zero pays for participants' Uber rides, and Green Door Initiative helps its formerly incarcerated participants apply for driver's licenses.
- ▶ **Housing:** The Los Angeles Cleantech Incubator works with partner organizations to rapidly find lodging for participants who may be experiencing housing insecurity.
- ▶ **Child Care:** Louisiana Green Corps provides free child care for both current participants and people who have completed its program.

Effectively addressing the broader societal factors that limit a person's ability to work and pursue training will, of course, require state and federal policy interventions and significant public investments. But we found some training providers that offer innovative solutions to meet participants' immediate needs, often fueled by commitments to environmental and racial justice.



While offering wraparound supports is common among providers of training and education programs in general, it's especially important in the green economy to ensure that job growth in this sector closes equity gaps instead of exacerbating them.

Numerous organizations place equity at the center of their training initiatives, prioritizing programs and services for workers who are members of populations that have faced barriers to quality jobs and economic advancement opportunities.

Some providers of green jobs training see their efforts to promote equitable opportunities for advancement in the green economy as part of a larger push to address other societal problems. For example, BlocPower's Civilian Climate Corps recruits participants from New York City neighborhoods most affected by gun violence. By preparing members of these populations for good jobs in the green economy, BlocPower hopes to address the underlying causes of violence and crime, such as high unemployment, environmental pollution, and lack of affordable housing.

Training providers also recognize that diversifying talent pipelines into green jobs is a business imperative. The current clean energy workforce is [predominantly made up of white men](#), and it skews older than the overall workforce.

However, by 2030, people of color will make up [more than half of the new workers](#) entering the U.S. workforce, so training and development programs in general must recruit a more diverse pool of participants to ensure that the workforce of the future reflects our society. Industries and employers that don't make an effort to advance workforce diversity and embrace equitable and inclusive training and recruiting practices could face talent shortages. In the green economy, the prevalence of jobs that won't require college degrees ([solar panel installer](#), for example) creates a unique opportunity to build an inclusive and equitable workforce.

Successful training providers must balance the desire to develop deeper relationships with workers and the desire to scale to reach larger numbers.

Some organizations take a human-centered approach to training, aiming to serve and support the whole person to prepare them to succeed in their new jobs. This applies to those that offer a broad array of wraparound supports to participants. Their goal is to maximize the successful job placement rates within their training cohorts. When thinking about their future plans,



these organizations, which include the Green Door Initiative, cite a desire to offer their existing workers deeper training and development opportunities, such as apprenticeship programs that embed trainees in on-the-job learning experiences after they complete multi-week training programs. Such offerings can improve worker retention rates for employers while creating richer opportunities for advancement for employees.

Other organizations state that their goal is to grow and scale so they increase the number of people they train, even if it means they can't provide the depth of career services available through other providers. They may be driven by a need to meet heavy demands for labor in a particular industry, a desire to build pathways to higher-paying careers for as many people as possible, or a moral imperative to contribute to the effort to take immediate collective action to mitigate the impact of climate change. These organizations may also cite the opportunity to tap newly available government funds as another factor pushing them to grow quickly. This group includes BlocPower, whose training program has a waiting list of more than 600 workers.



Training organizations cite a lack of granular and actionable green economy labor market intelligence as an impediment to growth and future program development.

Training programs largely rely on labor market data from small numbers of employer partners. While this information ensures that programs are aligned with the needs of local labor markets, it doesn't identify broader long-term trends or provide insight into the categories of jobs that offer workers the best opportunities for advancement—perhaps because many types of job are only just beginning to emerge in some local and regional economies.

To better gauge unmet needs in their local markets, or to identify skills that will prove resilient to future labor market fluctuations, resource-constrained organizations will need better labor market data so they can know where to make strategic investments, especially given the volatility and rapid evolution of green occupations.

Organizations profiled in this report cited the lack of labor market data as a primary nonfinancial impediment to expanding their training programs.



Key Opportunities by Funder Type



Philanthropic Organizations

- ▶ Entry-level workforce pathways that won't generate outside financial returns but will substantively improve workers' opportunities to increase their wages
- ▶ Small business support and incubation services
- ▶ Organizations and products that help build awareness of green careers



Government Initiatives

- ▶ Community college pathways to green jobs and related occupations
- ▶ High school pathways to college and workforce training programs
- ▶ Improved labor market data broken down by metropolitan statistical area and zip code
- ▶ Community grants for nonprofit organizations that provide training pathways with proven records of impact



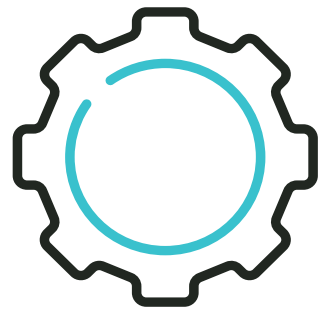
Impact Investors

- ▶ Tech-enhanced products that deliver high-quality career preparation experiences at scale through virtual reality and immersive learning
- ▶ AI-supported career navigation tools and guides to skills that are in demand in the green economy
- ▶ Intermediaries that boost employer adoption of green training programs



Innovators to Watch

Overview of Innovators to Watch



Structure

Five of the nine organizations in this cohort of Innovators to Watch are for-profit startups. Four are nonprofit community-based organizations.



Maturity

All were founded within the past 15 years. Three of the startups are three years old.



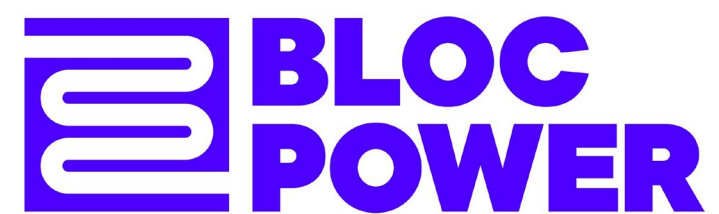
Funding

The amount of capital raised by the startups ranges from \$100,000 to \$210.4 million.



Location

These organizations are located across the country. Their home bases include New York City, Los Angeles, Honolulu, Detroit, Austin, New Orleans, and the San Francisco Bay Area.



City: Brooklyn, New York

Year Founded: 2014

Website: [Blocpower.io](https://blocpower.io)

Industries

Renewable Energy | Infrastructure

MEASURES OF SUCCESS

- ▶ 2,600 participants enrolled in BlocPower HVAC and electrical skills training programs during the first two years the programs were offered.
- ▶ 600 people are currently on the waiting list for BlocPower's Civilian Climate Corps (CCC) green workforce training program.
- ▶ In three communities with CCC programs—the 40th and 42nd precincts in the Bronx and the 67th precinct in Brooklyn—incidents of gun violence declined by 28% within the CCC's first year of operation.

SEGMENTS



Training and Workforce Development

WORKERS SERVED

People aged 18 and older in all five New York boroughs, with a focus on persons of color from low-to-moderate-income backgrounds living in communities impacted by environmental injustice.

The Business

BlocPower aims to transform communities impacted by environmental injustice by greening energy usage in urban buildings using technology, electrification, and affordable financing. Low-income communities are more likely to be dependent on fossil-fuel-powered energy infrastructure, but BlocPower's programs can bring them energy savings and environmental benefits that were previously unaffordable.

Job Training

BlocPower's three-month, paid training program, CCC, is designed for residents of communities most impacted by gun violence and environmental injustice. Participants receive training in maintenance of HVAC, electrical, and electric vehicle (EV) charging systems, as well as instruction in energy audits of buildings, weatherization skills, and solar panel installation. The program includes on-site training, and those who complete it receive industry-recognized credentials.

Why BlocPower?

BlocPower has a partnership with the New York City municipal government that allows it to work with residents from a wide variety of backgrounds and gives it the capacity to fund training for cohorts that are significantly larger than those of similar programs. BlocPower's training program introduces people from populations that are underrepresented in quality jobs to green careers in unprecedented numbers.

By the Numbers

Total funding raised: more than \$250 million

4,000%: Revenue growth since its 2020 Series A funding round





City: Los Angeles, California

Year Founded: 2020

Website: [Chargerhelp.com](https://chargerhelp.com)

Industries

Clean Technology | Electric Vehicles

MEASURES OF SUCCESS

- ▶ 30 enterprise customers
- ▶ 100 graduates of ChargerHelp training programs

SEGMENTS



Training and Workforce Development

The Business

ChargerHelp (CH) provides on-demand maintenance and repair of EV charging stations, and it trains and hires the technicians who provide those services. Its mission is to expand access to employment opportunities in the electric equipment repair industry.

Why Charger Help?

CH's in-house training programs are closely integrated with business operations serving enterprise clients, ensuring that the training aligns with the needs of the market. The company actively recruits talent from communities impacted by pollution and climate change and whose residents are members of populations that are underrepresented in green jobs. CH has demonstrated a commitment to supporting the economic advancement of its workers, paying them family-sustaining wages and offering them opportunities for career advancement.

Job Training

CH partners with workforce development agencies throughout the United States to recruit people with varied backgrounds and skill sets and train them to become EV supply equipment (EVSE) technicians. It often hires graduates of its training programs to work full-time maintaining EV infrastructure in their local communities.

By The Numbers

Total funding raised: \$20.3 million





City: Honolulu, Hawaii

Year Founded: 2009

Website: [Elementalexcelerator.com](https://elementalexcelerator.com)

Industries

Clean Technology | Career Development

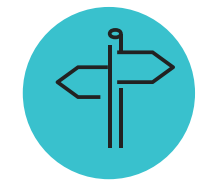
MEASURES OF SUCCESS

- ▶ 74 interns participated in 2023 cohort
- ▶ 54 employers partners
- ▶ 84% of interns are people of color
- ▶ 90% of internships pay above \$22/hr

SEGMENTS



Awareness, Exposure, Exploration



Ecosystem Navigation

WORKERS SERVED

College juniors, seniors, and recent graduates (flagship program); graduate and doctoral students

The Organization

Elemental Excelerator is a nonprofit investor whose mission is to support the development and deployment of new technologies that help mitigate climate change and positively impact communities by advancing social equity. In addition to investing, the organization has a career pathways program through which it works to build a diverse talent pipeline for the green economy. A key part of this initiative is its Empowering Diverse Climate Talent (EDICT) internship program, which serves young people from populations that have been underrepresented in the clean tech and other climate-related jobs.

Job Training

Elemental Excelerator’s EDICT program offers 10-week paid internships that include on-work-based learning experiences at partner companies, as well as employability skills training, mentorship, and enrichment activities like presentations by guest speakers. Internships are available in five areas of specialization: data, software, and coding; engineering, construction, and trades; finance operations and project management; policy advocacy and research; and sales, marketing, and social media.

Why Elemental Excelerator?

Elemental is expanding the EDICT program by streamlining operations and seeking additional partnerships with employers. The organization employs six specialists who provide one-on-one support for interns and employers, and the cohort of EDICT participants grew from 30 in 2022 to 74 in 2023. In the future, the organization plans to differentiate internship programs based on participant age and level of experience to better meet the professional needs of each group. Previous internship employers include Community Power, Launch Alaska, and NEER Technologies.

By the Numbers

Funding total: \$93 million across four funds





City: Detroit, Michigan
Year Founded: 2010
Website: Greendoorinitiative.org
Industries
Environmental Remediation & Restoration |
Construction/ Infrastructure

MEASURES OF SUCCESS

- ▶ 92% job placement rate
- ▶ 950+ workers trained to date

SEGMENTS



Awareness, Exposure and Exploration



Training and Workforce Development

The Organization

Serving Detroit, Michigan, the Green Door Initiative offers climate-focused technical training programs and engages in public education and environmental justice initiatives. Its programs are designed to help individuals from populations that have long been underrepresented in quality jobs to enter the green economy, while also enabling young people to develop leadership and civic engagement skills so they can advocate for inclusive and equitable environmental protection policies.

Job Training

The Green Door Initiative’s Environmental Technician Career Worker Training Program offers a comprehensive 12-week curriculum to prepare Detroit residents for jobs in the green economy. Participants engage in business development training and then take part in activities through which they build skills in areas such as construction, weatherization, lead and asbestos abatement, and hazardous waste management. Green Door offers certifications for completion of the coursework in many of these specialties.

Why Green Door Initiative?

The Green Door Initiative’s inclusive approach to recruitment ensures that people of color and youth who have records of arrests, conviction, or incarceration have access to high-quality training. As part of its technical training courses, the Green Door Initiative offers participants robust wraparound support services to ensure that they can succeed in their programs. Services offered include literacy and financial readiness courses, employability skills training, counseling services, and career placement assistance.





City: Austin, Texas
Year Founded: 2016
Website: interplaylearning.com
Industries
Virtual Reality | Training

MEASURES OF SUCCESS

- ▶ 130,000 workers trained
- ▶ 1,000+ partner organizations, including businesses and community colleges

SEGMENTS

-  Awareness, Exposure, and exploration
-  Training and Workforce Development

WORKERS SERVED

Workers interested in learning new skills, entry-level workers, and students in skilled trades programs

The Organization

Interplay Learning offers an immersive learning platform called SkillMill, which presents 3D simulations in a virtual reality (VR) environment to create interactive online training activities for the skilled trades, including solar panel installation and other green jobs. SkillMill is available in an easily scalable web-based format and is used by a variety of organizations, including businesses and educational institutions, to offer low-cost virtual “hands-on” training.

Job Training

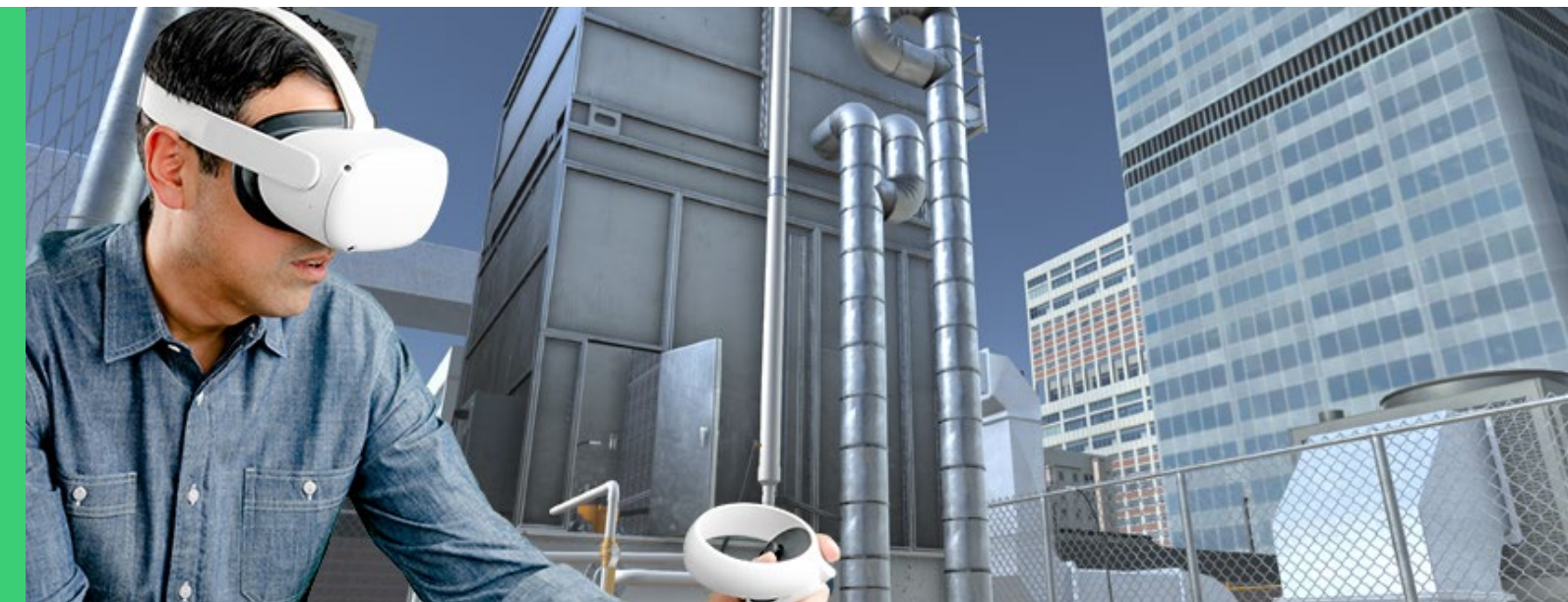
The VR-based model makes it possible to reach people who might not be able to attend in-person training programs, including rural workers and people who are incarcerated. Immersive learning simulations can also augment classroom training and apprenticeships. Interplay offers courses that culminate in nationally recognized credentials, including the OSHA 10, EPA 608, and NATE HVAC credentials. The company is also accredited by International Accreditors for Continuing Education and Training (IACET), so people who complete Interplay training can qualify for continuing education credits recognized by state licensing boards and other credentialing bodies.

Why InterPlay?

By providing accessible hands-on training in a safe virtual environment, Interplay’s 3D simulations can help diversify the green talent pipeline and the broader skilled trades pipeline by providing workers and learners of all backgrounds with equitable opportunities to develop technical skills that put them on accelerated pathways into good jobs in the green economy and beyond. The company has developed strong partnerships with community colleges and other learning institutions that lack the expertise or resources to develop their own training programs in the trades.

By the Numbers

Total funding amount: \$24.5 million





City: Somerville, Massachusetts

Year Founded: 2020

Website: [Juliusedu.com](https://juliusedu.com)

Industries

Clean Technology | Workforce Development

MEASURES OF SUCCESS

- ▶ 85% of learners who use their products have a better understanding of career pathways
- ▶ 60% of Julius learners are members of populations that are underrepresented in quality jobs
- ▶ 95% of its learners would recommend Julius training programs

SEGMENTS



Awareness, Exposure, and Exploration



Ecosystem Navigation

WORKERS SERVED

Entry-level workers and people who want to improve their skills or learn new ones

The Business

Julius Education’s mission is to fulfill the talent needs that will arise during the transition to clean energy and offer people of all backgrounds equitable opportunities to enter and advance in green careers. The company’s Career Path Platform connects jobseekers with employers, and its Talent Accelerator programs offer short-form training. Julius also uses artificial intelligence (AI) and data analytics to produce labor market data focused on the green economy.

Green Training Areas

Julius’s training courses cover energy efficiency, renewable energy, power generation, advanced manufacturing, and EVs, and it aims to make these programs accessible to a diverse cross-section of learners. For example, Julius has a strong partnership with the GED Testing Service, and in Washington, DC it’s working with that organization to ensure that its recruiting efforts connect with all workers and learners, regardless of their level of educational attainment. Julius is also redesigning the Center for Energy Workforce Development’s flagship course for high school and community college students, Energy Industry Fundamentals, to diversify the cohorts of students who enroll. The goal is to engage 500,000 learners from populations underrepresented in the green economy in the next 10 years.

Why Julius Education?

For many workers, identifying opportunities for green jobs is difficult because they lack knowledge about the green economy. Julius addresses this barrier by using AI to sort through labor market data and create detailed job and skills profiles that are specific to the green economy. Julius data eases career navigation by clarifying the skills required for certain jobs and suggesting new career options for workers who might be able to pivot to new jobs using their existing skills or developing new ones.

By the Numbers

Julius’s career navigation platform covers 500 green jobs and 2,000 career pathways.





City: Los Angeles, California

Year Founded: 2011

Website: Laincubator.org

Industries

Clean Technology | Incubator

MEASURES OF SUCCESS

► 150 program graduates annually

SEGMENT



Entrepreneurial Advancement



Training & Workforce Development

WORKERS SERVED

Los Angeles County residents with a high school diploma

The Organization

The Los Angeles Cleantech Incubator (LACI) is a nonprofit whose mission is to help build an inclusive green economy for the people of Los Angeles. It works with startups to accelerate the commercialization of clean technologies; transforms markets through partnerships with policymakers, innovators, and business leaders specializing in transportation, energy, and sustainable cities; and supports workforce development initiatives and other programs aimed at building a more diverse green talent pipeline and expanding the availability of green jobs.

Job Training

LACI's Green Jobs Workforce Program provides technical training, industry-recognized certifications, career coaching, case management, and job retention services to create pathways to success in the green economy for people throughout Los Angeles County who are members of populations that have long been underrepresented in quality jobs. Through this program, learners can earn nationally-recognized credentials, including the Project Management Professional, OSHA 10 (workplace safety), and NFPA 70-E (electrical workplace safety) certifications. Trainees also receive career coaching and job placement assistance and opportunities to transition to LACI's Founders Business Accelerator and Innovators and Incubation programs. Participants in the accelerator and incubator programs can seek advice and support from LACI practitioners in residence, a group of experienced

entrepreneurs who serve as mentors and coaches for the business founders and work with them to design road maps to success.

Why LACI?

Since 2011, LACI has helped scale more than 375 clean technology companies and other small businesses throughout the Los Angeles region. In its role as an incubator, LACI is able to identify the gaps and opportunities that exist throughout the market and focus on the skills companies are looking for in the green jobs workforce. LACI matches participants in its training programs with opportunities for paid internships and permanent jobs at the clean tech startups that are part of its investment portfolio and at other employers that are part of its network of private and public partners.

By the Numbers

Total funding: \$11 million across two funds





City: New Orleans, Louisiana

Year Founded: 2008

Website: LAGreencorps.org

Industries

Career Development

MEASURES OF SUCCESS

- ▶ 100% of participants receive industry recognized credential
- ▶ 50 employer partners
- ▶ 91% job placement rate

SEGMENT



Awareness, Exposure and Exploration



Training & Workforce Development

WORKERS SERVED

Louisiana residents ages 18-24 and 25+, depending on program

The Organization

Louisiana Green Corps (LAGC) offers green jobs training programs for jobseekers over the age of 18 from populations facing barriers to economic advancement in the greater New Orleans area. The programs include extensive wraparound supports and career readiness services. LAGC also provides internships and on-the-job training opportunities through partner organizations that address local environmental challenges.

Job Training

LAGC offers two training programs: the Youth Construction and Conservation Corps (YCCC), for individuals aged 18 to 24, and the Green Infrastructure and Conservation Corps (GICC), for individuals 25 and older. Both programs offer skills training; math and literacy instruction; paid internships; in-the-field training; and opportunities to earn nationally accredited certifications such as OSHA 10 (workplace safety) and the National Center for Construction Education and Research's Core (basic construction skills) credentials. Learners who complete the training are prepared for occupations in construction, stormwater management, energy efficiency, solar installation, and weatherization. Recognizing that workers need to pursue ongoing education and training to keep their skills up to date so they can

advance in today's economy, LAGC offers graduates of its programs opportunities to return for additional training.

Why Louisiana Green Corps?

LAGC offers attuned wraparound supports for its participants to ensure that they all are able to manage any challenges they face in balancing work, training, and personal responsibilities so they can successfully complete their training and transition to new careers. Supports include assistance obtaining driver's licenses, health care, academic tutoring, and child care. The organization's green jobs training programs offer students project-based learning experiences that address regionally relevant environmental problems, including urban flooding, urban heat, and solar energy infrastructure. The programs improve equity in the green workforce and help to diversify a regional economy that relies heavily on tourism.





City: Stanford, California

Year Founded: 2020

Website: [Terra.do](https://terra.do)

Industries

Clean Technology | Education

MEASURES OF SUCCESS

- ▶ 2,200 learners served
- ▶ 500 Employer Partnership Program (EEP)

SEGMENT



WORKERS SERVED

Climate-conscious and experienced white-collar professionals



The Business

Terra.do is building a global professional network of people and employers interested in the green economy, and its goal is to help 100 million people move into climate-related jobs by 2030. It has three primary areas of work: learning, community building, and career navigation. Its educational programs feature courses led by expert instructors and guest lecturers and include support for participants from mentors and peers. Community-building initiatives include a lineup of in-person and online events featuring discussions of climate issues and presentations by climate experts. Activities and services that support career navigation include weekly climate job fairs, an online job board listing more than 30,000 climate jobs, and a database of more than 1,500 climate employers.

Job Training

Terra.do's learning programs include its flagship course, Climate Change: Learning for Action—a 12-week boot camp offering an overview of the green economy. Other offerings include shorter courses on topics such as soil health, regenerative farming, clean energy literacy, and carbon management for corporations, with courses on many more topics in development. Terra.do also offers enterprise training programs in which it works directly with organizations to prepare their employees to tackle the climate crisis.

Why Terra.do?

While most green workforce development programs focus on training people for entry-level or mid-level technical positions, Terra.do aims to help experienced professionals from any industry find or prepare for new careers in the green economy. For example, its flagship course, Climate Change: Learning for Action, is designed to be responsive to the intellectual and emotional needs of adult learners navigating career transitions to climate-related work. It includes both small-group and individual instruction and culminates in a personal work plan based on each individual's career trajectory. Learners also have the support of alumni mentors and can seek advice from a network of alumni who have successfully transitioned to green careers.

By the Numbers

Total funding: \$6.4 million





Our Opportunity

Facing an existential environmental threat, we have a responsibility to take immediate action to mitigate the impact of climate change. Fulfilling that responsibility will present an unprecedented economic opportunity.

Developing and implementing clean energy technologies and undertaking all the other work that goes into building a green economy will create millions of new jobs, opening up new pathways to economic advancement for millions of workers. And billions of dollars in public funding and private investments will be available to catalyze, accelerate, and scale these efforts.

Further delays are not an option. It's essential to address the challenge this moment presents in order to preserve a livable climate for future generations. But it's also imperative to take full advantage of this opportunity to ensure that the transition to a green economy is just, inclusive, and equitable and will expand access to quality jobs for all workers.

CONCLUSION

Leaders throughout the learn and work ecosystem must ensure that green economic activity achieves the dual goals of preventing further climate change and advancing economic justice. In particular, the training and education programs that schools, employers, and community and workforce development organizations offer to prepare workers for emerging green jobs will play pivotal roles in determining whether both goals are met.

Through this market scan, we hope to elevate innovative providers of training programs and developers of tech platforms that are not only helping people develop in-demand green skills but also opening pathways to well-paid careers for members of populations that have long faced barriers to quality jobs and residents of communities that have been most impacted by climate change.

We're optimistic that if programs like the ones we feature here can access new sources of funding and connect with the right partners, they'll be able to scale their offerings and help usher in an economically just and environmentally sustainable future.

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About JFF Labs Market Scans

At Jobs for the Future, we believe that innovation and technology, in concert with continued transformation of traditional systems and policy change, can revolutionize the learn and work ecosystem and, in turn, the ways in which we all live, learn, and work.

Our JFF Labs market scans are based on deep dives into innovation and technology landscapes filled with solutions that are transforming learning and working. Our goal is to identify opportunities, trends, market dynamics, and impact investment insights. Those efforts yield comprehensive reports that feature mission-aligned companies and nonprofit organizations of all sizes, from seed-stage startups founded by inspiring innovators and entrepreneurs to growth-stage organizations that are already creating significant social impact and business value.

We review hundreds of organizations to assess their approach to and concern for social impact, and the traction their efforts have gained. We identify the most innovative and advanced technologies and programs connecting people to rewarding jobs and careers, valuable education and training opportunities, effective workforce and education systems, and equitable, resilient opportunities for economic security and mobility—at scale.



About Jobs for the Future

Jobs for the Future (JFF) drives transformation of the U.S. education and workforce systems to achieve equitable economic advancement for all. www.jff.org

About JFFLabs

JFFLabs identifies, incubates, and invests in bleeding-edge solutions that shape the future of learning and work for JFF and the field.

About JFF's Language Choices

JFF is committed to using language that promotes equity and human dignity, rooted in the strengths of the people and communities we serve. We develop our content with the awareness that language can perpetuate privilege but also can educate, empower, and drive positive change to create a more equitable society. We routinely reevaluate our efforts as usage evolves.

This market scan is made possible through the generous support of the Ares Charitable Foundation.



About Climate-Resilient Employees for a Sustainable Tomorrow (CREST)

CREST is a five-year, \$25 million career preparation and reskilling initiative of the Ares Charitable Foundation (the “Ares Foundation”) that aims to help close the gap between the demand for a skilled workforce for green jobs and the number of people prepared for these opportunities. Working with our partners and local communities, the Ares Foundation can deepen our impact, harness new opportunities, and help create a green, resilient future that benefits generations to come.



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