



CLIMATE
Barr
Foundation



Access to Clean Energy Jobs: Expanding Opportunities

AN ASSESSMENT OF THE CLEAN ENERGY WORKFORCE IN NEW ENGLAND

Prepared for the Barr Foundation in 2023 by:

BW Research
Emerald Cities Collaborative (ECC)
Browning the Green Space

nomada consulting
Ponder Analytics

Table of Contents

4	Letter from Barr Foundation’s Climate Program
5	Acknowledgements
7	About the Report
10	Key Takeaways
12	Understanding the New England Workforce Development Ecosystem
12	Actors in the New England Workforce Ecosystem
21	Clean Energy Employment Landscape
25	Role of Policy in Influencing the New England Workforce Ecosystem
27	Role of Funding and Public Investment in the New England Workforce Ecosystem
28	Exploring High-Road Approaches in New England
29	Getting People into High Road Clean Energy Careers
37	Supporting Equitable Workforce Development at the MSA Level
44	Connectivity Assessment by MSA
49	Improving Entry Points and Pathways for MWBEs
50	Survey Overview: Themes and Recommendations
53	Hire360
61	Philanthropic Landscape Analysis
61	Introduction
62	Funding for Climate and Clean Energy Workforce Development in New England
65	National Funding Data Review
66	Funder Perspectives on Current State of Funding
73	Philanthropic Funding Paths Forward
73	Field Development Opportunities
81	Immediate Actions and Grantmaking Strategies for Funders

Cover photo credit: Massachusetts Clean Energy Center

Table of Contents *continued*

86 Pathways to Support the New England Workforce Ecosystem

- 86 Expanding Access to Pathways for Specific Clean Energy Occupations Within a Local Workforce System
- 88 Fund for Public Housing – Clean Energy Academy
- 89 Expanding Access to Pathways for Specific Clean Energy Occupations at the State Level
- 90 UPROSE
- 91 Maximizing Federal Funding Opportunities Within Local Workforce Ecosystems

93 Appendix 1 – State Policy

97 Appendix 2 – Descriptions of MSAs and their Workforce Ecosystem Profiles

- 100 Hartford-East Hartford-Middletown MSA Workforce Ecosystem
- 109 New Haven-Milford MSA Workforce Ecosystem
- 118 Portland-South Portland MSA Workforce Ecosystem
- 127 Boston-Cambridge-Newton-New Hampshire MSA Workforce Ecosystem
- 138 Springfield MSA Workforce Ecosystem
- 146 Providence-Warwick MSA Workforce Ecosystem

156 Appendix 3 – Focus Group Takeaways

Letter from Barr Foundation's Climate Program

Dear colleagues,

New England's clean energy economy is growing rapidly. Major drivers include ambitious policies, notable increases in renewable energy procurements, energy efficiency investments, and electrification. This is exciting for many reasons, including job creation. The demand for a skilled workforce is enormous.

Barr's clean energy strategy has long focused on accelerating the shift to clean energy and making our energy system more equitable. This focus inspired our desire to better understand the opportunities and challenges in building New England's clean energy workforce, and ensuring these new jobs are high quality, living wage, family-sustaining jobs, and that they are accessible to historically marginalized populations.

Since workforce development and economic inclusion are new areas for us, we commissioned this research—both to inform potential grantmaking and to benefit grantees and other partners, who are exploring similar lines of inquiry. Our guiding questions were:

- What is the current workforce ecosystem in New England?
- What entry points and pathways exist for Minority and Women Business Enterprises (MWBEs) entering the space?
- How can philanthropy and philanthropic funding complement public funding and incentives to advance clean energy workforce development?

This research report, developed by BW Research and Emerald Cities Collaborative in consultation with many leaders from across the region, explores these and other questions. This report and its accompanying databases on clean energy training programs and top energy occupations are available at: barrfoundation.org/ceworkforcedev.

Particularly given recent influxes of federal funding promoting clean energy, and elected leaders who recognize the opportunity and are ambitious for progress, this is an exciting moment for aligned action. We hope that this report helps foster constructive dialogue between clean energy and workforce leaders, and that it inspires additional philanthropy in our region.

Sincerely,

Mariella Puerto, Director of Climate and **Kathryn Wright**, Senior Program Officer, Clean Energy

Acknowledgements

The Barr Foundation would like to acknowledge the lead researchers for this report. We thank you for your insights and support throughout this research process:



BW Research

Cai Steger
Nokukhanya Victoria Ncube
Phil Jordan
Hannah Beinecke



Emerald Cities Collaborative Team

Daryl Wright,
Emerald Cities Collaborative

Kerry Bowie,
Browning the Green Space

Hunter Jones,
Emerald Cities Collaborative

Alisha Harrington,
Browning the Green Space



Sandy Cohrac,
Emerald Cities Collaborative

Jodi Pincus, nomada



Tabaris Smith,
Emerald Cities Collaborative

Chelsey Bryant, Ponder Analytics



We would also like to thank representatives from the following organizations who generously shared their insights. They represented a cross-section of actors, including industry leaders, community-based organizations, advocacy organizations, technical and community colleges, pre-apprenticeship and apprenticeship programs, building trades councils, and state officials:

Philanthropy

The Annie E. Casey Foundation

The Heising-Simons Foundation

The Nathan Cummings Foundation

Bloomberg Philanthropies, Inc.

The James Irvine Foundation

New Hampshire Charitable Foundation

The California Wellness Foundation

John D. and Catherine T. MacArthur Foundation

NorthLight Foundation, Inc.

The Chicago Community Trust

The Joyce Foundation

The Robert Wood Johnson Foundation

Claude Worthington Benedum Foundation

The JPB Foundation

United States Energy Foundation

ClimateWorks Foundation

The Kresge Foundation

Vermont Community Foundation

Ford Foundation

McKnight Foundation

The William and Flora Hewlett Foundation

Hartford Foundation for Public Giving

Merck Family Fund

Acknowledgements *continued*

Focus Groups

A Better City	United States Energy Foundation, Northeast Team	Massachusetts Climate Action Network
Action for Equity	Environmental League of Massachusetts	Massachusetts Clean Energy Center
Benjamin Franklin Institute of Technology	Health Care Without Harm	Metropolitan Area Planning Council
Building Futures Rhode Island	Interstate Renewable Energy Council	NECEC
City of Boston	Local Initiatives Support Corporation (Massachusetts)	Northeast Clean Energy Council
Community Labor United (Massachusetts)	Maine Governor's Energy Office	Renew New England Alliance
Connecticut Roundtable on Climate and Jobs		Roots 2Empower (Rhode Island)

Interviews in Metropolitan Statistical Areas (MSAs)

Avangrid	Equinor	Racial and Environmental Justice Committee
Black Economic Council of Massachusetts (BECMA)	Eversource (Connecticut)	ReVision Energy
BlueWave	FirstLight Power	Rhode Island Department of Labor and Training
Boston Impact Capital	Franklin Cummings Institute of Technology	Rhode Island Office of Energy Resources
Build Green Maine	LearningWorks YouthBuild (Maine)	Roots 2Empower
Building Futures Rhode Island	Local Initiatives Support Corporation (Massachusetts)	Roxbury Community College
Building Pathways (Massachusetts)	Maine Climate Council	Springfield Technical Community Technical College
Building and Construction Trades Council of the Metropolitan District	Maine Jobs and Recovery Plan-Clean Energy Partnership	Vineyard Wind
Maine Clean Energy Partnership, Governor's Energy Office	Maine State Building and Construction Trades Council	
Common Capital	Man Up, Incorporated	
Community Labor United	Massachusetts Clean Energy Center	
Connecticut Roundtable on Climate and Jobs	Neighbor to Neighbor Massachusetts	
Connecticut State Building Trades Council	National Grid (Massachusetts)	
Environmental League of Massachusetts	Neighborhood Housing Services of New Haven	

About the Report

States in the New England region have long been at the forefront in supporting, promoting, and deploying climate-related clean energy solutions and are increasingly exploring how best to do so equitably and inclusively. Significant growth in clean energy jobs is expected from the energy transition, especially given recent climate-centered federal policies. Meeting this job demand will require a strong, strategic, well-resourced workforce development ecosystem and a focus on creating equitable, high-road job opportunities that people of color and women can plentifully access.



LISC Boston's Building Green Jobs program. Photo credit: LISC Boston

To better understand these needs, the Climate Program of the Barr Foundation commissioned this report from Emerald Cities Collaborative—with partners Browning the Green Space, nomada Consulting, and Ponder Analytics—and BW Research. In doing so, Barr seeks to provide data to inform a fieldwide conversation and to engage other foundations on this topic.

One core value of the Barr Foundation essential to this research has been its commitment to centering racial equity in its mission, investments, and in its work with partners and communities. This objective underpins Barr's Climate program and clean energy strategy, which has long supported an extensive portfolio of investments and advocacy to accelerate a just shift to clean, renewable energy in New England. To reflect the organization's commitment to centering racial equity, the clean energy strategy team at the Barr Foundation integrated direct lines of inquiry into this research regarding access to clean energy jobs for people of color and entry points and pathways for minority- and women-owned business enterprises (MWBEs) so as to better identify opportunities to strengthen clean energy workforce development in the region.

To this end, the research team was asked to address a set of questions across two main focus areas. One area focused on a **clean energy landscape and workforce ecosystem analysis for New England** to answer the following questions:

1 What is the current workforce ecosystem in New England?

2 How can we support job entry or retraining/upskilling pathways into clean energy for people of color?

3 What entry points and pathways exist for MWBEs entering the space?

About the Report *continued*

The second focus area explored **philanthropic funding supports and approaches to clean energy workforce development** to answer the following questions:

- 1** How can philanthropy and philanthropic funding support public funding and incentives to advance clean energy workforce development?
- 2** What is an appropriate role for Barr and other foundations?
- 3** How well have these programs increased both awareness of and access to jobs for people of color?
- 4** How can philanthropy increase economic inclusion by integrating and partnering with institutions serving people of color and immigrants that are not currently in the green jobs ecosystem?

To address these questions, the research partners utilized a multi-disciplinary research plan; combining surveys, executive interviews, focus groups and data and policy analyses. This report is the result of these research workstreams, and is organized into the following sections:

- **A strategic framework for exploring how New England’s current workforce development ecosystem operates**, by explaining the complex interplay between “demand-side” actors, such as employers, who affect demand for workers, “supply-side” actors, such as educators and workforce organizations, who support the supply of workers, and market the influencing policies, programs and investments that shape the labor market supply and demand balance. Included in this framework is a detailed training asset inventory of more than 1,000 training and education assets in the six New England states involved in supporting and bolstering clean energy workforce supply.
- **A baseline quantitative assessment of state-level employment in the New England region’s clean energy sectors** that is an important first step in establishing a baseline to measure workforce needs in the future and understand the impact of these demand-side and supply-side actors, especially in creating entry points for workers of color.
- **Assessments of the clean energy policy and funding landscapes in New England** highlighting the intersection of policies and funding at the state and federal levels, their role in the workforce ecosystem, and how they can support or hinder equity and inclusion.

About the Report *continued*

- **A description of high-road clean energy workforce pathways** that demonstrates how to support equity and inclusion of people of color into this ecosystem through intentionality and focused action on addressing specific barriers and creating new opportunities for participation in the clean energy economy.
- **A description of the opportunities and challenges for MBWEs in the MBWE business ecosystem.** Surveys and interviews with MBWE contractors highlight the difficulties and point to marketing campaigns, mentoring from more established contractors, technical assistance, increasing access to capital and support in responding to procurement bids as key opportunities for growth. A small but potentially potent business ecosystem exists throughout New England and could support MBWEs in entering clean energy through innovative efforts.
- **An exploration of philanthropic engagement in climate and clean energy workforce development** that includes an assessment of regional and national philanthropic funding, insights and recommendations from philanthropy executives and recommendations to expand and enhance future

Photo credit: U.S. Department of Energy Sunshot Initiative





Key Takeaways

The clean energy labor market in each New England state is stable, stretching across many clean technologies and has room for growth. Demand for clean energy workers is expected to increase dramatically over the coming decade, but tight labor market conditions will continue.

There are disparities along the lines of race, ethnicity and gender as to who holds these jobs in the region, with White male workers holding most of the current positions. It remains difficult for people of color to enter a career in the clean energy economy, and while MBWEs have some opportunities, they report that it is difficult to gain traction to secure large projects.

While there are individual variations in state policy and funding when compared across states, these policies and programs will continue to boost demand for clean energy (and therefore workforce), especially when coupled with new federal policy. Advocacy and education efforts have paid off in terms of creating an environment with an increasing drive to prepare a diverse workforce in energy efficiency and energy generation. This was seen throughout interviews, in focus groups, and other engagement with stakeholders.

However, representatives of environmental justice communities seem absent from state advocacy efforts for climate and clean energy jobs. These coalitions need to be broadened to include environmental justice organizations in light of federal efforts to ensure disadvantaged groups receive the benefits of federal funding through the Justice40 Initiative.

To support state-level advocacy efforts, there should be a concerted effort to ensure that coalitions include, and preferably, are led by organizations currently engaged with environmental justice communities. Organized labor will be an important partner in these efforts. These coalitions should focus on ensuring that federal funding is benefiting environmental justice communities.

State officials, advocacy groups, foundations, community groups and a host of other stakeholders are still trying to absorb the implications of historic federal investments through the Bipartisan Infrastructure Legislation (BIL) and the Inflation Reduction Act (IRA). With the exception of Massachusetts, state efforts to promote workforce equity through federal funding seem unclear.

While some local workforce development and training organizations are aware of the burgeoning demand for a clean energy workforce, most are either unclear about or unaware of what this means for their efforts to prepare a diverse workforce.

State and metropolitan building trades councils appear to be working with more pre-apprenticeship programs to increase the diversity of tradespeople who will participate in the clean energy workforce. This is likely to impact the complexion of the workforce for government buildings and large-scale commercial projects.

The training infrastructure for residential energy efficiency workers is opaque to community-based organizations working to diversify the workforce. Also, there is still a perception that individuals with criminal records are unable to enter this market. Utilities operating these programs are working to address these barriers through policies, but this hasn't yet affected employers who are hiring workers.

While workforce training organizations are loosely connected in their efforts to address labor market demand and almost all have articulated a commitment to workforce equity, the levels of connection vary within different metropolitan areas. A more intentional approach to partnerships and equity is required to meet the growing demand for a diverse workforce.

Investments to build the capacity or workforce organizations within metropolitan areas must also be complemented by co-equal support of state-level initiatives to advocate for community benefits. Both are critical and support each other. State-level

coalitions will influence the flow of federal investments towards community benefits that ensure access to quality jobs. Workforce development organizations within metropolitan regions will be responsible for ensuring diverse workers from justice-impacted communities have the support, training, skills, and abilities to obtain and remain in these jobs.

The hallmark of successful workforce development initiatives within metropolitan areas must be collaboration. This must occur across organizations at different points along a career pathway. Collaboration includes linkages between early support organizations such as vocational and technical education schools and community-based organizations; community colleges and technical colleges; pre-apprenticeship programs; apprenticeship programs; and employers. The goal is to create seamless career pathways for diverse workers where they have access to quality jobs.

Philanthropy has an important role to play in creating, supporting, and expanding an inclusive and equitable clean energy workforce. While historically there has been a lack of focus on funding equitable workforce goals within climate and clean energy (and of those in this space, only a select few funders provide most of the funding), there is increasing funder interest in these areas, driven by greater focus on equity and in response to federal and state policy developments described in this report. Funding high-quality clean energy jobs and increasing access to those jobs for people of color is a priority for many funders surveyed for this report, and there is an abundance of opportunities for philanthropy to engage in climate and clean energy workforce development.

Understanding the New England Workforce Development Ecosystem

To provide shared context for all readers, this report begins with a review of the overall workforce ecosystem, the workforce assets available in the region, and their intersection with clean energy workforce demand, supply, and equity. It then quantifies employment in New England's clean energy sectors to set a baseline for measurement, planning workforce development strategies, and highlighting diversity and other needs in a growing sector. Following that, this report reviews the different workforce policies, funding and assets available in the region to paint a comprehensive picture of how best to pursue the creation of high-quality jobs in clean energy, accessible to all populations in the region.

Actors in the New England Workforce Ecosystem

The workforce ecosystem includes a constellation of actors who affect demand for workers. These actors include employers and industry associations that hire workers. Workforce organizations, educational institutions and apprenticeship programs are examples of organizations that affect the supply of qualified workers who produce goods and services. These organizations train and support workers. Market influencers can affect the shape and balance between labor market supply and demand. They can influence hiring and training through policy and investments. Equity and inclusion will not occur without intentional focus and purposeful action among actors across the workforce ecosystem. In this section, the team describes the workforce ecosystem and reviews the regional policies, funding, and training programs that make up the workforce ecosystem in New England.

Understanding the New England Workforce Development Ecosystem *continued*

WORKFORCE ECOSYSTEM STAKEHOLDER MAP

Labor Market Supply-side Organizations

Support Organizations/
Basic Training

Community Based Organizations

Provide support services, professional skills development, and entry point into pre-apprenticeship, training, secondary education, and employment.

Vocational Technical High Schools

Provide career exposure and basic skills, when linked provide an on-ramp to higher ed and pre-apprenticeship/apprenticeship.

Governmental Organizations and Labor Market Influencers

State and Local Government Agencies

Establishes policies, provides leadership, sets priorities, provides funding, builds coalitions, major influencer, and supports/building programs, ability to impact training curricula or standards.

Quasi-State Agencies

Performs public functions, supports and funds initiatives, and can push climate and equity goals.

Philanthropy

Can fund and support gaps in the market and fund innovative initiatives to support climate and equity goals, leadership role in the field.

Workforce Network Manager

Coordinating body, helps calibrate the market, provides leadership, pushes for climate and equity goals and supports partnership building.

Advocacy/EJ Organizations

Support climate and equity initiatives, build coalitions, hold the system accountable, engage community, and ensure justice goals are met.

Labor Market Demand-Side Organizations

Employers/Support Organizations

Employers/Contractors

Hire new entrants and other jobseekers, upskill existing workforce, provide training, critical for meeting climate and equity goals.

Industry Associations

Organize the industry, provide leadership, education, advocacy and lobbying, and fosters collaboration.

Workforce & Economic Development

Promote economic development and specific initiatives and coordinate workforce opportunities to meet demand and skills.

Supply-side: Training and Education Organizations

Pre-Apprenticeships

Provide basic industry training, an on-ramp into apprenticeship, exposure to the trades and support.

Community Colleges

Technical training and career exposure and link to apprenticeship, employment and higher education.

Private Training/ Technical Schools

Technical training and link to employment.

Union/Apprenticeship

Employment and education in a specific trade, career advancement opportunities, worker voice and calibrate supply and demand.

Universities

Professional skills training and education in a career: engineering, environmental science, etc.

Understanding the New England Workforce Development Ecosystem *continued*

Labor Market Demand-Side Organizations

Demand-side organizations drive the need for clean energy workers. These include manufacturing, transportation and construction. Employers hire workers to produce goods and services for the marketplace. Industry associations organize employers and other employer-aligned organizations to advocate for the interests of industry. They provide educational opportunities to increase the skill of workers and to ensure goods and services meet industry standards. Finally, associations sponsor research to help industry leaders make decisions. Governments may seed labor market demand through economic development and workforce initiatives to grow businesses within their jurisdictions.

Labor Market Supply-side Organizations

Labor market dynamics are defined by the interplay between this supply and demand. Supply-side organizations train, support and develop workers. Workers are hired by firms who need their skills. Workers supply their labor. Supply-side organizations ensure workers have the skills they need to meet labor market demand. Supply-side organizations include community-based organizations, secondary and post-secondary educational institutions. Pre-apprenticeships are typically embedded within these organizations. Apprenticeship is one strategy to train workers. In most cases, workers are hired and receive technical instruction to improve their skills over time. They receive incremental increases in pay commensurate with their acquisition of skills. An apprenticeship is called an earn-while-learn strategy, because the apprentices are earning money while acquiring new skills. Apprenticeship programs are administered by community colleges, business associations, and labor management organizations. Other organizations such as child care providers provide wraparound support for returning workers and increase the number of prospective workers who are able to access employment opportunities.

Supply-side organizations ensure workers have the skills they need to meet labor market demand. Supply-side organizations include community-based organizations, secondary and post-secondary educational institutions.

Understanding the New England Workforce Development Ecosystem *continued*

Workforce Supply Assets

The New England region benefits from a broad collection of labor market supply-side organizations. This report provides an initial snapshot of assets focused on the supply of clean energy workers in the New England region. This analysis can help readers characterize the labor market and develop strategies to rectify any imbalances between labor supply and demand. An inventory of assets informs regional and state-wide assessments to determine what type of training is available. This the first step in analyzing the capacity of the New England region. Generating a list of supply assets can help determine if the training capacity is sufficient to match labor supply with demand.



Photo credit: U.S. Department of Energy Sunshot Initiative

While not comprehensive, the inventory assembled for this exercise contains 1,063 distinct programs in New England. The greatest number of programs is identified for Massachusetts, followed by Connecticut and Maine (Table 1).

TABLE 1. New England Training Programs – Total

State	Count of Programs	Percentage of Programs
CT	189	18%
MA	605	57%
ME	138	13%
NH	67	6%
RI	43	4%
VT	22	2%

Understanding the New England Workforce Development Ecosystem *continued*

Across New England, community colleges and private training companies (or private technical schools) make up the largest share of training offerings at 26 and 24 percent respectively (Table 2). Private and public four-year colleges and universities— most of which are located in Massachusetts—with undergraduate and postgraduate opportunities make up 18 percent of the inventory. Vocational technical high schools represent 14 percent of the offerings, and they largely train individuals for occupations in the trades.

TABLE 2. New England Training Programs by Institution Type

Institution Type	Count of Programs	Percentage of Programs
Community College	280	26%
Private Training Company/Technical School	260	24%
Private/Public College or University	193	18%
Vocational Technical High School	149	14%
Non-Profit Organization	44	4%
Union	34	3%
Industry Association	22	2%
Community Based Organization	20	2%
Trade Association	18	2%
U.S. Navy Shipyard	14	1%
High School	13	1%
State Agency	10	1%
Workforce Development Board	6	1%

Understanding the New England Workforce Development Ecosystem *continued*

Table 3 shows offerings by state and institution type. Massachusetts (156 programs) has a large number of private and public colleges and universities offering clean energy-related training. Community colleges (128 programs), vocational-technical high schools (128 programs), and private training companies (126 programs) also offer a large number of programs in Massachusetts. Connecticut offerings are dominated by community colleges (53 programs) and private training companies (53 programs) as is Maine, where there are 53 programs from community colleges and 41 from private training companies. New Hampshire follows the same distribution, with 33 community college programs and 32 programs from private training companies. Private and public universities and colleges represent the greatest number of programs in Rhode Island (12 programs) and Vermont (7 programs).

TABLE 3. New England Training Programs by Institution Type and State

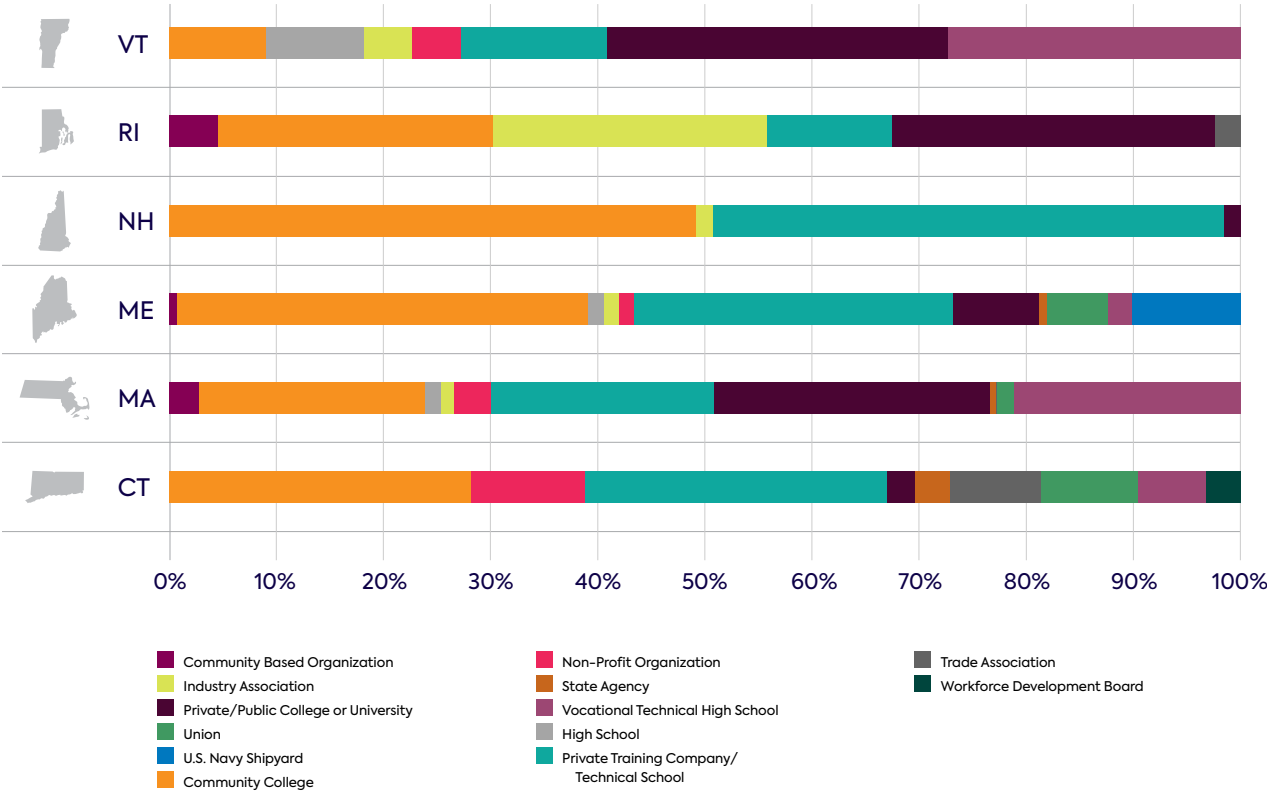
Institution Type	CT	MA	ME	NH	RI	VT
Community Based Organization	—	17	1	—	2	—
Community College	53	128	53	33	11	2
High School	—	9	2	—	—	2
Industry Association	—	7	2	1	11	1
Non-Profit Organization	20	21	2	—	—	1
Private Training Company/ Technical School	53	126	41	32	5	3
Private/Public College or University	5	156	11	1	13	7
State Agency	6	3	1	—	—	—
Trade Association	16	1	—	—	1	—
Union	17	9	8	—	—	—
Vocational Technical High School	12	128	3	—	—	6
Workforce Development Board	6	—	—	—	—	—
U.S. Navy Shipyard	—	—	14	—	—	—

Understanding the New England Workforce Development Ecosystem *continued*

Connecticut (17 programs), Maine (8 programs) and Massachusetts (9 programs) are the only three states with training programs offered by trade unions. These three states also have clean energy-related programming through state agencies. Massachusetts (17 programs) has the most training offerings through community-based organizations, followed by Rhode Island (2 programs), and Maine (1 program). Trade associations play a role in providing clean energy training in Connecticut; industry associations are instrumental in Rhode Island.¹ Nonprofit organizations offer the most programs in Connecticut and Massachusetts. The United States Navy operates the Portsmouth Naval Shipyard in Maine, which offers a total of 14 programs for individuals to complete apprenticeships or gain course credit for transfer into an associate’s degree program.

A stacked bar chart of the data from Table 3 depicts the differing spreads of assets across the state.

FIGURE 1. New England Training Programs – by institution type and state



¹ Please note that trade and industry association are not used interchangeably in this example.

Understanding the New England Workforce Development Ecosystem *continued*

The Rutgers Graduate School of Education Center for Minority Serving Institutions (MSIs) maintains a national directory of MSIs based on data from the U.S. Department of Education.² The research team used this directory to match institutions in the training inventory with clean energy-related programs. Of the nine institutions captured in the inventory, eight were community colleges.

TABLE 4. New England Minority Serving Institutions

MSI Tag	Institution Name	MSA	Number of Programs
Asian American Native American Pacific Islander-Serving Institutions (AANAPSI)	Middlesex Community College	Boston-Cambridge-Newton, MA-NH	9
	Springfield Technical Community College	Springfield, MA	13
Hispanic Serving Institutions (HSI)	Benjamin Franklin Institute of Technology	Boston-Cambridge-Newton, MA-NH	8
	Northern Essex Community College	Boston-Cambridge-Newton, MA-NH	7
	Holyoke Community College	Springfield, MA	6
	Gateway Community College	New Haven-Milford, CT	3
	North Shore Community College	Boston-Cambridge-Newton, MA-NH	2
AANAPSI-HSI	Bunker Hill Community College	Boston-Cambridge-Newton, MA-NH	10
Predominantly Black Institutions (PBI)	Roxbury Community College	Boston-Cambridge-Newton, MA-NH	15

² The Rutgers Center for Minority Serving Institutions maintains a database at: <https://cmsi.gse.rutgers.edu/>

Understanding the New England Workforce Development Ecosystem *continued*

Labor Market Influencers

State agencies and local governments will establish policies, provide leadership and set priorities that will support programs to influence labor market supply and demand. Quasi-state actors (e.g., the Massachusetts Clean Energy Center) will fund initiatives having similar influence on the labor market through investments in programs designed to promote climate and equity goals. Advocacy organizations have formed coalitions to promote state investments prior to the passage of the federal legislation. They continue to promote labor standards and environmental justice within their states. Philanthropy has funded these important efforts and will continue to direct investments to shape labor markets in New England. The sections below provide a New England-specific review of these influencers.



Clean Energy Employment Landscape

Understanding current employment of clean energy workers in New England states illustrates the impact of the supply and demand factors described above, and sets a baseline for the ongoing evolution of the region’s clean energy workforce.

New England states have long led the charge to understand the employment landscape in clean energy. Multiple New England state agencies have conducted clean energy industry reports to produce state-level job estimates. Massachusetts has the longest-running production of clean energy industry reports, but all states, with the exception of New Hampshire, have been active in developing clean energy industry reports (Table 5).

TABLE 5. Clean Energy Industry Reports: States and Years Produced

State	Years Produced
Connecticut	2019 – present
Maine	2020
Massachusetts	2010 – present
New Hampshire	None
Rhode Island	2014 – present
Vermont	2013 – present

Overview of Clean Energy Industry Employment in New England States

While Massachusetts has the highest absolute number of jobs (101,200), Vermont has the largest share of clean energy jobs in relation to statewide employment (5.4 percent) and the most jobs per capita (2.8 per 100 people). Clean energy employment across New England peaked in 2019 and 2020, except for Vermont (2017). The Covid-19 pandemic dealt a severe blow to clean energy employment across the states. Although states are currently rebounding, the recovery has been slow and will likely benefit from recent workforce development and clean energy policies and appropriations in coming years.

Understanding the New England Workforce Development Ecosystem *continued*

Employment in energy efficiency and electric power generation is consistently high across all six New England states, with energy efficiency the leading source of clean energy employment across New England. Otherwise, there is a mix of leadership in other clean energy occupations: Transportation jobs are third highest in Connecticut, Maine, New Hampshire and Vermont; grid and storage jobs are third highest in Massachusetts and Rhode Island.

TABLE 6. Summary of Key Statistics by State (2021)

	CT	ME	MA	NH	RI	VT
Total CE Employment (2021)	41,458	12,493	101,280	15,915	13,809	17,984
Percentage of Statewide Employment (2021)	2.3%	1.8%	2.8%	2.2%	2.5%	5.4%
Jobs per Capita (2021)	1.1%	0.9%	1.4%	1.2%	1.3%	2.8%
Peak CE Employment	44,094 (2019)	14,628 (2019)	111,968 (2020)	16,571 (2019)	16,348 (2020)	19,081 (2017)
Top Three Technologies (2021)	Energy Efficiency (82.3%)	Energy Efficiency (66.7%)	Energy Efficiency (69.8%)	Energy Efficiency (69.7%)	Energy Efficiency (75.9%)	Energy Efficiency (64.7%)
	Generation (8.8%)	Generation (20.5%)	Generation (18.4%)	Generation (20.6%)	Generation (15.1%)	Generation (14.1%)
	Transportation (6.2%)	Transportation (7.3%)	Grid & Storage (5.8%)	Transportation (6.9%)	Grid & Storage (4.0%)	Transportation (11.0%)

2021 Occupations by Industry in New England States

In 2021, construction jobs consistently made up more of the jobs in each state’s clean energy industry compared to other industries, ranging from 35.7 percent in Massachusetts up to 53 percent and 55.9 percent in Rhode Island and Maine respectively. Professional services occupations accounted for the second highest number of jobs in all six New England states (20.3 percent to 34.3 percent). In almost all states this means construction and professional services were between 70 percent and 75 percent of clean energy jobs, similar to the U.S.

Understanding the New England Workforce Development Ecosystem *continued*

average for clean energy. This was followed by either manufacturing or “trade,” depending on the state. Outside of New Hampshire, clean energy manufacturing underperformed relative to the national average, and overperformed in either professional services and/or “trade.” For more details on the major occupational categories in the clean energy sector, please see the supporting Priority Occupations database. This database describes each job, any need training or credentials, and the availability of associated training programs.

TABLE 7. Summary of Value Chain Occupations by State

	Agriculture and Forestry	Utilities	Construction	Manufacturing	Wholesale Trade	Professional Services	Other Services
CT	0.4%	0.2%	47.0%	7.2%	10.3%	28.9%	6.1%
ME	4.0%	1.0%	55.9%	5.3%	4.1%	20.3%	9.3%
MA	0.0%	0.2%	35.7%	9.8%	14.6%	34.3%	5.3%
NH	0.1%	0.5%	47.8%	17.0%	7.3%	23.6%	3.7%
RI	0.0%	0.3%	53.0%	6.0%	14.9%	22.5%	3.3%
VT	0.1%	1.1%	37.2%	9.0%	15.3%	31.0%	6.2%
US Clean Energy	1.3%	0.4%	48.5%	14.3%	8.0%	22.8%	4.6%
US Overall	1.1%	2.9%	12.7%	17.2%	7.9%	49.0%	9.1%

Demographics of New England Clean Energy Workforce

The clean energy industry in New England is male- and White-dominated. Male clean energy workers make up 72.1 percent to 75.5 percent of the clean energy workforce, slightly higher than the national average of clean energy workers and significantly higher than each state’s overall workforce. Hispanic or Latino workers trend higher than each state’s average, due in part to their prevalence in construction roles in energy efficiency. Asian and Black workers are a smaller share of the workforce than each state’s overall workforce.

Understanding the New England Workforce Development Ecosystem *continued*

TABLE 8. Summary of New England Clean Energy Workforce Demographics

State	Male	Female	Hispanic or Latino	Not Hispanic or Latino	American Indian or Alaska Native	Black or African American	Other Services	Native Hawaiian or other Pacific Islander	White	Two or More Races
CT	73.6%	26.4%	19.5%	80.5%	0.4%	2.8%	10.0%	0.2%	81.5%	5.1%
ME	74.1%	25.9%	4.0%	96.0%	0.5%	1.6%	2.1%	0.2%	92.8%	2.7%
MA	72.8%	27.2%	14.9%	85.1%	0.3%	3.4%	7.7%	0.3%	83.4%	4.8%
NH	72.1%	27.9%	6.0%	94.0%	0.3%	2.3%	2.3%	0.2%	92.1%	2.9%
RI	75.5%	24.5%	17.7%	82.3%	0.5%	2.4%	5.9%	0.2%	85.5%	5.5%
VT	74.1%	25.9%	4.4%	95.6%	0.4%	1.8%	2.1%	0.2%	93.0%	2.5%
US	72.5%	27.5%	16.6%	83.4%	1.4%	8.1%	8.4%	1.0%	73.3%	7.7%
2021 Overall Workforce Demographics										
CT	49.1%	50.9%	16.9%	83.1%	0.2%	4.6%	10.8%	0.0%	72.0%	6.3%
ME	49.2%	50.8%	1.8%	98.2%	0.6%	1.1%	1.4%	0.0%	92.9%	3.5%
MA	48.8%	51.2%	12.4%	87.6%	0.2%	6.9%	7.3%	0.0%	74.5%	6.5%
NH	49.8%	50.2%	4.1%	95.9%	0.1%	2.7%	1.6%	0.0%	91.0%	3.7%
RI	48.9%	51.1%	16.4%	83.6%	0.4%	3.5%	6.4%	0.1%	77.0%	6.6%
VT	49.6%	50.4%	2.1%	97.9%	0.2%	1.7%	1.3%	0.0%	92.9%	3.4%
US	49.5%	50.5%	18.4%	81.6%	0.8%	5.7%	12.6%	0.2%	68.2%	7.0%
Difference from Overall Workforce										
CT	24.5%	-24.5%	2.6%	-2.6%	0.2%	-1.8%	-0.8%	0.2%	9.5%	-1.2%
ME	24.9%	-24.9%	2.2%	-2.2%	-0.1%	0.5%	0.7%	0.2%	-0.1%	-0.8%
MA	24.0%	-24.0%	2.5%	-2.5%	0.1%	-3.5%	0.4%	0.3%	8.9%	-1.7%
NH	22.3%	-22.3%	1.9%	-1.9%	0.2%	-0.4%	0.7%	0.2%	1.1%	-0.8%
RI	26.6%	-26.6%	1.3%	-1.3%	0.1%	-1.1%	-0.5%	0.1%	8.5%	-1.1%
VT	24.5%	-24.5%	2.3%	-2.3%	0.2%	0.1%	0.8%	0.2%	0.1%	-0.9%

Role of Policy in Influencing the New England Workforce Ecosystem

New England states have a robust history of enacting policies and positioning funding to facilitate the adoption of clean energy technologies. While states vary in their commitments to divestment from carbon-intensive energy sources, the region is generally committed to developing the state's workforce to meet public policy directives and goals. States have most recently increased, or continued to maintain the level of funding and policy support needed to support workforce development at community colleges, OneStop career centers, and community-based organizations.

New England is committed to transitioning away from carbon-intensive electric power generation. Five of the six states have statutory mandates to reduce the consumption of fossil fuel-generated electricity in the next decade and have increased Renewable Portfolio Standards (RPS) to meet those goals.

Questions of equity and access are rooted in both sides of the workforce equation. On the supply side, equity underlies who gets trained, and who is able to successfully obtain the proper credentials. On the demand side, equity influences whether or not a worker will have access to high-quality jobs. Policy can influence the focus on equity and access through direct funding of workforce training, incentivizing hiring from justice-impacted communities, and by establishing accountability mechanisms that provide visibility on the participation of diverse workers in the labor market.

While New England legislation related to workforce development appropriations generally includes directives for economic inclusion and equitable access, it has not always been a focus. States have appropriated workforce development funding for formerly incarcerated individuals, justice-impacted youth, individuals with disabilities, Native Americans, veterans, and low-income individuals and communities. Maine and Massachusetts are two states that have enacted policy and made appropriations in clean energy workforce development that focus on equitable access. The Massachusetts Clean Energy Center, which will receive

The Massachusetts Clean Energy Center, which will receive \$12 million annually, has been directed to create a Clean Energy Equity Workforce and Market Development program to provide workforce training, educational and professional development, job placement, startup opportunities, and grants promoting participation in energy efficiency, clean energy, and clean heating and cooling industries.

Understanding the New England Workforce Development Ecosystem *continued*

\$12 million annually, has been directed to create a Clean Energy Equity Workforce and Market Development program to provide workforce training, educational and professional development, job placement, startup opportunities, and grants promoting participation in energy efficiency, clean energy, and clean heating and cooling industries in the Commonwealth. The Maine Climate Council has a dedicated Equity Subcommittee which has advocated for increased monitoring of job creation progress in specific populations.

Connecticut, Maine and Rhode Island have made steps to bolster the apprenticeship framework for trade occupations that will be relevant to the clean energy industry. Connecticut requires developers of all large-scale renewable energy projects in the state to establish a workforce development program which can include apprenticeships and pre-apprenticeships in the model. Maine dedicated one-time funding for the implementation of clean energy apprenticeships and youth exploration in clean energy career pathways. In Rhode Island, all renewable energy projects worth more than \$5 million with commencement dates beyond April 2023 are required to develop an approved apprenticeship program.

TABLE 9. Intersection of Workforce Development, Clean Energy and Equitable Inclusion Policies, and Appropriations

	Workforce Development						Clean Energy-Specific		
Equitable Access and Economic Inclusion	CT	ME	MA	NH	RI	VT	ME	MA	
Formerly Incarcerated Individuals	CT		MA			VT			
Justice-impacted Youth		ME			MA				
Community Colleges	ME		MA			NH			
Community-based Organizations			MA						
Apprenticeships	CT	ME	MA			VT	CT	RI	ME
Individuals with Disabilities		CT			MA				

Role of Funding and Public Investment in the New England Workforce Ecosystem

In the emerging clean energy economy, government investment is an important driver. To understand the New England funding dynamic, the research team assembled a funding inventory of 62 programs covering grants, tax credits, wage reimbursement, capital funding, and cost share programs. The following takeaways from the inventory inform thinking about, planning for, and measuring New England's clean energy business and workforce future:

- Recent federal legislation will supercharge clean energy growth, with significant labor market impacts. The Bipartisan Infrastructure Legislation (BIL) provides \$1 trillion in public investment. This is accelerating the transition to clean energy and improving the reliability and resilience of the country's electric power infrastructure.³ The Inflation Reduction Act (IRA) provides for \$369 billion in direct investments and tax incentives for climate solutions and environmental justice.⁴ Most of these dollars will be funneled through the states. This will substantially increase labor market demand, especially when it is coupled with state-level investments.
- Federal grants support a wide range of workforce development in a range of clean energy industries. In addition to new legislation such as BIL and IRA, federal agencies such as the Department of Energy, the Department of Labor, the Environmental Protection Agency, the Department of Commerce and the Department of Transportation (among many other programs) support efforts to expand and train the clean energy workforce. Most general workforce development grants made by the federal government are specifically available in New England states.
- In addition, each New England state provides many different supports for the general workforce. Examples include a wide range of grants and tax credits, bonding, wage reimbursement, training cost sharing, short-term training, economic inclusion and wraparound support, funding to increase job readiness and promote employment opportunities, and interest-free loans for tuition-free education.



LISC Boston's Building Green Jobs program. Photo credit: LISC Boston

³ Berth, Adam, Chan, Bernice, and Kaladiouk, Ksensia. One Year into the BIL: Catalyzing US Investments in Energy. *McKinsey Sustainability*. March 20, 2023. <https://www.mckinsey.com/capabilities/sustainability/our-insights/one-year-into-the-bil-catalyzing-us-investments-in-energy>

⁴ C40 Cities and Climate Mayors. Climate Action and the Inflation Reduction Act: A Guide for Local Government Leaders. October, 2022. https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000ggm5/R0tppOcJtJz8JRz_FJJEpoqEAVvF7O3zEMtCyi6z09E

Exploring High-Road Approaches in New England

The previous sections provided a snapshot of the current state-level landscape in New England. This section will add a level of granularity by examining equity in the clean energy economy in different regions of New England. The analysis begins with a high-level examination of the enabling conditions for an equitable workforce development system. The paper will then evaluate these conditions in six metropolitan areas in the region. Conclusions about enabling conditions for workforce equity were based on a set of guiding assumptions about the importance of connectivity between workforce organizations within each metropolitan area. Conclusions about the specific character of connectivity within each metropolitan area were drawn from the results of a mixture of organizational desk audits and interviews with representatives of different organizations.

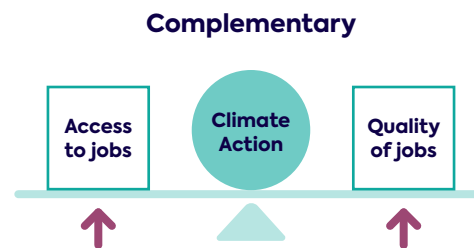
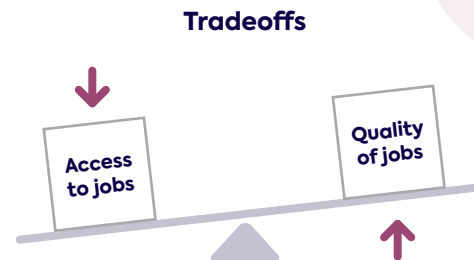
Past policy discussions have highlighted a tension between the availability of jobs (job access) and the quality of jobs. The typical story is that employers are driven by lower costs. Increasing job access requires allowing employers to pay lower wages. Job quality is often compromised to ensure employers are able to keep costs of products and services low. Labor shortages in a post-Covid world and the concurrent growth in the clean energy labor market illustrates that these trade-offs are no longer valid. Policy goals should include high-road workforce opportunities. That is, to increase access to jobs for people who need them most and others who have been historically excluded from career-track, family-sustaining employment; and to improve the quality of jobs that allow workers to be economically self-sufficient, upwardly mobile, as well as safe and healthy while at work. Access to good jobs is part of the high-road approach.

HIGH-ROAD WORKFORCE DEVELOPMENT

1 Improve the quality of jobs so that they are better able to support workers' economic self-sufficiency, upward mobility, and overall welfare including occupational health and safety.

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 is to pursue both objectives simultaneously!



Getting People into High-Road Clean Energy Careers

Four assumptions guide this assessment of the supply side. The ultimate goal is to ensure workers are trained to meet the labor market demand and placed on a path to high-road employment. The first assumption is that a well-designed supply-side system engages workers at different stages of their relationship to the labor market. Workers at different stages represent different segments of the labor market. The second assumption is that different organizations provide the necessary skills and connections to high-road careers. The third assumption is that different organizations engage workers who may be at different stages in their careers. The fourth and final assumption is that a well-functioning ecosystem leverages the different strengths of supply-side organizations by creating connections between them. Connectivity between organizations ensures alignment towards getting more workers into high-road careers in clean energy. Typically, a workforce network manager can act as a convener to facilitate connectivity between labor market supply side, demand-side organizations and market influencers to pursue high-road goals. Unfortunately, this role doesn't always exist within local workforce systems.

Engaging Workers in Different Labor Market Segments

A robust approach to workforce development requires meeting clean energy workers where they are. The labor market has different segments, each of which requires a different set of opportunities and supports to keep workers on the path to clean energy jobs. Labor market segments include new entrants who are early in their careers, typically recent high school graduates or individuals who had left high school earlier in their lives. Many are 16–24 years old; some may be older, returning workers. They are all exploring careers and need to be made more aware of clean energy careers

through, for instance, work-based learning opportunities such as internships or job shadowing opportunities, or credentialing opportunities that don't take much time. Their decision to stay with a specific pathway is based on personal connections such as a mentor who is already in a clear energy career or a group of colleagues at work. New entrants are in the middle of a decision-making process. They require the ability to opt in or opt out based on changing interests, without risking damage to their long-term prospects.

Incumbent workers constitute another market segment. These individuals have work experience and are looking for advancement through opportunities to improve their skills in order to increase their prospects for higher-paying jobs. Opportunities to acquire new skills and network with prospective employers are important to them. Their motivations include satisfaction and compensation. These individuals may have families and need to pay bills. This motivation to improve their career prospects informs their decision-making.

Suppliers or contractors represent another segment of the labor market. These are business-people who are looking for immediate business opportunities. They have likely already invested time and money in skills development. They may participate in training if a clear set of business opportunities is associated with it. The key supports for them are connected to building their businesses, including access to capital or enhancements to business capacity such as marketing or back-office support. Table 10 summarizes these segments.

Many are 16–24 years old; some may be older, returning workers. They are all exploring careers and need to be made more aware of clean energy careers through, for instance, work-based learning opportunities such as internships or job shadowing opportunities, or credentialing opportunities that don't take much time.

Exploring High-Road Approaches in New England *continued*

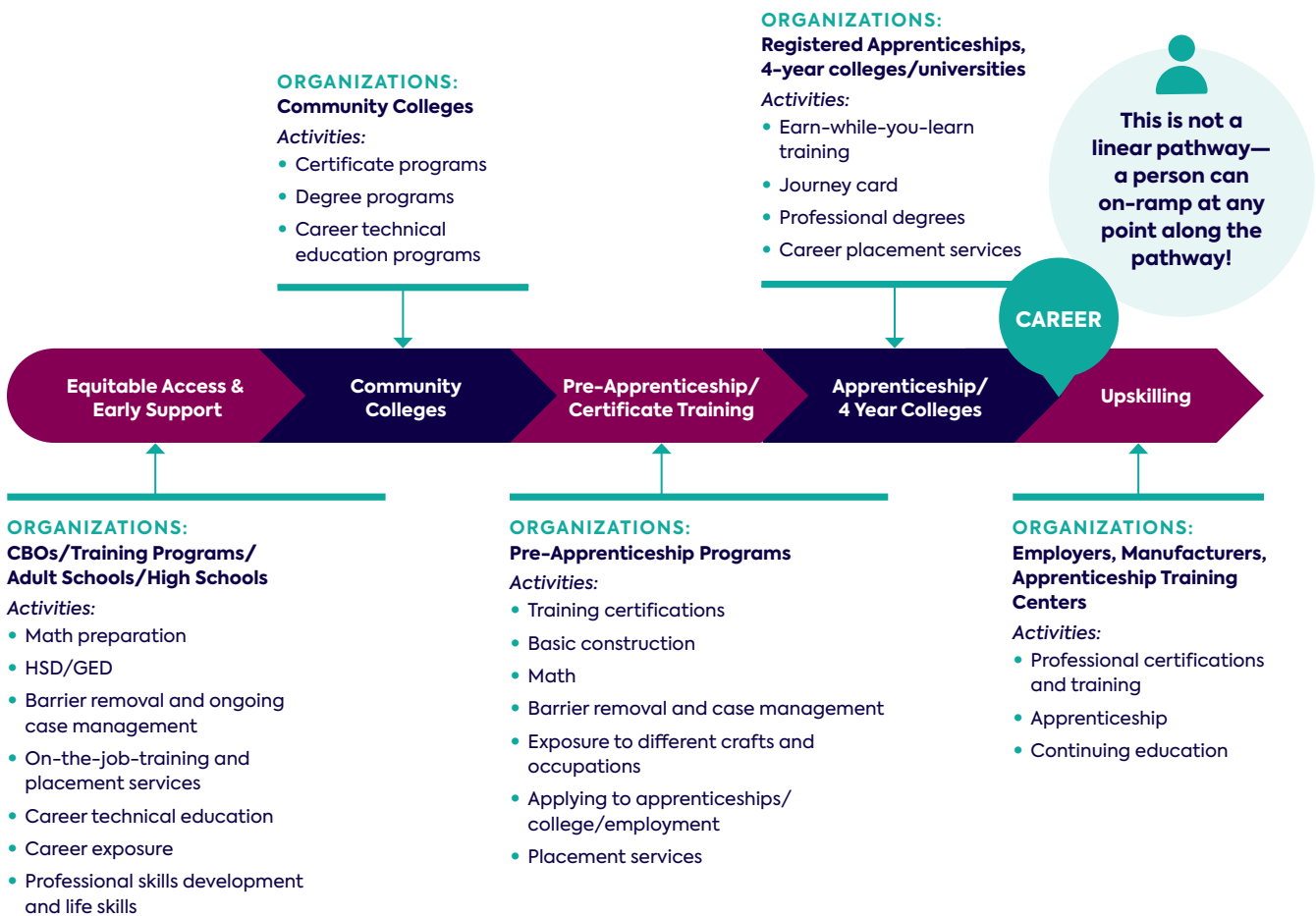
TABLE 10. Different Labor Market Segments Require Different Opportunities and Supports

Labor Market Supply Segment	Sample Groupings	Opportunities	Supports
New Entrants	High School Students, Returning Citizens, Opportunity Youth	Career awareness	Mentoring
		Short-term credentialing opportunities	Cohort engagement in teams or groups
		Work-based learning	Transportation Stipends
Incumbent Workers	Experienced Workers Changing Careers	Low-cost/no-cost training opportunities	Access to work with benefits (e.g., healthcare)
		Networking	Access to employers who need workers
		Increases in pay commensurate with skills development	
Suppliers	Minority Disadvantaged and Woman- and Veteran-Owned Firms	Training connecting directly to project opportunities	Access to capital
		Networking	Prompt payment
			Supports with bonding insurance
			Orientation to procurement processes

The Clean Energy Pathway: Different Points of Entry, Different Levels of Development

According to the Urban Institute, a local workforce system is a set of organizations and activities that prepares people for employment, helps workers advance in their careers, and ensures the existence of a skilled workforce to support local industry.⁵ Access to high-road clean energy careers requires a well-functioning local workforce system. This section provides a conceptual picture of a clean energy career pathway and the important set of organizations that should be included in this effort. While this is presented as a linear pathway, it is not linear in real life. Individuals enter the pathway based on their position within the labor market. They also exit the pathway and re-enter at a different point when they are ready to do so.

HIGH-ROAD CLEAN ENERGY WORKFORCE PATHWAY



⁵ Eyster, Lauren, Durham, Christin, Van Noy Michelle, Damron, Neil *Understanding Local Workforce Systems*. Urban Institute. March, 2016 https://www.urban.org/sites/default/files/publication/78496/2000648-understanding-local-workforce-systems_1.pdf

Exploring High-Road Approaches in New England *continued*

Early support provides opportunities for new entrants to get onto the career pathway. Early support is offered by community-based organizations, vocational technical schools (or career and technical education institutions), training programs, adult education initiatives, and traditional high schools. The emphasis is on providing exposure to clean energy careers, and ensuring individuals have basic math, sufficient literacy attainment and have work readiness skills, all of which are essential to be successful in a work setting. Individuals may earn a high school diploma, GED or another high school equivalent diploma. Individuals may need support services such as assistance with transportation, counseling or assistance meeting their basic needs. Support services may need to continue during the later stages, but greater emphasis is placed upon these needs at this stage. The goal is to ensure individuals are work/career-ready and to gain exposure to career options through job shadowing or internships.

The next stage on the pathway placed greater emphasis on acquiring the technical skills to earn a credential that qualifies individuals for entry-level employment in clean energy. Technical and community colleges offer training for credentials that can be completed in a matter of weeks or in more than two years. Individuals who are successful in this stage have a solid foundation in work readiness skills and possess the math and literacy skills to earn a credential. After completion of the coursework, these individuals are prepared for employment. They may then choose to acquire additional training. Gaining additional qualifications may not be necessary if the educational institution has connections with employers willing to hire credential holders.

Pre-apprenticeship programs are designed to provide support, skills enhancements, and access to apprenticeship training programs. While pre-apprenticeship programs have been around for a long time, the United States Department of Labor codified a set of program strategies for quality pre-apprenticeship,⁶ including approved curriculum based on industry standards, supportive services to help individuals complete the program, and facilitated entry into registered apprenticeship. Some federally funded programs such as YouthBuild and Job Corps are designated pre-apprenticeship programs. Other pre-apprenticeship programs have been developed by union building trades councils in Massachusetts, Rhode Island, Connecticut and Maine. The goal of these programs facilitates individuals'

Pre-apprenticeship programs have been around for a long time and include approved curriculum based on industry standards, supportive services to help individuals complete the program, and facilitated entry into registered apprenticeship.

⁶ United States Department of Labor. Explore Pre-apprenticeship. <https://www.apprenticeship.gov/employers/explore-pre-apprenticeship>

Exploring High-Road Approaches in New England *continued*

entering into apprenticeship programs. The pre-apprenticeship was designed as a strategy to prepare individuals from under-represented groups including people of color and women for registered apprenticeship.

Apprenticeship programs are sponsored by unions, business associations or individual employers. Like four-year colleges, apprenticeships focus exclusively on the development of professional skills. Individuals may need to take qualifying exams to enter training. There might also be waiting periods to join training programs. An apprentice who completes training has a nationally recognized credential as a journey worker in the trade. This credential is similar to a college degree. Individuals who complete these parts of the pathway are involved in careers in clean energy although they may avail themselves of other upskilling opportunities during the course of their careers.

The Importance of Connectivity Between Organizations Along the Pathway

Addressing the challenge of increasing the number of people of color and women in the clean energy economy is a function of aligning the organizations and activities across the career pathway. Each organization has to play its part by offering high-quality programs and services while being connected to other organizations along the pathway. Additionally, the entire pipeline has to be up to date with shifts in the labor market. Workers may need to acquire new skills to meet credentialing requirements or learn how to operate new equipment used by their employers. Aligned programs and services ensure that individuals at an earlier point in the career pathway have the requisite knowledge, skills, and aptitudes to enter and succeed at the next point on the pathway. This is one level of success within a well-functioning workforce development system.



LISC Boston's Building Green Jobs program. Photo credit: LISC Boston

Exploring High-Road Approaches in New England *continued*

Another element of success is naming and addressing sources of marginalization. Structural constraints have created conditions of environmental injustice and curtailed the ability of people of color and women to thrive in the labor market. Only when these collaborative efforts “take the time to understand who is marginalized and what and how they are experiencing marginalization, and, after investigation, take targeted action to create policies, practices and institutions that address current and historic inequities, will these communities be liberated to achieve their full potential.”⁷

Success also depends on systems-level change. The literature on collective impact articulates what’s required of these efforts to succeed. Collective impact is defined as “a network of community members, organizations, and institutions that advance equity by learning together, aligning, and integrating their actions to achieve population and systems-level change.”⁸

The literature identifies six essential conditions for equity-centered collective impact:⁹

- **A common agenda**, shaped by collectively defining the problem and creating a shared vision to solve it.
- **Shared measurement**, based on an agreement among all participants to track and share progress in the same way, which allows for continuous learning, improvement and accountability.
- **Mutually reinforcing activities**, integrating the participants of different activities to maximize the end result.
- **Continuous communication**, which helps to build trust and forge new relationships.
- **A “backbone” team**, dedicated to aligning and coordinating the work of the group.
- **Centering equity** by assessing disparities in opportunities, outcomes, and representation and addressing those disparities through targeted actions.

We use the term “connectivity” to describe local practices and partnerships that align with the characteristics of equity-centered collective impact. The following rubric gauges connectivity among career pathway organizations.

⁷ Kania, John, Junious Williams, Paul Schmitz, Sheri Brady, Mark Kramer, and Jennifer Splansky Juster. “Centering Equity in Collective Impact.” *Stanford Social Innovation Review* 20, no. 1 (2021): 40. <https://doi.org/10.48558/RN5M-CA77>.

⁸ *Ibid.*, page 38.

⁹ *Ibid.*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager AKA “Backbone Team”	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

A granular view of connectivity within career pathways requires a view of organizations at the metropolitan level.

Supporting Equitable Workforce Development at the MSA Level

Why Metropolitan Statistical Areas (MSAs) Are Important

To create actionable solutions to the problem of diversifying the clean energy workforce, one needs to understand workforce development within metropolitan areas. The United States Office of Management and Budget defines MSAs as standardized county or equivalent-based areas having at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core, as measured by commuting times.¹⁰ Most of the activity within labor markets occurs within metropolitan areas, where workers receive training and become connected to opportunities. Workers often commute to jobs within the boundaries of metropolitan areas, which are often across city, county, and state lines.

Additionally, the federally funded workforce development system is organized within metropolitan areas. American Job Centers funded the Workforce Innovation and Opportunity Action (WIOA) of 2014 which provides a variety of services to individuals within metropolitan regions. These services are typically offered in conjunction with government agencies, community-based organizations and educational institutions and employers. Employment opportunities are more likely to exist within metropolitan areas. Each local workforce system is different, so an analysis of career pathways within metropolitan areas provides a more textured picture of the character of the workforce system and a roadmap of potential place-based strategies to enhance pathways into clean energy.

Finally, the problem of increasing diversity can be addressed more directly when there is a picture of the relationships with a metropolitan area. A geo-spatial analysis of the location of disadvantaged communities in relation to training and employment opportunities in provides additional insights about access to clean energy pathways. With this analysis, resources at the metropolitan level can be targeted to address factors that impede access to quality jobs.

With this analysis, resources at the metropolitan level can be targeted to address factors that impede access to quality jobs.

¹⁰ Bureau of Economic Analysis, *How is a metropolitan area defined?* <https://www.bea.gov/help/faq/459> January 10, 2008, page last modified April 25, 2010.

Exploring High-Road Approaches in New England *continued*

Methodology

Six MSAs were prioritized for this study. Priority locations were identified in consultation with the Barr Foundation Climate Team. A geospatial analysis of MSAs was used to identify the most disadvantaged locations in terms of social and economic vulnerability and exposure to environmental risk factors. The geospatial analysis calculated an Environmental Justice (EJ) Index across the six New England states. This analysis applied the US Environmental Protection Agency (EPA) EJSCREEN for calculating the EJ index by combining demographic and environmental indicators, to represent historically underrepresented communities that are vulnerable to an environmental pollutant. In this case, the analysis used particulate matter as it is closely related to fossil fuel combustion for electricity. The following demographic indicators are used to define historically underrepresented communities:

- Minority Population
- Low Income
- Less than a High School Education
- Non-English-Speaking Households
- Unemployed Population

The team then used existing Barr grantees to narrow down the final set of MSAs for case studies. Emerald Cities Collaborative conducted a total of 37 interviews with representatives from different organizations within each priority MSA.

Interviews included stakeholders across the six regions in the following categories:

- Industry Representatives and Businesses
- Advocacy and EJ Organizations
- Community-based Organizations
- Community Colleges and Technical Colleges
- Pre-apprenticeship and Apprenticeship Programs
- State Building and Construction Trades Councils
- State Organizations and Leaders

Exploring High-Road Approaches in New England *continued*

Interviews focused on awareness of clean energy career pathways, the activities that prepared individuals for those career pathways, and the types of formal or informal partnerships each organization had with others in the workforce ecosystem. The way these partnerships were described led to inferences about the degree to which the organization was connected to others. Connectivity was an important indicator of the effectiveness of the workforce ecosystem. Indicators of connectivity included:

- The number of public-facing partnerships the organization had in place. These partnerships were identified through the interviews and by examining the websites of these organizations.
- Descriptions of memoranda of understanding, articulation agreements or other formal statements of agreements with other organizations situated in the workforce ecosystem.
- Descriptions of referral networks where the organization either gained participants from others or where the organization referred participants out.

Additional information about local policy contexts and information about organizations where representatives could not be interviewed were obtained through online desk audits. For a full description of results for each metropolitan area, please see Appendix 2.

Summary of Results: Locations, Themes, and Connectivity

Six metropolitan areas were selected for analysis:

- **New Haven–Milford (Connecticut)**
- **Hartford–East Hartford–Middleton (Connecticut)**
- **Portland–South Portland (Maine)**
- **Boston–Cambridge–Newton (Massachusetts–New Hampshire)**
- **Providence–Warwick (Rhode Island–Massachusetts)**
- **Springfield (Massachusetts)**

There are similarities among these metropolitan regions. All of the metropolitan regions had workforce development agencies. Community colleges and in some cases, technical colleges were operating within these locations. Early support programs and services that appeared to operate in each region included federally funded programs such as YouthBuild and Job Corps or community-based efforts designed to assist special populations like returning citizens. There were also pre-apprenticeship programs. There were variations in the level of connectivity between organizations and the ways in which the staff at these organizations described their

Exploring High-Road Approaches in New England *continued*

operations. These variations led to highly impressionistic conclusions about the different characteristics in each of the metropolitan areas that would require deeper analysis of each MSA to provide sharper and more conclusive evidence of connectivity.

A few cross-cutting themes emerged from demand-side and supply-side actors. Across regions there were both strengths that led to access to quality jobs for people of color and women and challenges that impeded job quality and access for people of color and women.

High-level Themes Across Metropolitan Areas: Supply-Side

Supply-side organizations are preparing workers for clean energy jobs in the labor market. These themes emerged across metropolitan areas.

STRENGTHS

- New England has a variety of workforce training assets: workforce training programs, community college programs, community-based organizations, pre-apprenticeships, and apprenticeships.
- Across the region there are varying degrees and character of linkages between organizations at different points along the career pathway.
- Most interviewees articulated commitments to diversifying the clean energy sector and increasing access for underrepresented populations.
- There are shining examples of organizations and partnerships working to increase diversity and accessibility, such as partnerships between community-based organizations and industry, Project Labor Agreements/Community Benefit Agreements, and strong pre-apprenticeship programs, and environmental justice coalitions.
- State-level clean energy initiatives generate demand for regional partnerships and workforce programs.

CHALLENGES

- There is little exposure to, cultivation of, and preparation for clean energy jobs for new entrants. Many supply-siders felt this should take place at the secondary school level.
- Entry-level residential weatherization jobs place workers in difficult working conditions, making retention challenging.

Exploring High-Road Approaches in New England *continued*

- There is a perception that clean energy jobs are generally inaccessible to people with records and some employers view the presence of formerly incarcerated persons as an insurance liability.
- The perception that unions are discriminatory makes inclusion and access difficult to achieve.
- Support services were important across the career pathway. Lack of childcare, lack of transportation, and application fees erect barriers to employment and retention. Some organizations have devised creative strategies to address these issues. In other cases, these were persistent barriers that kept individuals from participating in training programs.
- There is a lack of understanding by workforce ecosystem organizations about what clean energy jobs actually are, and hence, how to connect job seekers to these opportunities.

High-level Themes Across Metropolitan Areas: Demand Side

These themes included employers and market influencers such as state officials.

STRENGTHS

- The local, state, and federal policy landscapes are favorable to clean energy investments and drive demand.
- Most high-road clean energy jobs are in the union construction trades, which focus on equitable access for underrepresented populations through Community Benefit Agreements, pre-apprenticeships, and other initiatives.
- Many jobs are currently available in the energy efficiency sector and their number is projected to grow.
- Many advocacy groups, including EJ organizations, are working on equitable clean energy policies across the region.
- There are shining examples of industry leadership driving equity initiatives across the region. For example, the offshore wind industry in Rhode Island is partnering with Building Futures—a local community-based workforce organization—and the Community College of Rhode Island to create an offshore wind credential.

ILLUSTRATIVE CASE:

Offshore Wind Industry in Rhode Island Accountable to Diversity Equity and Inclusion Measures



Building Futures RI recently joined a partnership with the Community College of Rhode Island, the Rhode Island Department of Labor and Training, the Rhode Island Commerce, and the Rhode Island Building and Construction Trades Council to establish the state's first Global Wind Organization (GWO) training certificate program,¹¹ geared to the education and training of offshore wind workers for burgeoning projects near the ports.

As one of the leading national leaders in offshore wind, the state is continuing its efforts by growing the offshore wind industry in the ports of Providence. The prioritization of this industry by the city and state will provide an economic and workforce development opportunity for environmentally impacted communities near the ports. Efforts for long-term procurement of wind generation include baseline requirements for labor standards, and equity and inclusion measures. Project developers are mandated to submit DEI plans that at minimum propose a strategy that “enables access to employment and vendor opportunities for historically marginalized communities.”¹² Such policies demonstrate a commitment to workforce equity and supplier diversity.

CHALLENGES

- Meeting clean energy goals will be a challenge given the lack of workers.
- Poor job quality and the structure of incentive programs for residential energy efficiency markets undermine economic opportunities. Incentive programs make it difficult for low-to-moderate income households to access energy efficiency and weatherization services. This depresses demand.
- There are barriers to weatherization/retrofit uptake and funding in low-to-moderate income households due to asbestos, knob and tube wiring, vermiculite, mildew, roofs in disrepair, rebate programs, and tenant-owner issues.

¹¹ <https://www.ri.gov/press/view/44112>

¹² <https://legiscan.com/RI/text/S2583/id/2592036>

Exploring High-Road Approaches in New England *continued*

- There is a timing inconsistency between training for and availability of jobs. Most of the jobs in offshore wind will be available in five years. While establishing training programs now ensures the infrastructure for job training is in place, workers who obtain the appropriate credentials sooner have to wait for these opportunities to materialize. This is a disincentive for workers. There is a similar timing problem on the pathway from pre-apprenticeship to registered apprenticeship. Graduates of pre-apprenticeship programs sometimes have to wait for openings in union-sponsored apprenticeships.
- There are varying levels of understanding about the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) opportunities and a lack of capacity to respond to the opportunities.
- Macroeconomic concerns around inflation, etc. are causing some developers to walk away from or pause projects, and/or depress wages.
- There is a continuing and widespread lack of understanding around DEI, especially in the construction industry.

Photo credit: Kathryn Wright



Connectivity Assessment by MSA

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

High-level Impressions

In Massachusetts, the connectivity within the Boston and Springfield MSAs seemed quite different. Boston appeared to include a series of connected organizations operating in parallel. In each case, one organization performs an important organizing function by working with other organizations at earlier stages on the pathway and either with employers or other organizations further along the career pathway. We describe these organizations as “nodes” within the ecosystem.

For example, Building Pathways is a node. It is a pre-apprenticeship program that has a database of 500 organizations as referral sources. Building Pathways has organized an Integrated Supply and Demand Strategy with workforce organizations further along the career pathway. Its executive director sits on the executive committee of the Building and Construction Trades Council of the Metropolitan District to gauge the demand for apprentices and potential placement opportunities for graduates of the pre-apprenticeship program. Building Pathways is working directly with employers—signatory contractors—to create inclusive workforce environments for diverse apprentices by delivering the RISE (Respect, Inclusion, Safety and Equity) curriculum to help signatories address cultural biases and increase representation at all levels of their companies. The curriculum helps employers create safe workplaces by addressing implicit bias and microaggressions. The Building Trades Council has negotiated with signatories to incorporate the curriculum into their DEI efforts. The Building Pathways program has articulation agreements with institutions like Franklin Cummings Technical College. Finally, they support caregivers through a partnership with Community Labor United, an advocacy organization, that offers early morning child care services that accommodate the schedules of construction workers. Taken together, the integrative function of these activities supports diverse individuals along the career pathway into the building and construction trades.

Taken together, the integrative function of these activities supports diverse individuals along the career pathway into the building and construction trades.

Exploring High-Road Approaches in New England *continued*

There are other nodes in the **Boston metropolitan area**. Both utilize referral networks and direct connections to employers. One node is Roxbury Community College whose workforce development unit has partnered with employers to develop short-term credentialing opportunities for students. Because these credentials are developed with employers, students are placed with employers upon receiving the credential. These credentials take a few weeks to a few months to obtain, making it easy for students to transition into the labor market and resume training and educational opportunities at the college once they're ready. Referrals are community-based organizations and Madison Park Vocational Technical High School. The other node, Franklin Cummings Tech, also has direct ties with employers. It leverages the resources of community-based organizations to provide support services to students who need them. In both cases, the integrative function stems from their connections to community-based organizations to provide referrals and support services and their ties to employers who view both institutions as reliable partners providing much-needed talent.

One node is Roxbury Community College whose workforce development unit has partnered with employers to develop short-term credentialing opportunities for students.

The level of connectivity among organizations in the **Springfield Metropolitan Area** was unclear. While organizations reported good results connecting students to employers, their utilization of other organizations at earlier points on career pathways seemed vague. At Springfield Technical Community College, for example, staff attributed their success to strong word of mouth within the community and a robust network of employers and alumni business owners that has been developed over the past 60 years. After interviewing key staff at several organizations, it appeared they knew about each other's activities but no one described partnerships with other organizations, making it difficult to assess connectivity within this metropolitan area.

In **Connecticut and Maine**, much of the connectivity seemed driven by state-level actors. In Connecticut, the Connecticut Roundtable on Climate and Jobs was involved in state-level advocacy efforts and worked with local organizations in specific metropolitan areas within the state. The Roundtable described a coalition of groups in Hartford, for example, working on a Healthy Schools Initiative. The Roundtable appeared to be less intensely involved in New Haven, for example, where we were unable to form any impressions about connectivity. In Maine, the Maine State Building and Construction Trades Council touted its relationships with immigrant groups and traditional civil rights organizations. They also participated on the Governor's Climate Council where they are advocates for high-road employment opportunities in the

Exploring High-Road Approaches in New England *continued*

wind and solar industries. The Maine State Buildings and Construction Trades Council ran pre-apprenticeship programs and recently worked with community-based organizations to assemble their first cohort since COVID.

In **Rhode Island**, Building Futures appeared to be a reliable pipeline to the Rhode Island Building Trades in communities of color. Eighty percent of their participants were people of color. Building Futures were forging ties with the Community College of Rhode Island and had connections with state officials. Yet, the system seemed quite different when environmental justice advocates described their experience. A group of organizations seemed to be in the network and another group seemed to be out of the network. That said, everyone viewed the Departments of Labor and Energy positively as collaborative partners.

The chart below provides a snapshot of the manifestation of connectivity within the metropolitan areas.

TABLE 11. Connectivity Characteristics at the Regional Level: A Snapshot

	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

Discussion: From Connectivity to Equity-centered Collective Impact

In at least two cases, there appeared to be potential for closer collaboration that could move towards equity-centered collective impact. In these cases, state-level activity was palpable. Work at the state level helped influence the labor market demand. This sent strong signals to local actors within workforce systems in these metropolitan areas to organize. Also, state agencies actively facilitated collaboration, acting as trusted brokers.

In Connecticut, the Office of Workforce Strategy (OWS), funds pre-apprenticeship programs across the state and maintains a shared database of job seekers and workers participating in OWS programs.

Collaborations within the Hartford metropolitan area are evident with Hartford Community College's construction and trades program offering apprenticeships, and certificate and degree programs. The program is located in Hartford's Leading Edge Training Center Powered by the Ratcliffe Foundation which has been placed at the Boys & Girls Clubs of Hartford & Cecil Counties. As a result, the community college has a satellite site located within a disadvantaged community and is able to offer supportive services that people from impacted communities need to succeed. Hartford's activity anchors the Connecticut Roundtable on Climate and Job Healthy Schools Initiative where it serves as the backbone organization to assist Hartford public schools reduce carbon emission by ensuring all new school construction is net zero, and existing schools are retrofitted to meet energy efficiency standards.

Rhode Island's Department of Labor was often cited as a potential coordinator of the ecosystem's supply- and demand-side organizations. The office has existing relationships with labor organizations and community-based organizations.

In Providence, Building Futures has established a partnership with Community College of Rhode Island to create a credential for offshore wind. Given their extensive community network, they are poised to play an important role in knitting key organizations together to move women and people of color into the burgeoning offshore wind industry.

In both cases, organizations within these metropolitan areas are taking leadership by seeking connections that will increase the number of people of color and women working in clean energy. In both cases, there are connections with state agencies committed to workforce development. While collective impact efforts go much deeper, the leadership and proximity to state actors hold potential.

Achieving equity requires an intentional approach

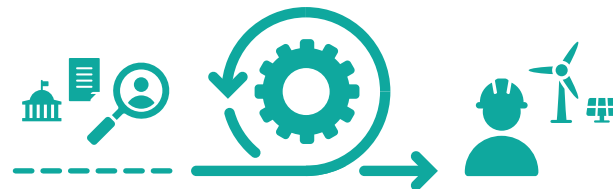
Achieving equitable access to clean energy career pathways requires an intentional approach. Again, the collective impact literature provides some insight into what it means to be intentional about achieving equity. According to the authors of the Stanford Social Innovation review, “Centering Equity in Collective Impact,” achieving equity requires a focus on systems change, in addition to programs and services.¹³

Systems change is an often-discussed but little-understood concept. There are three levels of explicitness.

1 First is the level of **structural change**: shifts in policies, practices and resource flows. This level is explicit, in that people engaged in the system can readily identify these conditions.

2 Second, is the level of **relational change**—specifically the relationships and connections, and power dynamics among people or organizations. This level tends to be semi-explicit in that sometimes people can see these dynamics and sometimes they happen out of sight of some players in the system.

3 The third level of systems change is **transformative change**—the mental models, worldviews, and narratives behind our understanding of social problems. This level is typically implicit in the effort but has the most power to guide individual and system behavior over the long term.



If systemic issues are not addressed, the status quo and growing economic inequality will be inadvertently reinforced and inequitable access to high-quality clean energy jobs will persist.

¹³ Ibid., page 42.

Improving Entry Points and Pathways for MWBEs

Earlier, suppliers were mentioned as a segment of the labor market supply chain. These suppliers include minority- and women-owned businesses focused on energy auditing, architecture, engineering and construction. These businesses have the potential to contribute to addressing labor market demand and can offer opportunities to workers from disadvantaged communities, including people of color and women. In addition to their potential to employ a diverse workforce, they can be a vehicle for building community wealth. At the same time, they face a unique set of challenges:

- Capacity challenges related to business operations, back-office capability and leadership
- Accessing capital including securing loans, for working and operating capital, and extending lines of credit
- Lack of awareness of and access to business opportunities in clean energy

The focus on integrating MWBEs into the clean energy sector varies widely. On one hand, some organizations are interested in supporting business activity, but have no sense of how to do so. On the other hand, there are some promising early-stage efforts, particularly in Massachusetts.

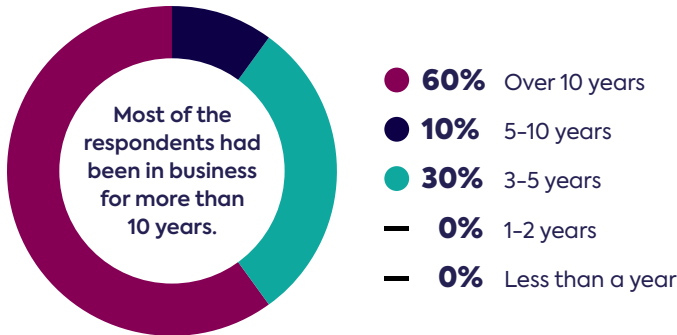
To characterize the challenges and opportunities for MWBEs, the research team surveyed MWBE contractors directly and conducted interviews and roundtables with regional business support organizations. This section begins with an overview of the results from a survey of contractors. Although the sample is small, some consistent themes emerged that resonate with the experiences of contractors in other parts of the country. These results are complemented by interviews with staff at organizations working to help minority- and women-owned businesses address these challenges.

Survey Overview: Themes and Recommendations

Two hundred contractors based in New England were contacted to complete a survey. The contractors were identified from supplier diversity lists in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The response rate was 4.5 percent. Most of the respondents were general contractors, including insulators, renewable energy and others. Others were involved in installation, engineering, heating and cooling (HVAC), and electrical trades.

Most of the respondents had been in business for more than 10 years.

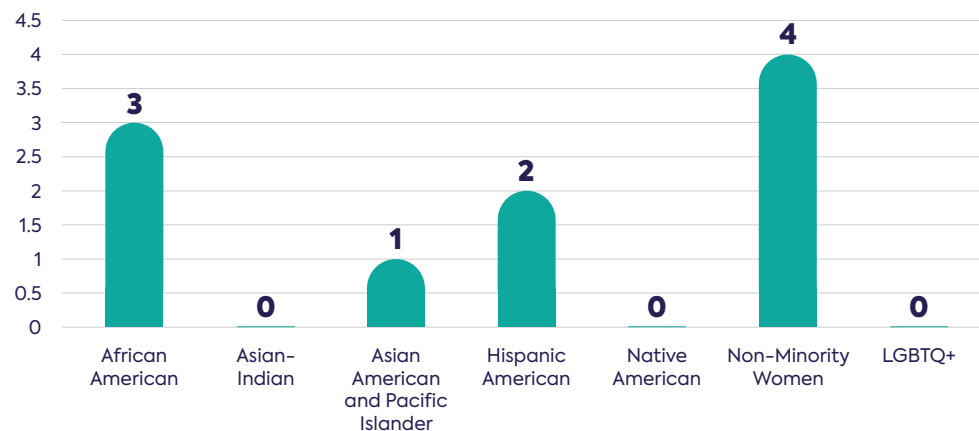
FIGURE 2. Results from the MWBE survey. How many years have you been in business?



Most of the respondents described themselves as non-minority women. The second-highest number of responses described themselves as African American, followed by Hispanic American.

FIGURE 3. Survey results on business classification.

What is your diverse business ownership classification? (Select all that apply.)



Improving Entry Points and Pathways for MWBEs *continued*

While most respondents indicated some familiarity with skilled trades in clean energy and energy efficiency, most reported being either somewhat or not at all familiar with business opportunities in their areas. **This suggests that awareness of the clean energy and energy efficiency space is a challenge.**

However, more than half reported having worked on a clean energy or energy efficiency project in the past five years. This suggests that while respondents are not participating in opportunities in their immediate areas of operations, they are moving to other parts of the region or outside of the region to work on projects.

Themes from the Survey

Lack of guidance and difficulties with government procurement processes:

In the survey, most respondents reported lack of guidance as a clear barrier to accessing business opportunities. The survey asked, ***What challenges have you and other contractors had accessing opportunities?***

Answers included:

“Not aware of opportunities.”

“Lack of information available.”

“Lots of red tape. Little or no guidance.”

“No access to bidding opportunities in the state.”

Issues related to certification or procurement challenges:

In responding to this question, a contractor in the energy generation space indicated,

“**[There is] no clear procurement for our services.**”

Another contractor cited challenges getting certified in Energy Management, but having difficulty obtaining certification from the State of Massachusetts Department of Capital Asset Management and Maintenance (DCAMM),

“**With DCAMM, we can only be certified in Energy Management which is a broad umbrella area. We could be doing mechanical and electrical but can't get certified [because DCAMM] requires a trade license for that.**” The respondent added that “**most [municipal governments] don't list under Energy Management.**”

Improving Entry Points and Pathways for MWBEs *continued*

Contractor Recommendations to Address Challenges

The survey also asked MWBEs contractors for suggestions on how to address the challenges:

What it will take to grow a greater proportion of your business in the clean energy and energy efficiency marketplace?

MWBE Awareness:

A few respondents pointed out a need for increased awareness:

“An awareness campaign [for MWBE about the business opportunities].”

Another responded,

“...I believe...education, government incentives, and marketing [will increase the participation of minority contractors].”

Others noted the importance of awareness campaigns.

Technical support:

A remaining set of suggestions focused on improving connectivity to opportunities. Access to bidding processes and assistance with paperwork were recommended by two contractors.



Improving Entry Points and Pathways

for MWBEs *continued*

Perspectives from Business Support Organizations: Business Capacity and Leadership Capacity as Related Challenges

These issues resonate with staff of organizations that support contractors in the New England region and in other parts of the country. Bonding and insurance and access to capital pose additional challenges to market entry.

According to staff within these organizations, challenges of procurement and paperwork are proxies for a broader set of challenges related to the back-office capacity of small and mid-sized contracting firms. This is particularly pronounced for small contractors with revenues of less than \$2 million. Business owners often lack systems of invoicing and business accounting. This creates a barrier to business growth. This particular challenge makes it difficult for these businesses to access capital to grow their businesses since banks extending credit require financial statements to determine the liquidity of the business.

In addition to challenges related to business capacity, leadership capacity is another challenge. According to one observer, “Contractors have to make the leap from working for their businesses to working on their businesses.” Business owners who see themselves as strategy leaders who are in charge of business growth and associated issues such as pricing, marketing their services, and networking to secure contracts are able to grow more easily into the clean energy market. They provided examples of business owners who were able to make this leap and substantially increase revenues.

Hire360

A one-stop-shop for scaling diverse businesses in the construction industry

Chicago has a sizable pipeline of upcoming construction projects in Chicago worth roughly \$100 billion over the 10 to 15 years. Hire360, developed in 2019, is an innovative partnership between local developers, general contractors, and labor unions. The partnership has four interconnected initiatives: youth engagement, workforce development, diversifying contractors, and diversifying supply chain companies. Hire360’s diversifying contractors initiative helps small business contractors from diverse backgrounds scale up their companies, free of charge. These contractors have access to a pool of working capital they can use as collateral in their loan applications. Hire360 has helped about 24 contractors update their books so they could qualify for insurance and loans that would help cover payroll, material, and other business development costs.

Improving Entry Points and Pathways for MWBEs *continued*

Hire360 *continued*

A one-stop-shop for scaling diverse businesses in the construction industry

Approximately 20 of the contractors Hire360 has worked with have gone union. Similarly, for developing supply chain companies, Hire360 aids interested business owners from diverse backgrounds with obtaining loans, partnerships, certification, and other needs. These Hire360 initiatives allow these businesses to participate in big construction projects that they otherwise would have been excluded from due to capacity limitations. Hire360 highlights the value of partnerships among unions, communities, and construction businesses to break down barriers to economic opportunity for underserved groups.

The Business Support Ecosystem in New England

Many organizations are part of New England's business support ecosystem. The geographic scope of these organizations varies. Some organizations are located within a city or neighborhood. Others are based in metropolitan areas. Still others have a geographic scope that is within a state or the New England region. These organizations focus either on capacity development, focusing on building business and leadership capacity or provide possible business opportunities for smaller contractors.

Capacity development organizations

These organizations offer technical assistance and access to capital so that smaller businesses can grow.

- **Small Business Development Centers:** Small Business Development Centers (SBDCs) work closely with the Small Business Administration (SBA) to provide existing and new businesses with capacity-building opportunities. They deliver business planning and other technical assistance related to business planning for start-ups, expanding businesses, and succession planning. To be eligible for SBA loans, businesses must complete business plans. There is a total of 84 SBDCs, including State and Regional Lead Centers in the six New England states. Contractors have opportunities to work with the SBDCs to write business plans and be eligible to apply for SBA loan programs.

Improving Entry Points and Pathways for MWBEs *continued*

- **Community Development Financing Institutions:** Community Development Financing Institutions (CDFIs) provide capital and capacity technical assistance to businesses. These organizations have a portfolio of financial assistance products for small businesses. According to cdfifund.gov, CDFIs provide tailored resources and innovative programs that invest federal dollars alongside private sector capital. Fifty-nine CDFIs are doing business in the six New England states.

A desk audit suggests many CDFIs provide services to contractors. According to interviews, CDFIs are still in the early stages of developing financial products for contractors seeking to do business in the clean energy space. Others are applying existing products to assist contractors. For example, the Boston Impact Initiative offers a loan product to provide operating capital against existing contracts. This allows contractors to make necessary purchases of equipment, for example, to fulfill the contract and repay the loan once they have been paid.

Organizations facilitating demand

The following types of organizations can provide contracting opportunities to MWBEs focused on doing business in the affordable housing market.

- **Community Development Corporations:** Community development corporations (CDCs) are 501(c)(3) nonprofit organizations that are created to support and revitalize communities, especially those that are impoverished or struggling. CDCs often deal with the development of affordable housing and providing project opportunities to minority contractors. According to Cause IQ.com, there are 698 CDCs in New England with 292 based in Massachusetts.¹⁴



LISC Boston's Building Green Jobs program. Photo credit: LISC Boston

¹⁴ CauseIQ. Massachusetts Community Development Corporations. Reviewed: April, 2023. <https://www.causeiq.com/directory/community-improvement-organizations-list/massachusetts-state/>

ILLUSTRATIVE CASE:

How Community Development Corporations Can Support MWBEs



Member organizations of the Massachusetts Association of Community Development Corporations (MACDC) completed Phase II of the Boston Pilot Program in 2021 to achieve higher rates of utilization of MWBEs on CDC-sponsored construction projects. The program involved CDCs in Boston, Cambridge, Chelsea, Somerville, Revere, Lawrence and Quincy. They enrolled in 12 projects and collectively generated more than \$54 million in business opportunities for MWBEs. Participating members have committed to best-faith efforts to achieve 30 percent MBE and 10 percent WBE utilization rates on construction projects. They are looking to expand this supplier diversity program state-wide in partnership with the Massachusetts Association of Minority Contractors.¹⁵

Also, MACDC is involved in a coalition of 160 organizations across the State of Massachusetts called the Zero Carbon Renovation Fund. This is to attempt to jumpstart the market for zero carbon renovations in existing buildings in Massachusetts by growing available funding.¹⁶ This is an example of how MACDC is working to seed labor market demand for work on affordable housing.

- **Community Action Agencies:** Community Action Agencies administer Weatherization Assistance Programs (WAP) funded through the US Department of Energy. The Programs have been in place for the last 40 years. According to the US Department of Energy website, the WAP's primary purpose, established by law, is *"...to increase the energy efficiency of dwellings owned or occupied by low-income persons, reduce their total residential energy expenditures, and improve their health and safety, especially low-income persons who are particularly vulnerable, such as the elderly, the disabled, and children."*¹⁷ The Weatherization Assistance Program (WAP) Network partners with the private sector to establish industry standards for home energy professionals and a network of accredited training centers around the country to train contractors and individuals in home energy efficiency.

¹⁵ Massachusetts Association of Community Development Corporations. Small Business and Economic Development. Reviewed: April, 2023. <https://www.macdc.org/small-business-economic-development>

¹⁶ Mass Climate Action. Zero Carbon Renovation Fund. Reviewed April, 2023. https://www.massclimateaction.org/the_zero_carbon_renovation_fund

¹⁷ About the Weatherization Assistance Program. Reviewed: April 30, 2023. <https://www.energy.gov/scep/wap/about-weatherization-assistance-program>

Improving Entry Points and Pathways for MWBEs *continued*

One of the issues with the WAP program is how it is administered. Contractors are only deployed to implement weatherization services. For older housing stock in environmental justice communities, pre-weatherization barriers exist. These barriers have to be addressed before weatherization upgrades are implemented. The prevalence of homes in low-income communities that have these barriers means the demand for weatherization upgrades is constrained. Homeowners and tenants want weatherization measures installed in their homes, but pre-weatherization barriers prevent contractors from implementing these measures. Often homeowners and tenants in low-moderate income properties cannot implement improvements even if they want them for lack of resources to correct pre-weatherization barriers. This places downward pressure on the demand for weatherization. Efforts to increase funding for retrofits to are meant to relieve some of the downward pressures that are blunting the demand for contractors in environmental justice communities.

Considerations towards Strengthening the Ecosystem to Support MWBEs

Efforts are underway to address some of the challenges MWBEs face when entering into the clean energy market. CDFIs are providing financial products to facilitate access to capital. Program initiatives of organizations like Emerald Cities and Browning the Green Space are working to increase the number of MWBEs in the clean energy marketplace and address the business and leadership capacity challenges. Finally, there are examples of how the community development corporations have set targets to ensure the participation of MWBEs on real estate projects. Their participation in advocacy efforts could expand the demand for energy retrofits in environmental justice communities.

CDFIs are in the early stages of supporting minority- and women-owned businesses entering clean energy; some innovative products and services have been developed while other CDFIs in the region are interested but unsure about how to proceed with these efforts. Community Development Corporations are advocating for energy-efficient homes for low- and moderate- income tenants and homeowners in Massachusetts. These developments suggest there are affirmative efforts to address issues that make it difficult for MWBEs to access capital. There are also advocacy efforts underway to provide resources for retrofits in environmental justice communities. This is likely to increase the demand for contractors doing energy retrofits in the low-barrier affordable housing market where MWBE contractors are sought out.

Improving Entry Points and Pathways for MWBEs *continued*

Federal investments are also providing pathways for MWBEs. The Inflation Reduction Act is providing \$200 million into contractor training programs.¹⁸ This is promising in that it addresses technical skills gaps that some MWBEs may need in order to respond to surges in the demand for energy retrofits.

Yet, efforts to address procurement through utilities or government projects or even renewable energy seem less well-developed. Even the potential of the Weatherization Assistance Program with its network of community action agencies and training facilities appears to be untapped when it comes to the participation of MWBEs. Both of these are problems of access. On one hand, strong advocacy efforts could highlight these issues and put pressure on responsible parties to commit to changing policies and practices that create barriers. On the other hand, contractors need to be ready for these opportunities. They have to have the essential business and leadership capacities in place; these take time to develop. The moment calls for an approach that takes advantage of existing government resources and ensures contractors are building necessary capacities for business growth. This approach places greater emphasis on connecting contractors to programs and services that foster business growth. Contracting business owners—like workers—need to be developed to take advantage of lucrative business opportunities.

The moment calls for an approach that takes advantage of existing government resources and ensures contractors are building necessary capacities for business growth.

Organizations that can connect contractors to programs and services that build capacity could make supplier development easier. The ideal organization would have the following capabilities:

- An understanding of the capacity challenges of contracting firms in the early and middle stages of growth
- Insight into procurement processes and requirements in affordable housing government, and utility market segments
- An exciting network of financial institutions as well as access to marketing, legal, and accounting professionals
- Access to capacity business coaching and business planning services

¹⁸ Climate Mayors, C40. Climate Action and the Inflation Reduction Act: A Guide for Local Leaders. October, 2022.
https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000ggm5/R0tppOcJtJz8JRz_FJJEpoqEAVvF7O3zEMtCyI6z09E

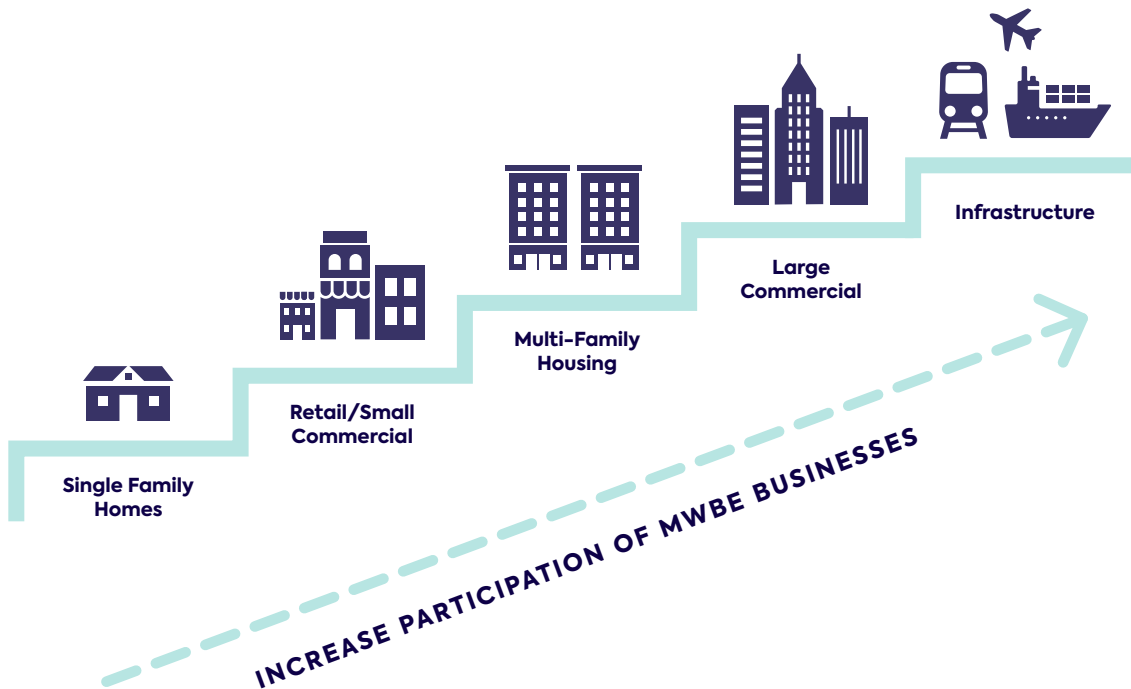
Improving Entry Points and Pathways for MWBEs *continued*

- Existing connections to minority- and women-owned contracting firms
- The ability to track the progress of contractors through annual revenues and the securing of business contracts
- Facility with using information to inform policies for procurement

The ultimate goal of strengthening the business support ecosystem is to grow the capacity of MWBEs to successfully bid on projects of increasing value and to foster business relationships so that contractors are helping each other to bid on larger projects. They may start with affordable housing retrofits but may eventually have the capacity to work on commercial buildings. In this approach, the focus is on developing contractors. This approach is particularly important as labor market conditions call for increasing the capacity of businesses to work on clean energy projects over the next several years.

A FRAMEWORK FOR CONTRACTOR DEVELOPMENT

The illustration shows how this progression of contracting capability could work with the right set of opportunities and supports in place.



Two examples with which the report authors are most familiar, due to being housed within their organizations, are included below. Both efforts are focused on increasing the number of MWBEs in the clean energy space. These efforts are complementary: Browning the Green Space supports early-stage businesses, and Emerald Cities Collaborative supports mid-stage businesses.

MWBE CONTRACTOR DEVELOPMENT

Browning the Green Space ACCESS Program Accelerates Development of Early-stage Contracting Firms

ACCESS – Accelerating Contractors of Color in Energy for Sustainable Success—is a 10-week program for aspiring clean energy (energy efficiency and renewable energy) business owners that offers business coaching, connections, mentorship, and access to capital. Through weekly virtual classes and independent assignments, ACCESS participants learn business fundamentals including customer discovery, product-market fit, go-to-market strategy, in addition to storytelling and presentation skills.

Emerald Cities Contractor Academy organizes ecosystem, facilitates access to project pipelines

Emerald Cities Collaborative Contractor Academy

The Emerald Cities Contractor Academy is a 9-week program for business owners who are looking for opportunities in clean energy and energy efficiency. The program provides connections to clean energy and energy efficiency projects for affordable housing, LEAN and Mass Save utility home performance improvement programs, and state and municipal government. The Academy focuses on business capacity-building by helping contractors improve marketing, institute best practices in back-office operations, and establish strategic partnerships with larger firms. Participants receive follow-on support with capital grants and certification assistance.

Philanthropic Landscape Analysis

Introduction

This report compiles the results from multiple research workstreams to paint a clear picture of a climate and clean energy workforce ecosystem. These insights can help others plan and prepare for future job growth in a clean energy economy while supporting greater access and inclusion for workers of color. This report's final area of exploration uncovers how philanthropy and philanthropic funding can support the coming need for clean energy workforce development, and what an appropriate role could look like for Barr and other foundations.

In the past, philanthropy has played a crucial role in supporting and generating a wide range of social and policy interventions across many sectors, including climate and clean energy, and, separately, labor markets and employment impacts. Research conducted for this report indicates a need for more funding attention focused on the intersection of climate and clean energy issues and workforce development. An assessment of funding amounts at the national and New England regional levels, accompanied by interviews of philanthropic program officers, shows that the historic lack of focus on funding or addressing equitable workforce goals within climate and clean energy, especially as it relates to access to jobs and business creation, is starting to change. Funders are increasingly aware of and interested in these areas, both in the short and long run.

The first section of this chapter details the current state of philanthropic support for climate and clean energy workforce development (CCEWD), beginning with a deep dive in the New England region, and then a broader review of the national funding picture. From there, this chapter leverages interviews with regional and national funders to explore and understand how funders can lead the development of a broad, fieldwide strategy to build a strong and equitable climate and clean energy workforce.

Funding for Climate and Clean Energy Workforce Development in New England

The Barr Foundation's commitment to the New England region was the primary impetus for a deep dive into funding patterns for CCEWD in the area. In addition, New England is on the leading edge of clean energy workforce growth nationwide, with dedicated policies, programs, and initiatives launched within and across its states supporting clean energy solutions and addressing climate change. This leadership places New England at the forefront of initial workforce impacts from the energy transition, and can provide a window into workforce challenges to come. Barr's research into philanthropic investment in CCEWD in New England can highlight models and key learnings for other foundations outside the New England region.

New England is on the leading edge of clean energy workforce growth nationwide, with dedicated policies, programs, and initiatives launched within and across its states supporting clean energy solutions and addressing climate change.

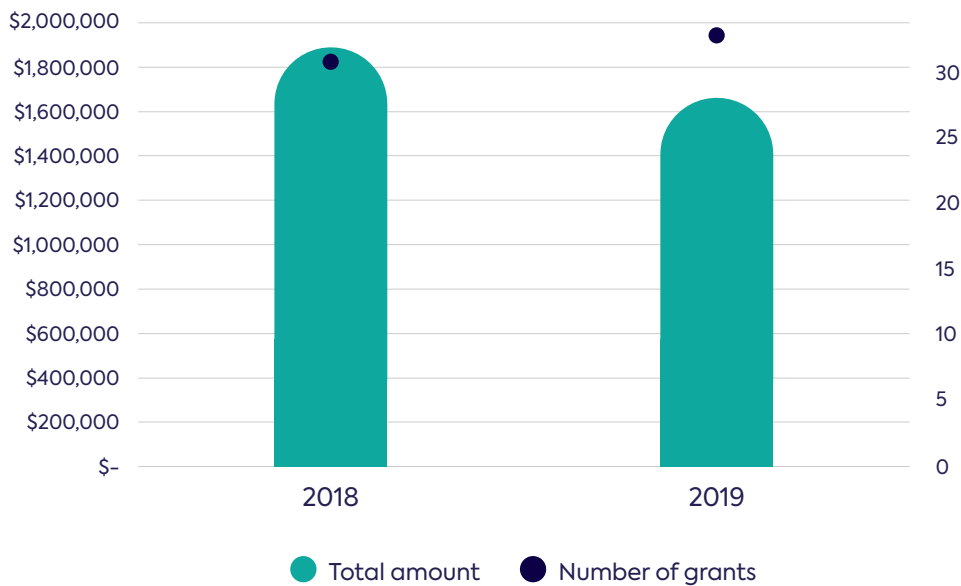
New England Grantmakers Supporting CCEWD

Using the Foundation Center's grant-making database, the research team's analysis located 67 foundations, other than the Barr Foundation, which provided at least one grant for clean energy workforce development in the New England area between 2018 and 2021.^[1] Of those 67 other grantmakers found within those searches, 17 awarded at least two grants (up to seven), while another 50 provided one grant over that period towards clean energy workforce development and/or economic inclusion.

Total Amount and Number of Grants

The years 2018 and 2019 data show a similar level and count of grants provided to workforce and economic inclusion in clean energy across the six New England states—close to \$1.9 million from 33 grants in 2018, and nearly \$1.7 million in 2019 from 31 grants.

FIGURE 4. Total Amount of Philanthropic Funding and Number of Grants in Six New England States



The annual amount of philanthropic funding provided to organizations for CCEWD in the six New England states is a small fraction of public workforce investments (local, state and federal) by states. As one point of comparison, in 2017, Massachusetts received \$53 million in federal funding under the Workforce Innovation and Opportunity Act (WIOA), and spent another \$56 million in state funds on workforce training (albeit for spending across all sectors).¹⁹ More recently, within CCEWD, MassCEC will spend \$12 million per year for clean energy workforce development over the next three years through the 2021 Climate Act (in addition to several million dollars annually from other clean energy workforce development grants, primarily with an equity focus). By comparison, the highest year for philanthropic clean energy workforce funding received by organizations in Massachusetts was 2020, with approximately \$865,000.

¹⁹ "Public Funding for Job Training at the State and Local Level," Urban Institute, June 2018.

Average Grant Size

The average grant amount regionally was just above \$60,000; the median grant was \$27,000. Only 14 grants were for more than \$100,000, with the largest just under \$500,000. By grantee, this is a small amount of funding relative to need. While these funds may be braided with other funding streams, this size of grant can reduce the ambition and scope of work that a recipient organization is able to pursue in its support.

New England Grantees Receiving Grants

Thirty-seven grantees, most of which were small organizations operating in only one New England state, were the recipients of these finds. Table 12 lists the 37 grantees.

TABLE 12. New England Grantees Receiving Funding, 2018–2022

State	Grantee	State	Grantee
Connecticut	Connecticut Roundtable on Climate and Jobs	New Hampshire	G A L A Community Center
	Groundwork Bridgeport		Global Grassroots
	Interreligious Eco-Justice Network		Institute for Community, Business and NH Economy
	KNOX, Inc.	Rhode Island	Community College of Rhode Island Foundation
	Solar Youth		RIMTA Foundation
	Stamford Museum & Nature Center		Social Enterprise Greenhouse
Maine	Coastal Enterprises Inc		Vermont
	Gateway Community Services Maine	Institute for Sustainable Communities	
	GrowSmart Maine	ReSOURCE: A Nonprofit Community Enterprise Inc.	
	Gulf of Maine Research Institute	Rights & Democracy Education Fund	
	Island Institute	Vermont Energy Investment Corporation	
Massachusetts	Boston Green Academy Foundation, Inc.	Vermont Sustainable Jobs Fund	
	Boston Impact Initiative Fund		
	Community Labor United		
	East End House, Inc.		
	Greenagers Inc		
	GreenRoots		
	Greentown Labs		
	Groundwork Lawrence, Inc.		
	Groundwork Somerville, Inc		
	Institute for Multi-Stakeholder Initiative Integrity		
	Massachusetts Audubon Society, Inc.		
	Mothers for Justice and Equality		
	NECEC Institute		
	Thompson Island Outward Bound Education Center		
	Training Resources of America, Inc.		



National Funding Data Review

To develop an initial understanding of the national landscape for CCEWD, similar to the regional funding assessment, the research team developed a list of leading national funders who provided workforce development-relevant grants related to environmental issues at some point between 2018 and 2021.²⁰ However, in contrast to the regional landscape analysis which focused at the grant level, this analysis focused more broadly on the funder level, to provide a high-level look at national funding trends within this sectoral intersection. Of 449 grantmakers initially tracked, the list was culled to 35 national and large regional funders.²¹ While certainly not an exhaustive list of funders providing these types of grants, this group of 35 captured \$120 million in funding for CCEWD over that period, just over half of all grant funding on this issue listed in the database for that period. To clarify the picture of general trends underway in the funding of CCEWD, interviews were conducted with 25 of the 35 leading foundations.

Reviewing this list of grantmakers responsible for half of CCEWD funding in the database resulted in the following takeaways:

- Very similar to New England, a select few funders were responsible for a significant portion of total grant making. Total funding amount per organization was concentrated towards the top with the top five funders accounting for two thirds of the total amount of funding of this group (and therefore five of almost 450 grantmakers accounted for one-third of the funding levels found in the database).
- Also similar to the New England analysis, there was little critical mass among funders, as outside of the few leading funders, nearly all grantmakers for CCEWD in the database made only one or two grants in this area over the period reviewed.
- The median grant among the 35 national foundations was slightly more than \$277,000 per grant, while the average grant was more than \$440,000. These are larger amounts than the New England grantmakers and while more meaningful to workforce organizations, still likely limited in terms of impact.
- This list of grantmakers was concentrated among those who already allocate significant portions of their funding to climate and clean energy focus areas.

The median grant among the 35 national foundations was slightly more than \$277,000 per grant, while the average grant was more than \$440,000.

²⁰ Excludes data from 2022 because it is mostly incomplete as are parts of 2021 due to delays in the IRS processing 990 forms.

²¹ To develop this list, BW Research created an inventory of grants pulled from the Foundation Center database using various categories available in the database.

Funder Perspectives on Current State of Funding

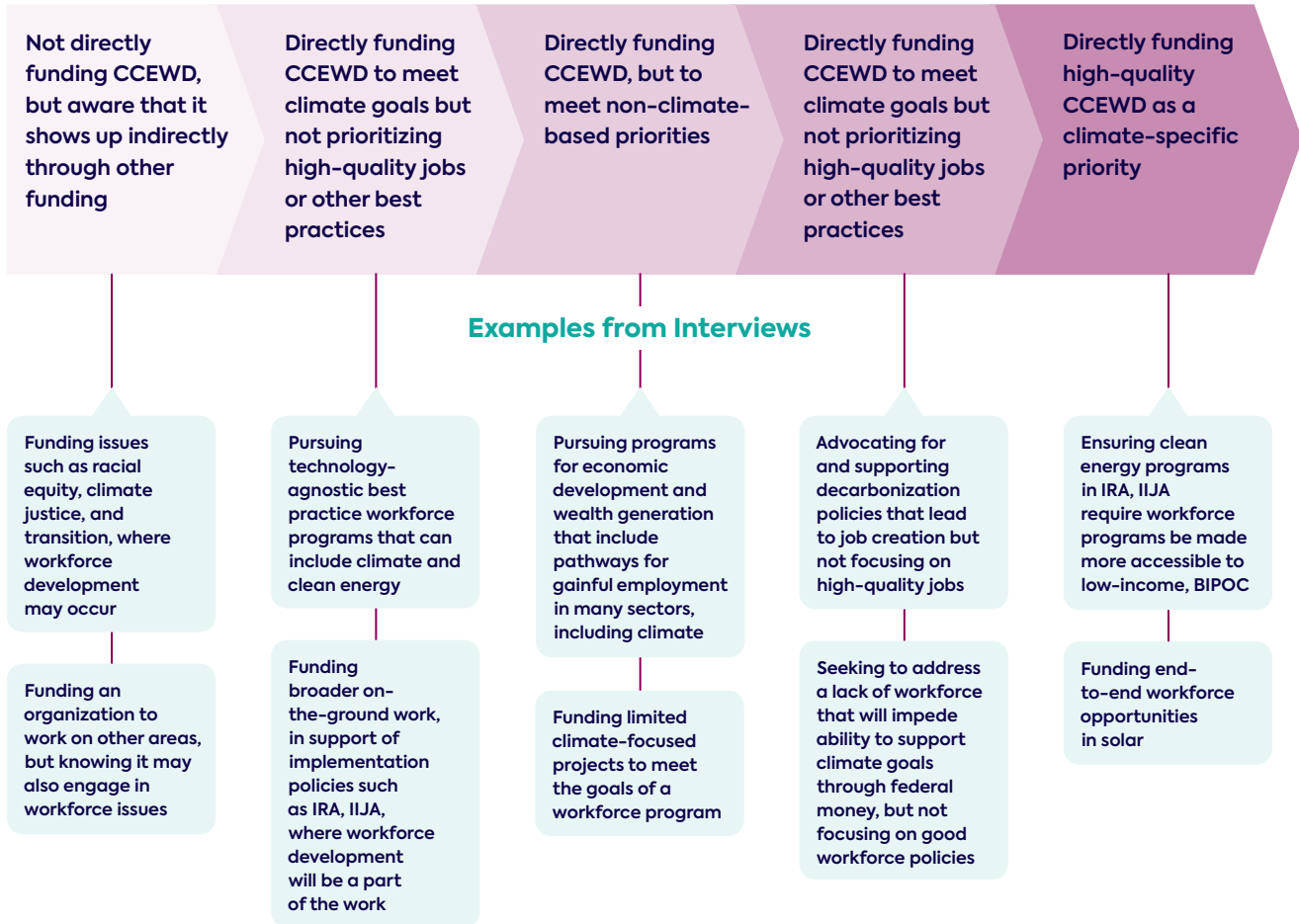
Several reasons underlie why most climate- and clean energy-focused foundations have not funded workforce development in climate and clean energy, or similarly, employment/workforce and labor-focused foundations have not prioritized clean energy and climate-related sectors. Primarily, climate funders have either not perceived a direct connection between building a workforce and addressing climate issues, or have difficulty understanding the role of philanthropy in workforce and how best to engage in such a broad area. Workforce funders have been disappointed by bad experiences (such as the workforce challenges of the American Recovery and Reinvestment Act) or have ongoing concerns about the ability to integrate their worker priorities into climate strategies and clean energy deployment. Within the smaller universe of funders who are supporting CCEWD, there has been little funding focused on increasing awareness and access to high-quality jobs, especially for people of color, or growing opportunities for MWBEs, although this is starting to evolve.

“Compared to health or economic justice, workforce is just not a natural, immediate fit with environmentalism.”

“Our [climate-focused] board avoided workforce because it felt it couldn’t move the needle, it would take too much funding, and that it was the role of government to address training and bailing out communities.”

However, funders may be more connected to CCEWD than they at first appear. While not explicitly apparent in the data, funding of CCEWD shows up in interviews across a continuum of activities and strategies—five are presented in Figure 5. While few funders are directly funding high-quality CCEWD as a climate strategy, most funders have some exposure to workforce issues through funding approaches. This funding increasingly has a direct connection to equity issues, although many are still early or pilot efforts.

FIGURE 5. Continuum of Entry Points into CCEWD Funding



Recently, many funders are seeing, and participating in, a clear pivot towards workforce development in clean energy, especially among climate funders. There appear to be multiple drivers of this evolution. A greater focus by funders on broader issues of economic equity and injustice as well as an emphasis on increased implementation and greater place-based work has introduced and connected them to the importance of workforce development. Recent federal and state climate and infrastructure policies and investments (such as the Inflation Reduction Act, the Infrastructure Investment and Jobs Act and the CHIPS Act, and Illinois’ Clean Energy Jobs Act) are also driving home the importance of workforce development, organized labor, high-quality job creation and other similar topics in relation to equitable climate solutions, advocacy, and movement building. Most funders expect that much of the initial growth in interest is likely going to be seen from climate funders entering workforce rather

than the other way around. Workforce funders are typically engaging in climate as part of larger streams of work with non-climate objectives.

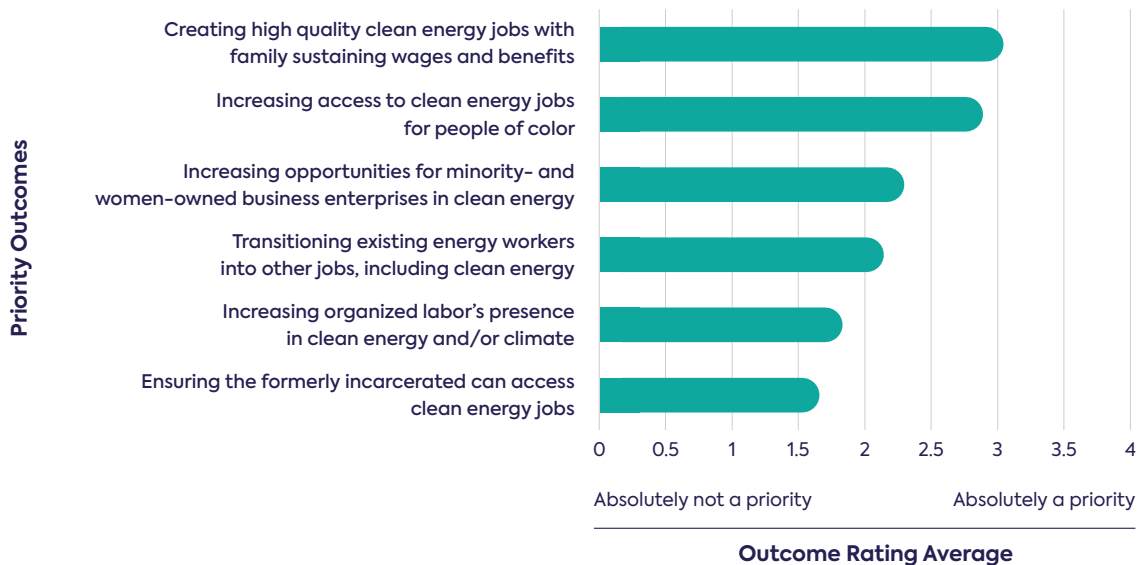
“Climate had previously practiced a minimalist form of workforce development. Now I’m seeing more opening on these topics than in 15 years.”

“We want to win on climate, but not knowing the economic impacts of the policies and programs we are supporting has been a big gap. Policymakers have wanted more information and we haven’t been able to give it. Things keep getting stalled and it’s led us down the road to looking at workforce.”

“Because of all the funding into infrastructure and climate, we’re trying to think about ways to engage on the workforce side and small business – how can those dollars be broken down at a local level to address economic inclusion, youth access, pre-apprenticeships.”

As part of the interview process, each respondent was asked their likelihood of funding six funding strategies over the next three years. These strategies were selected to reflect a range of entry points into clean energy workforce development, including any specific emphasis on equity and inclusion. The responses were coded based on their relative prioritization to each funder.

FIGURE 6. Prioritization of Funding Interests Over the Next Three Years



1. Creating high-quality clean energy jobs with family-sustaining wages and benefits.

This ranked as the highest priority, with most enthusiasm from funders and immediate work moving forward.

“One big priority is family-sustaining wages, which we see as an opportunity to build bridges, and community to drive policies.”

“We are already trying, focusing on supporting efforts for state policy and supporting groups advocating for good implementation.”

“It is definitely a priority within our offshore wind work, but it’s harder in building decarbonization.”

“Yes, because we’re leaning in on implementation.”

2. Increasing access to clean energy jobs for people of color. This was very close to the top-ranked priority. Many foundations are integrating this priority into bigger bodies of work connected to justice, access, and equity.

“This is going to be a priority, but it’s state by state.”

“This is No. 1 for us – we are very focused on youth and adults of color, particularly those who have been system involved.”

“We are advancing Black and Latinx priorities in general.”

3. Increasing opportunities for minority- and women-owned business enterprises in clean energy. This was quite popular, with many foundations focusing on leveraging existing investments to support MWBE investors and overall entrepreneurship.

“There would be political pushback if we were to do this.”

“Seeking groups led by people of color is a factor for our social investment team, but it’s not the only factor.”

“Our board wants to build out a sustainability portfolio as part of our endowment with a focus on MWBE fund managers.”

“Yes, we have already made some grants around the Justice40 space.”

4. Transitioning existing energy workers into other jobs, including clean energy. While there was interest, this was a lower priority, with confusion about how to engage.

“Not something we have prioritized; our concern is accelerating decarbonization.”

“A lot of grantees have been focused on policy work—building policies around just transition; each region needs special attention; we are aware but still exploring.”

“Yes, locally – supporting coal communities and alternatives to working in coal (not clean energy broadly).”

5. Increasing organized labor’s presence in clean energy and/or climate. This priority had the widest range of responses, from absolute champions to others that emphasized this as not being a priority.

“Increasingly productive engagement.”

“Labor has their own resources.”

“Trying to do this in the Northeast, but still have a long way to go.”

“Yeah, absolutely but indirect. Focused on movement and power building.”

6. Ensuring the formerly incarcerated can access clean energy jobs. While featuring a few proponents, overall, this was the lowest priority, with confusion about how to engage and what to focus on with this topic, as well as concern about where it would fit in the grant portfolio.

“I care about it but wouldn’t excite the trustees.”

“We haven’t found anything to fund on environmental/climate specifically; trying to figure out how to tie criminal justice reform with clean energy jobs.”

“Do quite a bit focused on re-entry and workforce; working with juvenile halls and moving them into career programs, before possible entry into incarceration.”

“No explicit work, just need to do more research.”

FOCUS GROUP:

Field Perspective on Philanthropic Engagement in Workforce Development



During March and April 2023, the research team held focus groups with Barr grantees and workforce thought leaders to gather perspectives on work completed to date. Participants felt that philanthropy was doing well in several foundational elements of workforce development, such as forming partnerships and collaborating with key stakeholders, engaging on equity, providing gap-filling funding and, at least initially, focusing on areas such as innovation and wraparound support. However, there were concerns connected to a lack of alignment between current funding models and general philanthropic approaches, and the specific needs of the workforce sector. Participants also highlighted the importance of thinking long-term, being less prescriptive in general while also being more intentional around equity and increasing knowledge among philanthropists of the needs of the workforce development space. The most popular ideas for philanthropy were to focus on collective impact, active expansion of equity, exploring underfunded areas, and emphasizing knowledge-sharing, learning, coalition building, and collaboration.



Photo credit: Barr Foundation's Climate Program

Philanthropic Funding Paths Forward

Field Development Opportunities

To fully capitalize on the opportunity to invest in climate and clean energy workforce development, funders can take several actions. These actions are categorized into 10 recommendations that encompass fieldwide approaches and strategies.

- 1. Provide opportunities for experienced workforce funders to educate funders newly interested in workforce issues and introduce them to the many opportunities and complexities of the workforce ecosystem.** Workforce development involves more implementation of policies, and on-the-ground engagement that has not tended to be a focus of national funders, especially in climate. There is also an recognized lack of knowledge among many funders about the broader workforce ecosystem, its intersection with clean energy and climate, effective models, and relationships among most of the key players. Exposure to new concepts, approaches, and models in workforce development, while understanding how to leverage the many strengths and capacity of climate and clean energy funders, will be critical for new workforce funders. It will also be important for new funders to be aware of some of the overlapping tensions in workforce development (discussed below) so as to avoid exacerbating them.

“Many [climate] foundations are struggling with the move towards implementation, but not because of principles. It’s a new muscle for us. It’s not the technocratic solutions that we’ve been funding. We have less direct experience on the ground, less relationships, less understanding of the ins and outs.”

“Many of us are trying to find the intersection of clean energy and workforce, but mostly in the dark.”

“How do we approach [workforce] when that’s not been our priority? How do we integrate that element while continuing to lower emissions and ramp up solar?”

2. Boost collaboration between climate and workforce funders to share learnings and best practices about how to support the broader workforce ecosystem.

Cross-sector collaboration can leverage the insights and experience of workforce-specific funders, while also supporting emerging coordination among newer funders. Sharing information on innovative organizations and programs, successful funding strategies and models, and relevant stakeholders and tables to engage can accelerate learning. In addition, interviews with funders revealed that the same cross-pollination and collaboration were emerging within foundations which house both climate and economic development programs. These internal coordination efforts may provide models and best practices that can also be leveraged for fieldwide learning.

“I’m trying to figure out what is relevant from the workforce community that is highly adaptable in the climate space.”

“You want a partnership between workforce partners and climate funders—figure out what is the common thread between them. Is it interest in job quality? A particular workforce pathway being realized? This can only really happen if all the partners are at the table, not just employers and unions.”

“Who brings the different groups to the table? Who’s respected enough across all sides? Is it somebody in the climate policy space? There’s some nascent things happening to weave things together. One option might be finding a neutral funder who isn’t focused on climate or workforce but still engages in these areas. Maybe somebody in health.”

3. Promote models that demonstrate how best to balance low-cost climate solutions with the need to create high-quality jobs, accessible to all. For workforce-focused funders, ensuring an emphasis on high-quality job creation, with worker protections, freedom to unionize, and pathways to growth and advancement, accessible to all workers, are critical elements of CCEWD. An ongoing concern, also shared by many climate funders, is the historical tension that pursuing a lowest-cost emissions-reduction strategy has tended to crowd out other priorities around equity, workforce, and organized labor. Finding the balance between these approaches, especially in working with the clean energy private sector is an ongoing process.

“We are trying to support the position among climate funders that jobs have to be high quality. This is a valid criticism from the workforce entities.”

“The weatherization in Baltimore and solar in Cleveland that we’ve funded – they lead to jobs but they need to be viewed as transitional jobs. We don’t want to rule them out, so long as they are part of a larger plan and other partners are looking at longer-term pathways.”

“We may have to challenge the renewable energy companies. These are strong alliances, but they’re not unionized, and the good jobs aren’t there. Where are the apprentices, for example?”



Photo credit: Barr Foundation's Climate Program



- 4. Understand the tension in focusing on both the needs of employers and employees, in seeking to create high-quality, union-friendly jobs.** Federal and state workforce policies and economic development efforts focus primarily on the business side of workforce development. The result of this tends to be an emphasis on employer-focused workforce efforts that can sometimes conflict with efforts to support higher-paying jobs, investment in training and worker advancement, worker health and safety and equitable access to good jobs. This dynamic is already being seen in specific clean energy sectors where there are ongoing tensions over quality, safety, and the long-term future of jobs (such as solar installation or weatherization technicians) and will need to be further explored and addressed by funders of CCEWD.

“Industrial policy for climate and jobs still centers on employer-facing efforts – all tax credits, the training dollars. This is fundamentally wrong. Employers need workers. Policy puts workers second if at all.”

“Under a healthy workforce ecosystem banner, the fund for years has tried to work in a space of economic development, and we continue to do that but it’s such a big area and so much of economic development is driven by business. Businesses are like, what do you have for us?”

5. Deepen understanding of the local and regional context that shapes workforce development in unique and unpredictable ways. The local and regional context is critical in any workforce development strategy, as discussed throughout this report. Local legal, regulatory and compliance elements vary considerably, as do the local constellation of workforce partners and relationship dynamics between them. Most successful workforce programs cannot be scaled to other regions, as each has tended to evolve to best fit the local context. Becoming deeply immersed with relevant local government agencies can be helpful in better understanding local dynamics, while working through regranteeing intermediaries is a proven tactic for national groups seeking to have more localized impact.

“There’s local laws and compliance elements. There’s prevailing wage. All of these meaty local regulatory issues have to be paired with how those entities and placement organizations are positioned to be successful in connecting individuals to work.”

“We push a regional emphasis that gets folks working together in their cities and counties. We fund them to lift their head up around the state and see where the shared lessons are. Some of the larger coalitions that are winning funding from DOE for hubs and collaboratives—most of them have been funded by us historically to work together and now you see the results.”

“One of our challenges is being a national place-based funder, trying to affect conditions on the ground in multiple places. We see the power and importance of local leadership, but if we just support local groups, there’s no scale or coordinated gain. We hold that tension in different ways by prioritizing national groups that listen well to local voices and actively make connections, while providing support and technical assistance to local groups that are either in our priority cities or doing work in innovative ways that can shape things elsewhere.”

- 6. Resolve and navigate the many layers of the workforce ecosystem that hamper coordination, collaboration, and efficient use of funds.** The range of different workforce and training providers operating at and with local, state, and federal government can foster duplication of efforts, lack of information-sharing and difficulty coordinating. This challenge could be exacerbated by new entrants into workforce funding, given the anticipated challenges described above with lack of awareness and the uncertainty of the role of new funders in CCEWD philanthropy.

“Industrial policy for climate and jobs still centers on employer-facing efforts – all tax credits, the training dollars. This is fundamentally wrong. Employers need workers. Policy puts workers second if at all.”

“Under a healthy workforce ecosystem banner, the fund for years has tried to work in a space of economic development, and we continue to do that but it’s such a big area and so much of economic development is driven by business. Businesses are like, what do you have for us?”

- 7. Prioritize equity and access within clean energy workforce funding streams, to ensure opportunities for the most underemployed and underserved communities.** Similar to other sectors, workforce programs struggle with reaching and supporting all participants, especially those who face intersectional barriers. This can be attributed to various factors, such as insufficient funding or capacity, as well as a tendency to prioritize specific metrics over equitable outcomes. Consequently, the existing workforce development ecosystem is at risk of perpetuating inequalities. One example can be found in advanced manufacturing where a focus on job creation has not always been complemented with a corresponding focus on ensuring equitable accessibility to these jobs. Without intentional and strategic attention to inclusivity in clean energy job growth, there is a risk of encountering similar outcomes in different clean energy sectors.

“The folks left behind—the under-employed, the ALICs [Asset-Limited Income-Constrained], English learners—they aren’t well served by public workforce programs. It’s hard to stay in those programs, especially with the lack of support services. They don’t make it through the system.”

“I’m concerned about how communities of color are being brought in. There’s a huge disparity in the connections, in the level of education and remediation needed to create a level playing field for workers.”

“I get it—WIOA makes them [workforce boards] meet performance standards, but they’re just skimming the cream.”

8. **Work in partnership with organized labor to create high-quality, family-sustaining jobs in CCEWD, while supporting the emphasis and prioritization of initiatives within unions that open up these valuable training and career pathways to all populations.** Unionized climate and clean energy jobs are high-quality jobs that provide family-sustaining wages, a healthy and safe environment, and opportunities for growth. There appears to be increasing interest in funding greater organized labor involvement in clean energy, but less clarity about what that involvement means. One key initiative could be supporting apprenticeships and programs that help prepare individuals to enter these comprehensive training programs. Apprenticeships are important steps into high-quality jobs in clean energy, especially through building and construction trades. Pre-apprenticeship and other apprentice-readiness programs are key to opening up apprentice opportunities for more diverse candidates and those from underserved backgrounds. Some funders described increasingly productive engagement occurring among organized labor and other organizations on climate and clean energy issues, while acknowledging that significant tension remains among different stakeholders.

“Labor engagement is a priority and will continue to be one, but we have no illusions about how difficult this is. One of our most thoughtful entities linking climate and unions is struggling immensely.”

“Organized labor has to be a part of the conversation. It will be a healthy struggle with constructive conflict. But it has to be practical with experiments on the ground.”

“An apprenticeship is a good training system—very good—but the issue is equitable access. You need to create a safe space to build relationships across sources of funding from labor, from public sources and from philanthropy.”

“I’m seeing a shift among organized labor, workers’ rights, other centers—actively thinking about those conversations can be had. I’m seeing a loosening of the stance because of the recognition of the importance of labor.”

- 9. Integrate new workforce-centric approaches into current models of climate philanthropy to build on existing successful efforts and create new approaches to success.** Successful approaches to CCEWD will likely involve partnerships among many stakeholders, with uncertain and long-term planning horizons, comfort with risk and a willingness to provide backbone and operating support for groups. While not a problem unique to funding CCEWD, the need for holistic, long-term, collaborative, and behind-the-scenes funding strategies will require private philanthropy to develop new strengths and models to engage in this space.

“Generally, philanthropists are used to calling the shots. This is different. What vehicle are you going to join? What are you going to be part of? Who’s going to give no-strings-attached funding? It’s going to require yielding some agency and authority.”

“Probably the biggest challenge is going to be the timelines. Progressive philanthropy doesn’t stay with things long enough. You have to be in [workforce] for the long haul.”

- 10. Locate the most effective role for philanthropy in the complex workforce ecosystem to target funding to where it can be most useful.** As with myriad other sectors, successful CCEWD is driven by outcomes and context in the broader environment such as policies and programs set up independently at the local, state, and federal levels, access to transit, child care and other support services, educational and economic progress, and many other location-specific outcomes. Philanthropy has neither the funding nor influence to address these issues comprehensively but can play a critical role in a targeted fashion, including with policy advocacy that works within, and can support, the workforce ecosystem.

“Access to good jobs is driven a lot by what the state does. If they set up facilities that aren’t connected to low-income, communities of color, with little transit, if programs aren’t set up to be geographically accessible, that’s not in our control.”

Immediate Actions and Grantmaking Strategies for Funders

In addition to the long-term, fieldwide recommendations above, there are immediate opportunities for extensive engagement and ample funding opportunities in CCEWD for new funders that leverage existing strengths, capacities, and experiences within the funding community. Funders curious about workforce may initially lack knowledge of where they could initiate funding. However, as this report demonstrates, workforce development exists within a broad workforce ecosystem. There are many opportunities to support CCEWD more immediately. Each example below was drawn from conversations with funders for this research. Much of this is work already happening in other sectors or reflects natural adjacent programs for funders.

- 1. POLICY ADVOCACY.** Advocacy and policy engagement can be a crucial area where philanthropy can lead in CCEWD. Most climate funders have ample, and successful, experience working on policies at the local, state, and federal levels. Supporting activities could include:
 - Greater support for existing and new workforce policies and programs at the federal level, from accountability of IRA and BIL funds to advances in the future re-authorization of WIOA.
 - Advocacy to spur further public investment in workforce development at local and state levels.
 - Stronger implementation of existing best practices in workforce policy that lead to high-quality jobs, accessible to all populations, such as Community Benefits Agreements and Community Workforce Agreements.
 - Funding coordination between policy advocates at the local and state levels.
 - Joining and supporting policy and program-related task forces that drive implementation of policies and evaluations of results.

Impact of Federal Direction

Developments at the federal level are clearly driving greater awareness of and interest in CCEWD, along with broader discussions connected to equity, organized labor, and place-based implementation (which are outside the scope of this report). While recent federal legislation (e.g., IRA, IIJA, CHIPS) is certainly important in the increased attention, so too are other actions the government is taking in how it is signaling the importance of this work, such as the Community Benefit Plans through the Department of Energy, the Department of Labor Good Jobs Initiative, the Department of Transportation's place-based initiatives and interagency working groups. Many public-private collaboration and partnership efforts are also being pursued among clean energy stakeholders that include both government and philanthropy. Collectively, these efforts are contributing to private philanthropies placing a higher priority on workforce-related efforts.

- 2. FLEXIBLE AND GAP FILLING FUNDING.** While public funding of workforce dwarfs funding from philanthropy, there is a range of needs within workforce development that federal funding cannot support. Philanthropic funding can supplement public packages and serve as flexible funding, applied to fill gaps and address barriers. It can include:
- Support for wraparound services (e.g., child care, housing, transportation), or create conditions that increase the effectiveness of federal funding (e.g., broadband).
 - Navigation, counseling, and mentorship for underserved populations.
 - Investments in transitional elements, moving quickly into emerging technologies that aren't available for WIOA funding; or when state and federal regulations haven't caught up with industry trends, and philanthropy can provide a transitory buffer.

3. COLLABORATION AND NETWORK DEVELOPMENT. Philanthropy is well suited to create and enable partnerships, collaboratives, coalitions and convenings across sectors, geographies, and different levels of policymaking authority. Many funders have unique relationships to policymakers, the corporate sector, and other entities, and can play important bridging roles. This is a key role in future CCEWD, given the many challenges described above, including lack of collaborations and limited knowledge of workforce needs, especially among climate and clean energy funders.

- One simple role for philanthropies is to serve as and fund convening apparatuses that bring together the many elements in the workforce sector with the many elements of the climate and clean energy spaces. Convening grantees, state agencies, industry, educators, and many others is a natural role for philanthropists who can play this bridging, neutral role well. This can also include funding consensus and building tables—the soft work of breaking down silos and getting systems to work together. These relationships and outcomes are critical for long-term collaborative success.
- Industry/workforce partnerships are a second type of partnership supported by numerous national funding collaboratives. These are designed to create a space where employers that share a workforce can come together and address challenges in mutually beneficial ways (such as standardizing credentialing, curriculum development with the training community, and joint outreach strategies with community colleges) or highlight shared workforce infrastructure needs.

4. POOLED FUND STRATEGIES. Pooled funding partnerships among philanthropies can allow specific sites or programs to provide additional services or activities not funded by government support and be generally faster in responding to changes on the ground. One example shared by multiple funders is the High-road Training Partnership in California where pooled funding supplemented public funding and allowed workforce sites to be nimbler, more coordinated, and more innovative. The operations side of the pooled fund is typically outsourced to a separate entity.

5. CLEAN ENERGY EDUCATION. Educational institutions such as community colleges, vocational and technical schools, adult educators, K-12 and universities are critical in building a future generation of clean energy workers that reflects the diversity of the country. Philanthropy has long played an extensive role in supporting all forms of education, and there are specific areas of focus within CCEWD.

- Support for alternatives to traditional education routes, such as expanding access to and availability of career technical education opportunities and supporting efforts to increase awareness of this opportunity among future workers.
- Investments in addressing adult basic education and remedial training needs that can impede entry into high-quality roles, especially union careers.
- Focus on making the education and training pathways to those most promising, high-quality clean energy jobs more visible, more accessible and more affordable to underserved communities and youth populations. For youth, this could include building awareness among education leaders and guidance counselors about pathways into clean energy careers and clean energy career exploration opportunities for middle and high school students.
- Resource curriculum development for climate and clean energy careers and identifying pathways to support the development of high-impact, relevant credentials for the sector.

As a next step in exploring opportunities related to youth, K-12 and higher education, the field could explore more in-depth engagement with educators to better understand the context, challenges, and opportunities in the formal education system, test the above ideas and explore other potential opportunities.

6. LEVERAGING ENDOWMENTS. Many funders are using their endowment to support their grantmaking goals, including exploring accepting below-market rate returns on some investments to maximize flexibility and innovation in CCEWD-related investments. The following tactics are emerging.

- Ensuring that endowment investments are mission aligned, or at least not anti-mission.
- Leveraging the endowment for investments in companies that focus on high-quality jobs, and long-term training.
- Hiring MWBE fund managers to manage endowment.
- Support program related investments and mission-related investments when possible
- Using a percentage of the endowment to invest in CDFIs.
- Making specific investments in climate and infrastructure that increase access for youth and young adults.

7. INNOVATION AND CATALYSIS. Pooled funding partnerships among philanthropies can allow specific sites or programs to provide additional services or activities not funded by government support and be generally faster in responding to changes on the ground. One example shared by multiple funders is the High-road Training Partnership in California where pooled funding supplemented public funding and allowed workforce sites to be nimbler, more coordinated, and more innovative. The operations side of the pooled fund is typically outsourced to a separate entity.

8. RESEARCH. Studies, research, and data analysis are critical in boosting workforce development in new sectors such as climate and clean energy. This can include workforce assessments, labor force analyses, job projections, and program evaluations in addition to studies on model programs, organizations, and approaches.

9. BACKBONES AND COLLECTIVE IMPACT. Funders are also well suited to create the networks that share back offices and create connective tissue for collaboratives around workforce. Investments in shared infrastructure and on-the-ground capacity can serve as the backbones for underresourced groups that allow everyone who needs these backbone operations and functions to utilize them.

Pathways to Support the New England Workforce Ecosystem

One of the Barr Foundation's objectives with this report was for its research to help inform grantmaking strategies that could support increased access to quality clean energy jobs across New England, with a focus on expanding opportunities for people of color and minority- and women-owned businesses. With that in mind, the three concepts below highlight potential points of entry for a funding initiative in New England, specifically within the frameworks of the clean energy workforce ecosystem and high-road career pathways.

Expanding Access to Pathways for Specific Clean Energy Occupations Within a Local Workforce System

Leveraging funding to organize a collaborative in one metropolitan area to focus on one occupational area is one option. Consider this thought experiment: Address the problem of getting more people of color and women to work in the mechanical trades, plumbing, electrical, and heating ventilation and air conditioning in the Boston metropolitan area, starting with the city of Boston. The collaboration could be specified to include organizations across the career pathway: a workforce development agency, an environmental justice organization, one vocational technical high school, one community-based organization serving opportunity youth, a community college, a technical college, a pre-apprenticeship program, and a local apprenticeship training entity (in the unionized building trades, these are called

Pathways to Support the New England Workforce Ecosystem *continued*

Joint Apprenticeship Training Committees or JATCs), and employers. This collaborative would be funded to develop an equity-centered collective impact strategy to have more people of color and women complete the registered apprenticeships in the mechanical trades. This collaborative effort would be funded to develop the following elements:

- **A common agenda** that defines the barriers to training more people of color and women as journey worker electricians and plumbers and establishing a shared vision to address these issues.
- **Shared measurement** to track the appropriate outcomes of people of color and women at each stage of the pathway.
- **Mutually reinforcing activities** that integrate academy and experiential learning that reinforce advancement along the pathways and use memoranda of agreement and articulation agreements to codify these activities among partner organizations.
- **Continuous communication** between the parties through regular meetings about how people of color and women are progressing through the pathway to the mechanical trades and where they outcomes fall off.
- **A backbone organization/network management organization** that acts as a convener and coordinates the work of the group.

Such an effort would include organizations led by people of color and women, and have the capacity to catalyze necessary systems change efforts. This could be a 3- to 5-year demonstration project with an explicit focus on learning more about the barriers, opportunities and best practices related to bringing more members of this target group into the mechanical trades. The result would be a textured, targeted strategy that increases the number of women and people of color in the Boston metropolitan area. Starting with a specific location within a metropolitan area with a robust labor market could have a ripple effect on local networks located within the larger metropolitan geography.

Fund for Public Housing - Clean Energy Academy

Connecting affordable housing residents, workforce development, and clean energy

Launched by the Fund for Public Housing and New York City Housing Authority (NYCHA) with government, private company, and philanthropic partners, the Clean Energy Academy is a model for simultaneously addressing the decarbonization of buildings and the inclusion of NYCHA residents in the clean energy labor force and decarbonization efforts. The Clean Energy Academy hopes to train 100 interested NYCHA residents (four cohorts over a two-year span), while providing wraparound support, to become employable by NYCHA contractors who will be completing almost \$500 million worth of retrofit and renewable energy projects at NYCHA buildings through 2026.²²

To identify trainees among NYCHA residents, candidates undergo pre-screening tests and preparation for an interview with the training provider, CUNY LaGuardia Community College. Once selected, NYCHA residents complete a six-week, 280-hour program to learn how to install solar panels and heating and cooling technologies, including heat pumps, and gain exposure to various construction-related duties. NYCHA and LaGuardia Community College designed the curriculum based on a contractor needs assessment while implementing flexible lessons to accommodate residents who enter the program at different levels of experience to ensure they are heard and respected. Participants also earn certifications such as an OSHA 10-hour certificate. Test of Adult Basic Education (TABE) coaching and tutorials are available for residents who do not pass the pre-screening on their first attempt and want to retry for placement into the next cohort.

During the training, residents are supported by several wraparound services, including transportation cost coverage and a \$1,500 stipend. NYSERDA, one of the Academy's main funders, requires that the Clean Energy Academy receive 100 interview commitments from contractors. They have received 131 commitments so far, which will allow 131 participants of the Clean Energy Academy to interview with potential employers. The Clean Energy Academy aims to see at least 64 trainees get hired in clean energy jobs over two years.

²² <https://fundforpublichousing.org/cea>

Expanding Access to Pathways for Specific Clean Energy Occupations at the State Level

A state-level strategy builds upon and extends philanthropy's role in supporting statewide advocacy efforts. The emphasis would shift to supporting coalitions between environmental justice organizations located in disadvantaged communities and supported through equity-centered organized labor initiatives. The opportunity has been created by the Justice40 mandate calling for 40 percent of the benefit of federal funding going to disadvantaged communities. Most of federal dollars are going to be funneled through the states, and strong coalitions have to be at the table to ensure these dollars create the community benefits called for in Justice40. This uses the lever of federal funding mandates to incentivize employers and organized labor to accept the demands of disadvantaged communities for access to quality jobs, the mitigation of environmental harms, and the establishment of community benefits. This effort could include the following elements:

- **Community benefits planning** where organizations representing disadvantaged communities of color develop a shared vision of what community benefits look like.
- **Conversations with organized** to develop a shared set of demands for state policymakers.
- **Coalitions to promote community benefits**, including access to quality jobs.

PowerCorps Boston. City of Boston Mayor's Office. Photo credit: Jeremiah Robinson



UPROSE

A community organization dedicated to equitable high-quality job creation

After years of advocating for a revitalization of the industrial waterfront in Sunset Park, UPROSE signed a Community Benefits Agreement (CBA) with Equinor, an international energy company, to deliver workforce and environmental benefits to local neighborhoods. The CBA was endorsed by UPROSE once the organization was confident that Equinor's wind turbine project would have the desired benefits to the local economy and community. This CBA serves as a demonstration of UPROSE's determination to create and structure a new market of green manufacturing jobs for communities previously burdened by environmental injustice. UPROSE is also developing the workforce by engaging marginalized community members in many ways. UPROSE is creating a well thought-out space where residents can access a clean energy economy resource database to view the occupational and development pathways that are vital for guiding how historically marginalized community members can navigate this new economy. In addition, the organization will provide direct support to locals, including wraparound services and building a tailored job readiness plan. UPROSE is planning to collect data to learn from and improve the workforce development programs to better serve the needs of frontline communities going forward.



Photo credit: Kathryn Wright

Maximizing Federal Funding Opportunities Within Local Workforce Ecosystems

Executive Order 1008, Tackling the Climate Crisis at Home and Abroad, established the Justice40 Initiative through a cross-government approach. “The Justice40 Initiative directs 40% of the overall benefits of certain Federal investments—including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development

of clean water infrastructure—to flow to disadvantaged communities,” according to the United States Department of Energy website.²³ With this mandate, the Office of Management and Budget issued [Interim Implementation Guidance for the Justice40 Initiative, M-21-28](#). Guidance includes a set of seven types of direct and indirect investments that positively impact disadvantaged communities, including Clean Energy and Energy Efficiency and Training and Workforce Development. The Justice40 framework is an important opportunity to support an equity-centered approach to workforce development in clean energy. The Executive Order and the Interim Guidance can have an important impact on how the Bipartisan Infrastructure Legislation (BIL) and the Inflation Reduction Act (IRA) are interpreted and how dollars will flow through state and local governments. This represents \$1.369 trillion of investment, with 40 percent of the benefit of these investments going to disadvantaged communities. This is likely to occur only if state and federal officials are held accountable for directing their activities using these investments to realize community benefits.

This will only occur if communities are mobilized along two tracks. First, state-level climate coalitions will need to direct and hold state officials accountable. Most of the federal money will be funneled through state agencies. Foundations in the region have a track record of supporting these coalitions. In some cases, advocacy efforts will need to broaden their coalitions to include more environmental justice organizations with constituents in frontline communities.

The Justice40 Initiative directs 40% of the overall benefits of certain Federal investments—including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of clean water infrastructure—to flow to disadvantaged communities.

²³ Justice40 Initiative | Department of Energy, Office of Economic Impact and Diversity. Reviewed: April 2023. <https://www.energy.gov/diversity/justice40-initiative#:~:text=Section%20223%20of%20EO%2014008%20established%20the%20Justice40,infrastructure%20%E2%80%93%20to%20flow%20to%20disadvantaged%20communities%20%28DACs%29.>

Pathways to Support the New England Workforce Ecosystem *continued*

These coalitions can begin to establish a shared vision for job access and quality, as well as opportunities for minority and women contractors. There may be other benefits coalitions and communities can imagine. This process is called community benefits planning.²⁴ Coalitions composed of labor, community-based organizations, and environmental justice movement organizations could be extremely powerful and effective in realizing the demands for high-road employment and climate justice. The second track is mobilizing workforce organizations and business support organizations to align with high-road employment opportunities. This will be most effective at the metropolitan level. The goal is to incentivize collaboration among organizations at different points on the career pathway within one metropolitan area, thereby creating an integrated and aligned programs and services that move individuals from early support through high-road careers. These efforts are complementary since influencing the flow of resources and labor market demand is likely to occur at the state level. The training and deployment of the workforce will take place within metropolitan areas.

Coalitions composed of labor, community-based organizations, and environmental justice movement organizations could be extremely powerful and effective in realizing the demands for high-road employment and climate justice.

Taken together, these efforts could align with the equity-centered collective impact approach described earlier if certain conditions are met through the design and implementation of these initiatives. Meeting the five essential conditions of collective impact will be critical to maximizing federal funding opportunities, particularly for MSA-level workforce initiatives including a common agenda, shared measurement, mutually reinforcing activities, continuous communication, and a backbone team/network management function. Equity will need to be centered within each of these conditions. Citing the authors of *Centering Equity in Collective Impact* who apply the Urban Strategies Council's definition, "Equity is fairness and justice achieved through systematically assessing disparities in opportunities, outcomes, and representation and redressing [those] disparities through targeted actions."²⁵ These important details should be used in crafting an investment strategy.

²⁴ Emerald Cities Collaborative, *The People's Justice40+ Community Benefit Playbook. A Guide to Capturing Federal Infrastructure Investments*, 2022. <https://emeraldcities.org/j40playbook/>

²⁵ From *Centering Equity in Collective Impact*. Stanford Social Innovation Review. Winter, 2022, <https://www.urbanstrategies.org/resources>

Appendix 1 – State Policy

The following is a state-by-state overview of commitments to greenhouse gas emissions reductions, expansions of renewable portfolio standards to encourage the adoption of clean energy technologies, and legislative directives to encourage equitable inclusion in clean energy.



CONNECTICUT

Connecticut passed the Global Warming Solutions Act (GWSA) in 2008, which requires greenhouse gas emissions to be reduced to 10 percent below 1990 levels by 2020 and 80 percent below 2001 levels by 2050.²⁶ The Connecticut legislature has since passed several key pieces of climate legislation to reach the GHG emissions requirements set in the GWSA. In 2018, the legislature passed Senate Bill 9, *An Act Concerning Connecticut's Energy Future*, doubling the state's renewable portfolio standard (RPS).²⁷ The Connecticut legislature passed two bills in 2022 to mitigate the impacts of the climate crisis. The first piece of legislation—Senate Bill 10, *An Act Concerning Climate Change Mitigation*—codifies a previous executive order that established a goal to reach a zero-carbon electric grid by 2040.²⁸ The other bill—Senate Bill 176, *An Act Concerning Clean Energy Tariff Programs*—expands existing renewable energy generation programs.²⁹

²⁶ Connecticut General Assembly. Public Act No. 08-98: An Act Concerning Connecticut Global Warming Solutions. <https://www.cga.ct.gov/2008/ACT/PA/2008PA-00098-R00HB-05600-PA.htm>.

²⁷ Connecticut General Assembly. Public Act No. 18-50: An Act Concerning Connecticut's Energy Future. <https://www.cga.ct.gov/2018/act/pa/pdf/2018PA-00050-R00SB-00009-PA.pdf>.

²⁸ Connecticut General Assembly. Public Act No. 22-5: An Act Concerning Climate Change Mitigation. <https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00005-R00SB-00010-PA.PDF>.

²⁹ Connecticut General Assembly. Public Act No. 22-14: An Act Concerning Clean Energy Tariff Programs. <https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00014-R00SB-00176-PA.PDF>.



MAINE

Maine is committed to achieving carbon neutrality by 2045 and has recently taken steps to achieve that goal. In 2019, the Maine Climate Council was created to bring together scientists, industry, engaged citizens, and local and state officials to develop action plans to reduce Maine’s greenhouse gas emissions. The Council is charged with leading efforts to reduce GHG emissions by 45 percent below 1990 levels by 2030 and by at least 80 percent by 2050. The Council is also charged with developing action plans to increase Maine Renewable Portfolio Standard to 80 percent by 2030 and 100 percent in 2050. In May 2022, the Equity Subcommittee of the Maine Climate Council recommended increased monitoring and tracking of job creation in the progress towards 80 percent renewables for specific priority populations.^{30,31} The transition in Maine incentivizes the adoption of solar, energy storage, energy efficiency and offshore wind technologies to achieve carbon neutrality. Clean energy jobs are a high priority for legislators who are focused on spurring economic activity through investments into renewable technologies.



MASSACHUSETTS

Massachusetts is one of the leading states in the adoption of renewable and alternative energy sources and is committed to net-zero greenhouse gas emissions by 2050. The state’s Renewable Energy Portfolio Standard (RPS), which began with a compliance obligation of 1.0 percent in 2003, was one of the first in the nation. Governor Deval Patrick signed the Global Warming Solutions Act (GWSA) and the Green Communities Act (GCA) into law in 2008, committing the state to regulatory programming for greenhouse gas reductions. In 2018, ten years into the GWSA, Massachusetts was shown to be on track to meet the goal of reducing 2020 emissions to below 1990 levels. Within the framework of the *Massachusetts 2050 Decarbonization Roadmap*³² and the *Massachusetts Clean Energy and Climate Action Plan for 2025 and 2030*,³³ *Senate Bill 9 – An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy* was signed into law. In addition to updating the 2008 Global Warming Solutions Act, Senate Bill 9 created a roadmap for Massachusetts climate policies impacting environmental justice communities and historically underrepresented individuals.

³⁰The Equity Subcommittee ensures that states climate strategies provide shared benefits across diverse populations in Maine.

³¹ https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/Maine%20Climate%20Council_Equity%20Subcommittee%20Final%20Report_March%202023.pdf

³² Commissioned by the Executive Office of Energy and Environmental Affairs.

³³ Commissioned by the Executive Office of Energy and Environmental Affairs.



NEW HAMPSHIRE

New Hampshire established a Renewable Portfolio Standard (RPS), RSA 362-F, in May 2007. The state’s electricity providers are required to acquire the equivalent of 25.2 percent of retail electricity in renewable energy certificates by 2025. To support the RPS, the Renewable Energy Fund (REF) provides funding for residential, commercial and community rebate programs that support thermal and electrical renewable energy. In July 2022, New Hampshire updated its Ten-Year Energy Plan, which highlighted the need to find solutions for training and attracting a robust energy workforce.³⁴ State policies and energy plans, however, have prioritized cost-effective energy solutions to meeting the state’s energy demands.³⁵ New Hampshire has not adopted a statewide legal mandate to reduce carbon emissions.³⁶ Additionally, plans to adopt more renewable energy technology solutions—e.g., solar, and energy efficiency—for the state have either been rejected or stalled.



RHODE ISLAND

Rhode Island has a goal to reach net-zero greenhouse gas emissions by 2050. In 2022, Rhode Island passed legislation requiring the state to commit to 100 percent renewable electricity by 2033.³⁷ Rhode Island established a Renewable Energy Standard in 2004 which has evolved to require all the state’s electricity providers to supply retail electricity from renewable sources by 2033. Eligible technologies include solar, wind, geothermal, biomass and fuel cells.

In June 2022, the state passed legislation requiring renewable energy developers receiving state funding to enter into project labor agreements with construction unions to meet the prevailing wage. Additionally, developers have been directed to create a workforce development program with apprenticeships in trade occupations that will be relevant to the projects. State spending reflects the desired shift to renewables and Rhode Island has made investments to bolster the workforce.³⁸

³⁴ <https://www.energy.nh.gov/sites/g/files/ehbemt551/files/2022-07/2022-state-energy-strategy.pdf>

³⁵ <https://www.nhpr.org/nh-news/2021-11-23/energy-climate-change-nh>

³⁶ <https://energynews.us/2022/08/22/new-hampshires-latest-energy-strategy-blame-other-states-for-rising-costs/>

³⁷ Rhode Island General Assembly, S. 2274: An Act Relating to Public Utilities and Carriers-Renewable Energy: <http://webserver.rilin.state.ri.us/BillText/BillText22/SenateText22/S2274Aaa.pdf>

³⁸ Rhode Island refers to activities and investments made into ocean-focused renewables and clean energy technologies as “Blue Economy” activities and investments. Offshore wind and marine trades activities and investments are included among five other categories related to defense, tourism, and fishing.



VERMONT

Vermont passed the Global Warming Solutions Act (GWSA) in 2020, which requires reducing emissions to at least 26 percent below 2005 emission levels by 2025, to at least 40 percent below 1990 emission levels by 2030, and to at least 80 percent below 1990 emission levels by 2050.³⁹ The GWSA also established the Vermont Climate Council to identify and evaluate programs that could reduce greenhouse gas emissions in the state and record its findings in a Climate Action Plan. The Vermont Climate Action Plan, adopted in December 2021, centers its GHG mitigation strategies around five key areas, one of which is investment in community and workforce development.⁴⁰

Throughout 2021, the Department of Public Service worked in parallel with the Climate Council to update the state’s Comprehensive Energy Plan (CEP), which was released in January 2022. The CEP provides recommendations for achieving state energy goals equitably, affordably, reliably, and in an environmentally sound manner. The development of the Energy Plan informed and is designed to meet the emissions reduction requirements set by the GWSA and to be consistent with the Climate Action Plan. The high-level goals outlined by the CEP include using renewable sources to meet 25 percent of energy needs by 2025, 45 percent of energy needs by 2035, and 90 percent of energy needs by 2050.

³⁹ Footnote 1: 10 V.S.A. § 578

⁴⁰ State of Vermont. Vermont Climate Action Plan Summary. December 2021. <https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/VT%20CAP%20Summary%20FINAL.pdf>.

Appendix 2 – Descriptions of MSAs and their Workforce Ecosystem Profiles

Creating actionable solutions to diversifying the clean energy workforce requires understanding workforce development within metropolitan areas. The United States Office of Management and Budget defines metropolitan statistical areas as standardized county or equivalent-based areas having at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core, as measured by commuting times.⁴¹ Most of the activity within labor markets occurs within metropolitan areas. This is where workers receive training and get connected to opportunities. Workers often commute to jobs within the boundaries of metropolitan areas, often crossing city, state, and county boundaries.

American Job Centers, funded by the Workforce Innovation and Opportunity Action (WIOA) of 2014 are often organized to provide a variety of services to residents of a metropolitan region. This is typically done in conjunction with government agencies, community-based organizations and educational institutions and employers. Employment opportunities are more likely to be found in metropolitan areas. Each local workforce system is different, so an analysis of career pathways within metropolitan areas provides a more textured picture of the character of the workforce system and a roadmap of the potential place-based strategies to enhance pathways into clean energy.

⁴¹ Bureau of Economic Analysis, *How is a metropolitan area defined?* <https://www.bea.gov/help/faq/459> January 10, 2008. Page last modified April 25, 2010.

Appendix 2 – Descriptions of MSAs and their Workforce Ecosystem Profiles *continued*

Finally, the problem of increasing diversity can be addressed more directly. A geospatial analysis of the location of disadvantaged communities in relation to training and employment opportunities in clean energy provides additional insights about access to clean energy pathways.

Methodology

Six MSAs were prioritized for this study. Priority locations were identified in consultation with the Barr Foundation Climate Team. A geospatial analysis of MSAs was used to identify the most disadvantaged locations in terms of social and economic vulnerability and exposure to environmental risk factors. The Geospatial analysis calculated an Environmental Justice Index (EJ Index) across the six New England states. This analysis applied the US Environmental Public Agency (EPA) EJSCREEN for calculating the EJ Index by combining demographic and environmental indicators, to represent historically underrepresented communities that are vulnerable to an environmental pollutant. In this case, the analysis used particulate matter as it is closely related to fossil fuel combustion for electricity. The following are demographic indicators used to define historically underrepresented communities:

- Minority Population
- Low Income
- Less than a High School Education
- Non-English-Speaking Households
- Unemployed Population

The team then used Barr grantees to narrow down to the final set of MSAs for case studies. Emerald Cities Collaborative conducted 37 interviews with representatives from different organizations within each priority MSA.

Interviews included stakeholders across the six regions in the following categories:

- Industry Representatives and Businesses
- Advocacy and EJ Organizations
- Community-Based Organizations
- Community Colleges and Technical Colleges
- Pre-Apprenticeship and Apprenticeship Programs
- State Building and Construction Trades Councils
- State Organizations and Leaders

Appendix 2 – Descriptions of MSAs and their Workforce Ecosystem Profiles *continued*

Interviews focused on the levels of awareness about clean energy career pathways, the activities that prepared individuals for career pathways, and the types of formal or informal partnerships each organization had with others in the workforce ecosystem. The way these partnerships were described led to inferences about the degree to which an organization was connected to others. Connectivity was an important indicator of the effectiveness of the workforce ecosystem. Indicators of connectivity included:

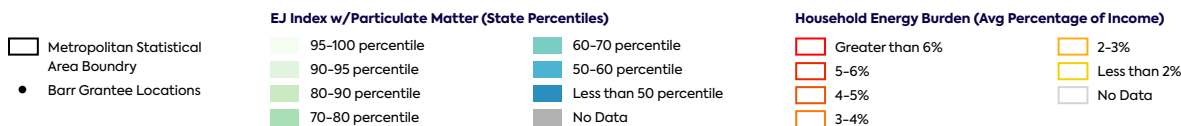
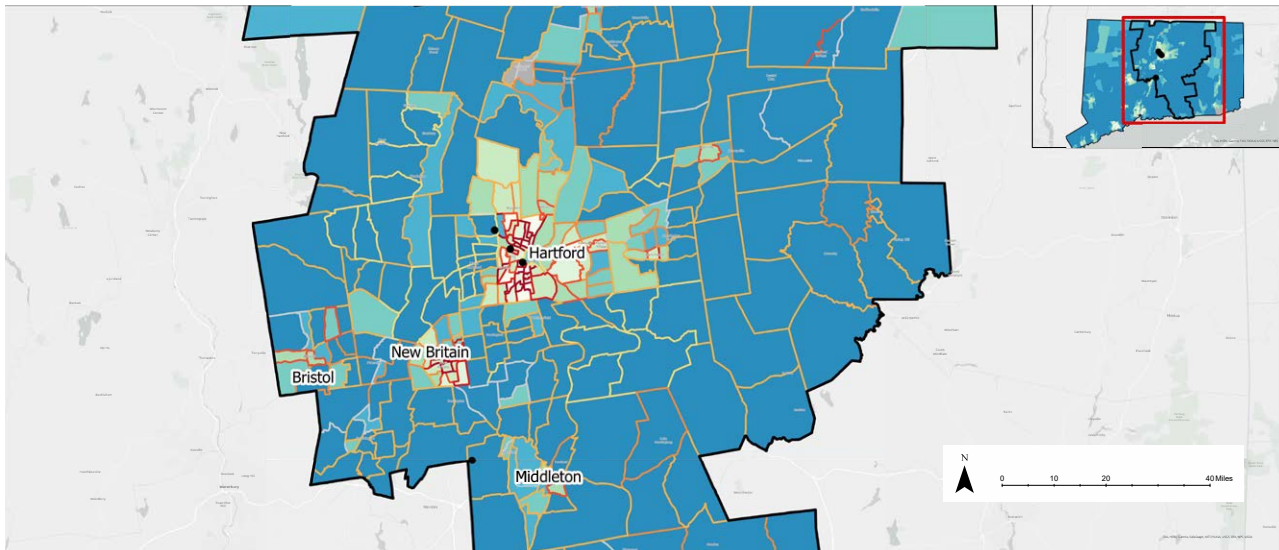
- The number of public-facing partnerships the organization had in place. These were determined through the interviews and by examining the websites of these organizations.
- Descriptions of memoranda of understanding, articulation agreements or other formal statements of agreements with other organizations situated in the workforce ecosystem.
- Descriptions of referral networks where the organization either gained participants from others or where the organization referred participants out.



Emerald Cities Collaborative. Photo credit: Marilyn Humphries

Hartford-East Hartford-Middletown MSA Workforce Ecosystem

Hartford-East Hartford-Middletown MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



HARTFORD-EAST HARTFORD-MIDDLETOWN MSA GEOSPATIAL PROFILE

Population (in 2020): **1.2 million**

Unemployment Rate: **4.4%**

Average Particulate Matter
2.5 percentile in State: **28**

Average Traffic Proximity Percentile
in State: **58**

Average Energy Costs
(% of household income): **3%**

Hartford-East Hartford-Middletown, Connecticut, metropolitan area centers the state capital of Hartford. The metropolitan region comprises Hartford County, Tolland County and Middlesex County.⁴² In 2020, the population was 1.2 million, a 0.46 percent growth from 2019.

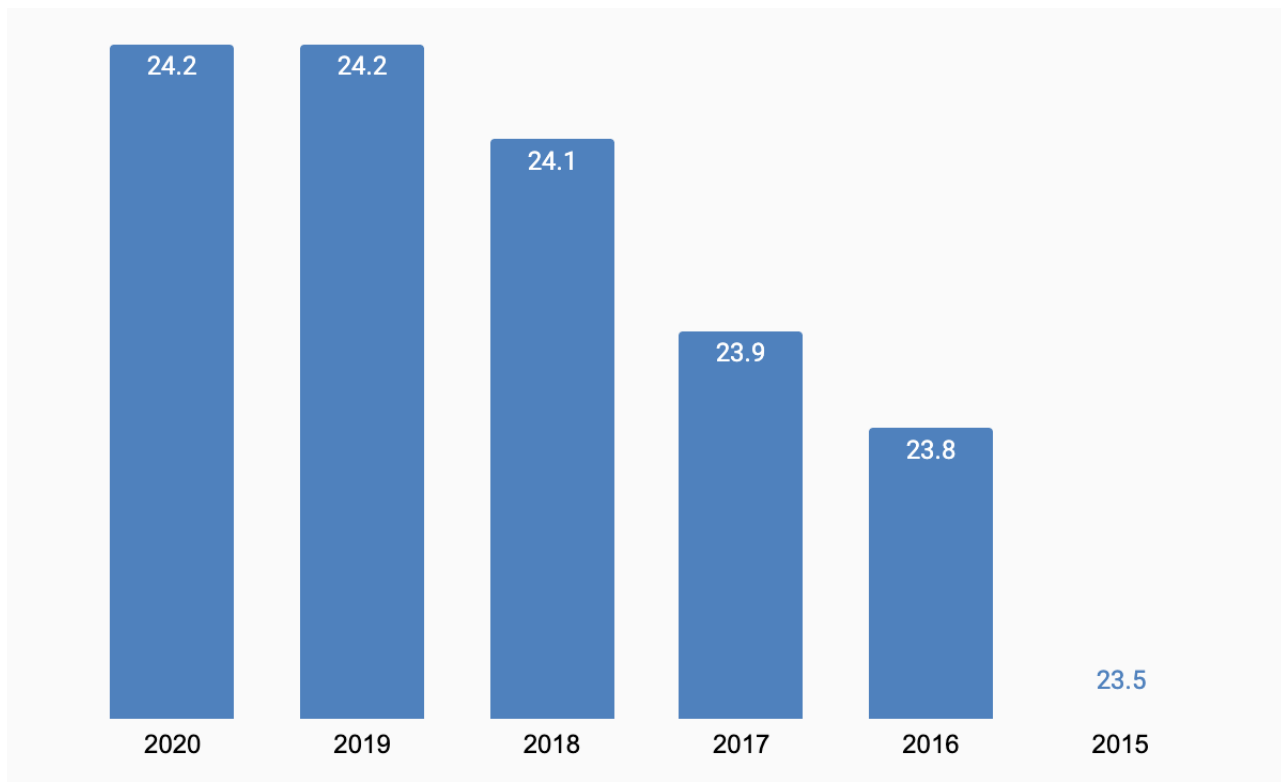
When compared to the state, the Hartford-East Hartford-Middletown metropolitan area ranked in the 28th percentile for particulate matter 2.5 pollution and greater than the 50th percentile when measuring communities proximate to traffic. On average, residents traveled 24 minutes to work, with nearly 35 percent of households owning three or more vehicles. Multiple vehicle ownership ranks the highest among the six MSAs observed in the New England region.

⁴² <https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm>

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
Hartford-East Hartford-Middletown MSA 2015-2020



Source: 2016-2020 ACS 5-year estimates

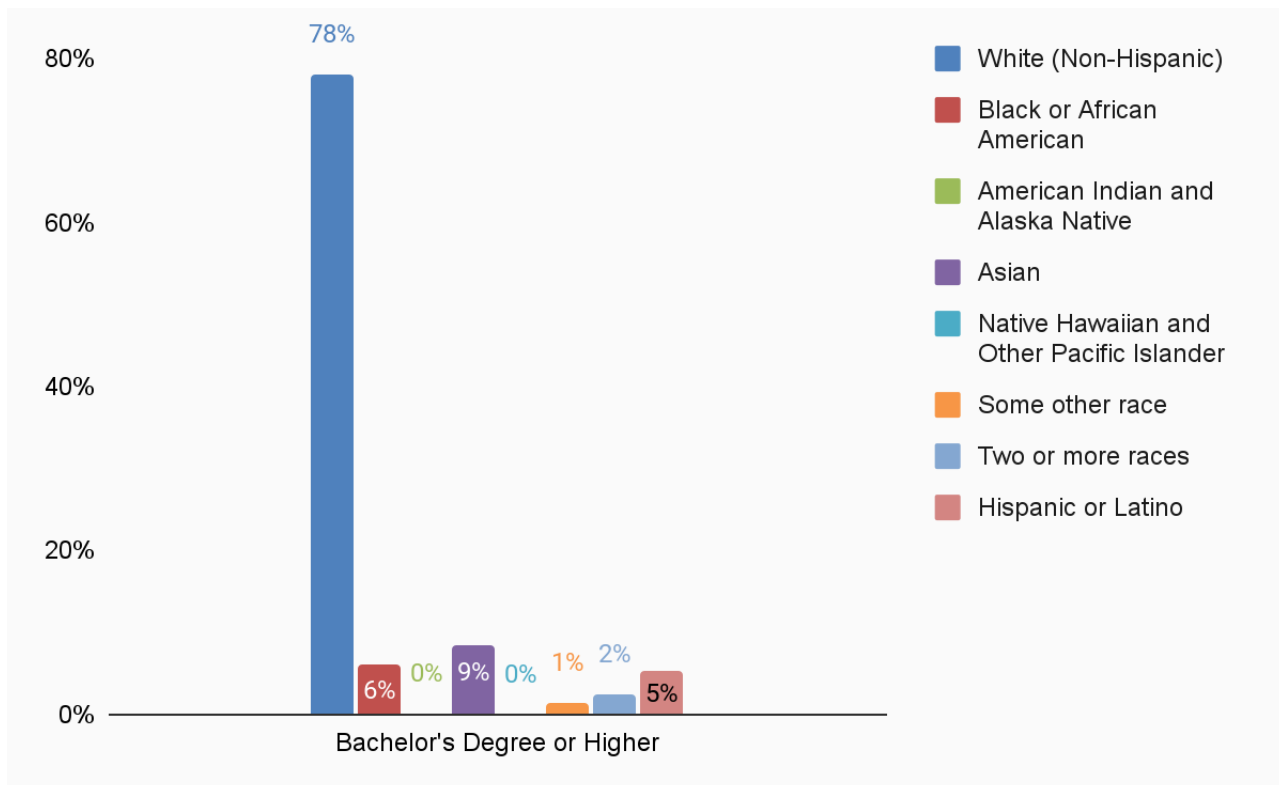
Disproportionate impacts to health and pollutant exposure are largely associated with race/ethnicity and income. Historically underrepresented communities represent 12 percent of the Hartford metro population. Overall, 31 percent of the residents identify as non-White, 9 percent have less than a high school education, 4 percent are unemployed, 13 percent have incomes at or below 65 percent below the state median income, and 5 percent live in limited English-speaking households.

On average, there were 7.9 times more White (Non-Hispanic) residents than any other race or ethnicity in 2020. Of the total population, 66.2 percent of the residents identify as White, 15.2 percent Hispanic or Latino and 10.5 percent Black or African American and 5.1 percent Asian American. The share of Hispanic or Latino, Black or African American residents varies slightly from the state population. In Connecticut, 16.4 percent of residents identify as Hispanic or Latino, while 9.9 percent identify as Black or African American.

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

FIGURE 2. Race/Ethnicity by Educational Attainment
Hartford-East Hartford-Middletown MSA 2020



Source: 2016–2020 ACS 5-year estimates

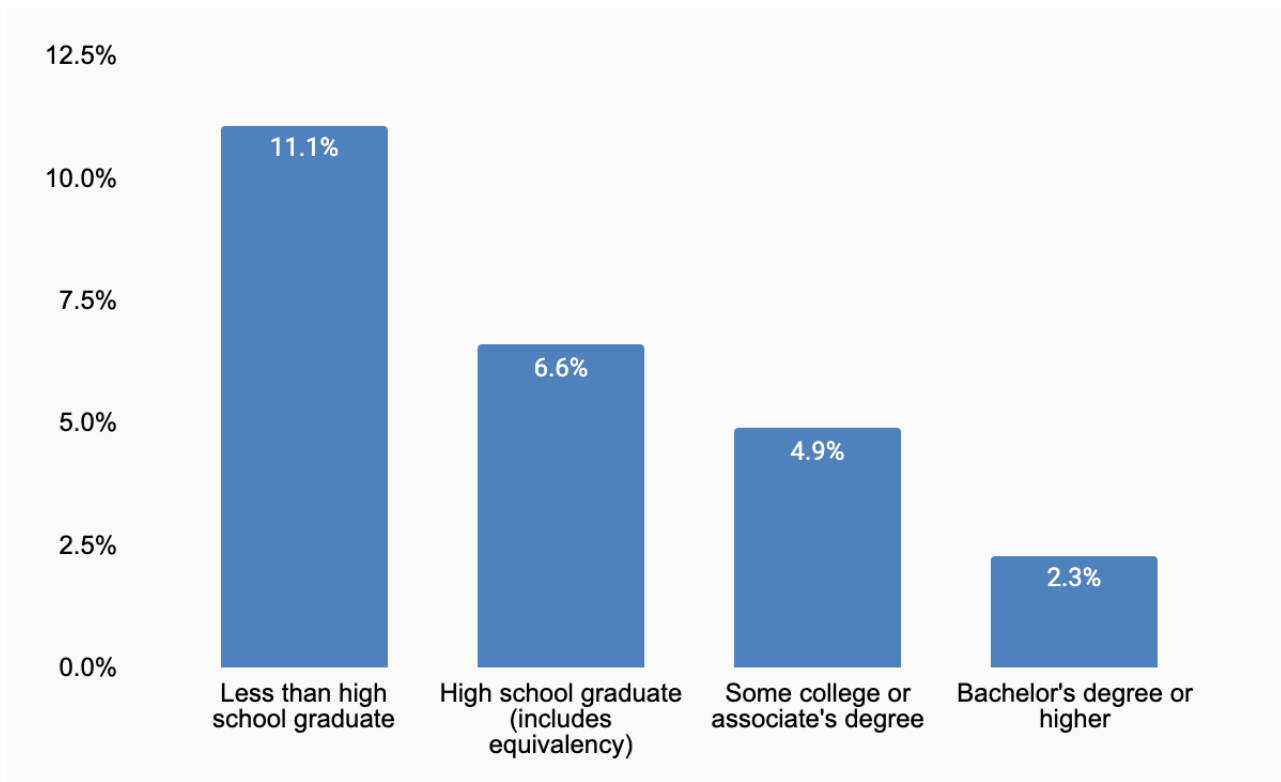
Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Overall, 9 percent of residents have earned less than a high school diploma while 26 percent have high school diplomas with no other formal education. Figure 2 shows race & ethnicity by distribution for the Hartford metro area in 2020.

Although residents identifying as Hispanic or Latino represent the second highest share of the population at 15.2 percent, only 5 percent of the population have attained a bachelor's or higher.

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

FIGURE 3. Unemployment Rate by Educational Attainment
Hartford-East Hartford-Middletown MSA 2020



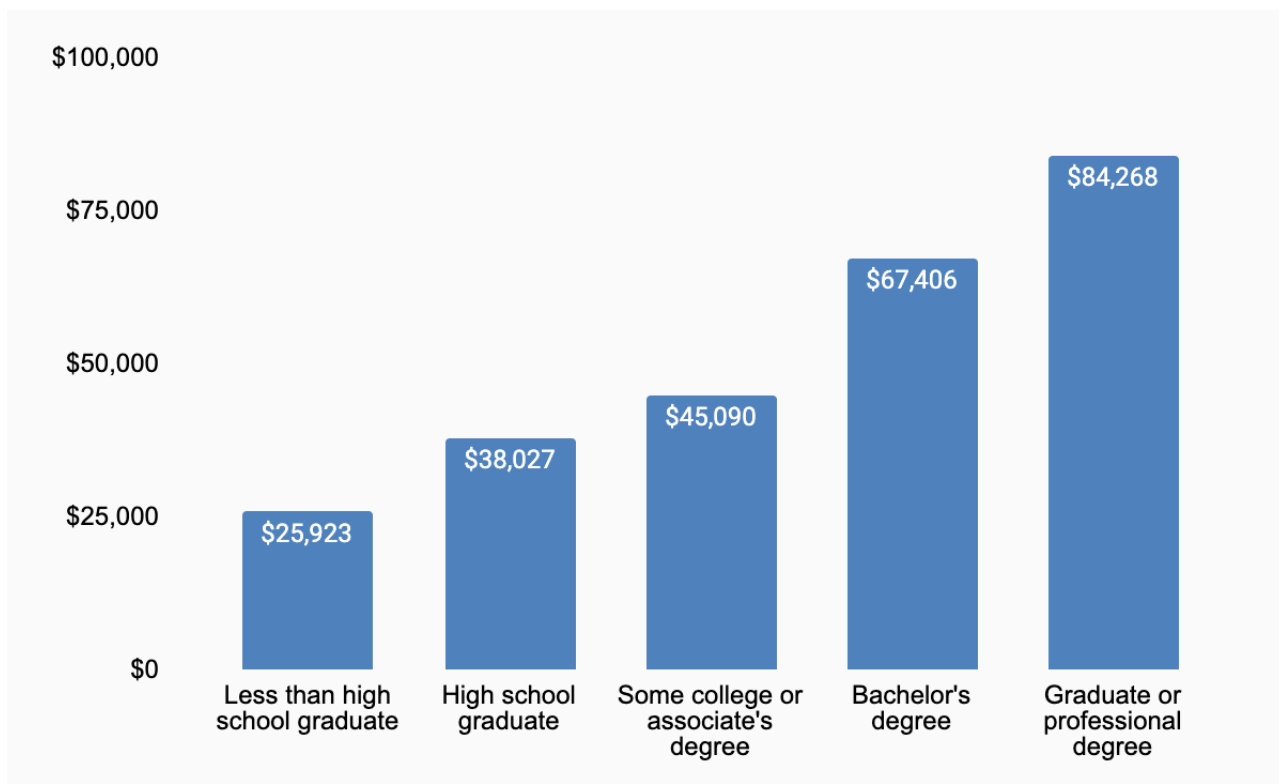
Source: 2016–2020 ACS 5-year estimates

Overall unemployment rate for individuals 25 to 64 years and older was 4.4 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is disproportionately higher at nearly 11.1 percent and 6.6 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than the general Hartford metro unemployed population at 2.3 percent (Figure 3).

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

FIGURE 4. Median Earnings and Educational Attainment
Hartford-East Hartford-Middletown MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlate with educational attainment. Workers with a bachelor's earned \$41,000 more in annual wages than those with less than a high school education, the widest margin when compared to the six metropolitan areas observed in this report. (Figure 4).

English-capability is an important aspect of employment participation. Nearly 25 percent of the Hartford metropolitan population speak a language other than English at home with Spanish being the most common language at 12 percent, followed by Indo-European speaking households at 9 percent and Asian and Pacific

Island households at 2 percent. Collectively, 5 percent of residents speak limited English at home.

Hartford-East Hartford-Middleton MSA Clean Energy Workforce Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager AKA “Backbone Team”	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

Hartford was one of the first cities in Connecticut to develop a comprehensive climate action plan. The plan identifies adaptation strategies to mitigate climate challenges such as improving energy efficiency of public and private buildings, increasing renewable energy use, encouraging clean energy vehicles and increasing energy resiliency among other strategic focuses. In 2019, the City of Hartford's Board of Energy Improvement District put forth and adopted a comprehensive plan to implement strategies drawn from the city's climate action plan. The Energy Improvement District aims to reduce greenhouse gas emission by sourcing 4 MW from renewable sources and with more than 1,200 households participating in utility-sponsored weatherization programs. To advance these efforts, the city of Hartford issued an Energy Equity Challenge for all residents and local property owners. The goal is to reduce energy use and encourage residents to utilize free resources to improve residential and commercial buildings energy efficiency.

⁴³ <https://www.hartfordct.gov/files/assets/public/mayors-office/sustainability/sustainability-documents/energy-improvement-district/eid-materials/eid-comprehensive-plan.pdf>

STRENGTHS

Hartford has an emerging infrastructure of educational institutions, organized labor, regional and state agencies, advocacy, and firms in active partnerships focused on creating pathways in the climate sector. Workforce development programs like Green S.T.E.P (Sustainability Technical Education Program) is a state initiative administered by local utilities in partnerships with local schools. The program was designed to prepare students for construction jobs related to clean energy. Students learn the concepts of sustainability, energy efficiency, renewable green buildings before going into the field to work with industry experts. In Hartford, 121 students from A.I. Prince Technical High school participated in the program.⁴³

Efforts at the state level are fostering connections for the workforce in high-demand sectors. The Office of Workforce Strategy (OWS), a quasi-governmental organization that aims to enhance Connecticut's workforce ecosystem through regional collaborative efforts. The Office funds pre-apprenticeship programs across the state and maintains a shared database of job seekers and workers participating in OWS programs.

Similarly, Hartford Community College has a robust construction and trades program offering apprenticeship, certificate and degree programs. The program offers a career and workforce department, located in Hartford's Leading Edge Training Center Powered by the Ratcliffe Foundation, strategically placed at the Boys & Girls Clubs of Hartford & Cecil Counties. This location allows the college to provide valuable training in the southeastern portion of the County. Students are guided through

Appendix 2 –

Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

programs with help from dedicated career navigators who provide interviewing and resumé writing assistance, resources, and networking opportunities with local employers. Hence, the community college has a satellite site located within a disadvantaged community and offers supportive services necessary for people from impacted communities to succeed.

Additionally, advocacy organizations play a crucial role in bridging opportunities between environmental justice communities and labor. Both critical actors towards developing an equitable thriving climate future. Organizations like the Connecticut Roundtable on Climate & Jobs help to build partnerships, develop intentional workforce opportunities while addressing historical harms. CT Roundtable advocated for the passage of Climate and Community Investment Act (SB 999) which ensures Connecticut's transition to renewable energy creates high-road jobs. Recently CT Roundtable has taken on the Healthy Schools Initiative serving as the backbone organization to assist Hartford public schools reduce carbon emission by ensuring all new school construction are net zero, and existing schools are retrofitted to meet energy efficiency standards.

CHALLENGES

As with other regions across the state, there is a deep shortage of workers in residential energy efficiency roles. Workforce actors are providing some training programs, however organizations are grappling with how to expand program offerings. While firms are participating in training programs, they are looking to move beyond upskilling workers by partnering with organizations who have participants ready for employment placement. According

to the energy efficiency advocates and businesses we spoke to, this shortage appears to be associated with the discontinuity and lack of predictability of labor market demand. Utility incentive programs operate until annual allocations of resources for these programs run out, then programs stop until the next budget year. This lack of predictability makes it difficult for businesses to hire new workers since they don't know whether or not incentive programs will be operating. Disadvantaged communities are disproportionately affected by stops and starts in the flow of resources.

OPPORTUNITIES

More pre-apprenticeship and workforce readiness programs are needed to meet the forecasted demand in energy efficiency and energy generation. The Building Trades Multi-Craft Core Curriculum (MC3) is an apprenticeship preparation program developed by North America's Building Trades Unions and being adopted by local and state building trades councils. This is the case with the Connecticut State Building and Construction Trades Council. As with the Green S.T.E.P program, workforce training programs could partner with public schools to expand career exposure and exposure to apprenticeship training at the middle and high school level.

CONSIDERATIONS

Advocacy on the part of organized labor, community-based organizations, and environmental justice groups has resulted in a well-developed ecosystem focused on equitable access to opportunities and high-road employment in clean energy and other state infrastructure projects. For instance, the State

Appendix 2 – Hartford-East Hartford-Middletown MSA Workforce Ecosystem *continued*

regulates Individual Development Accounts administered by the State Department of Labor. The law states: “The initiative shall provide an eligible individual as provided in [557-§ 31-51yy](#) with an opportunity, through a certified state IDA program, to establish an individual development account from which funds may be used by the account holder for the following purposes as specified in the approved plan”⁴⁴ including costs of education or job training, purchasing a primary residence, entrepreneurial activities, purchasing a car for employment purposes, lease deposit for primary residence, education or job training and child care costs. Under Public Law 557 § 31-56b the State of Connecticut requires Project Labor Agreements for all Public works projects. Executive action established [Public Law 19-71](#) requiring Project Labor agreements and apprenticeship utilization for

offshore wind projects. According to the Connecticut State Building Trades Council, Project Labor Agreements are an important tool to promote workforce diversity on public projects.

Recent state-wide workforce initiatives in clean energy are the result of early local efforts in Hartford. Now, they are being taken to scale. For instance the State of Connecticut’s Building and Construction Trades Council Training initiative is a statewide pre-apprenticeship program based on an earlier successful effort called the [Hartford Jobs Funnel](#). The Funnel was developed by the local workforce investment agency, designed to recruit local construction workers for major projects in Hartford. The program is still in place and includes a residential target hire of 30 percent, established by a city ordinance.

Assessment: Based on these findings, the team assessed Hartford based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

Connectivity Characteristics at the Regional Level: A Snapshot

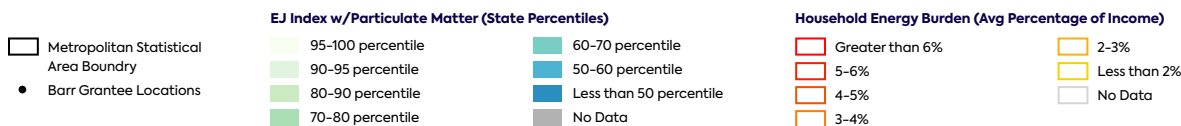
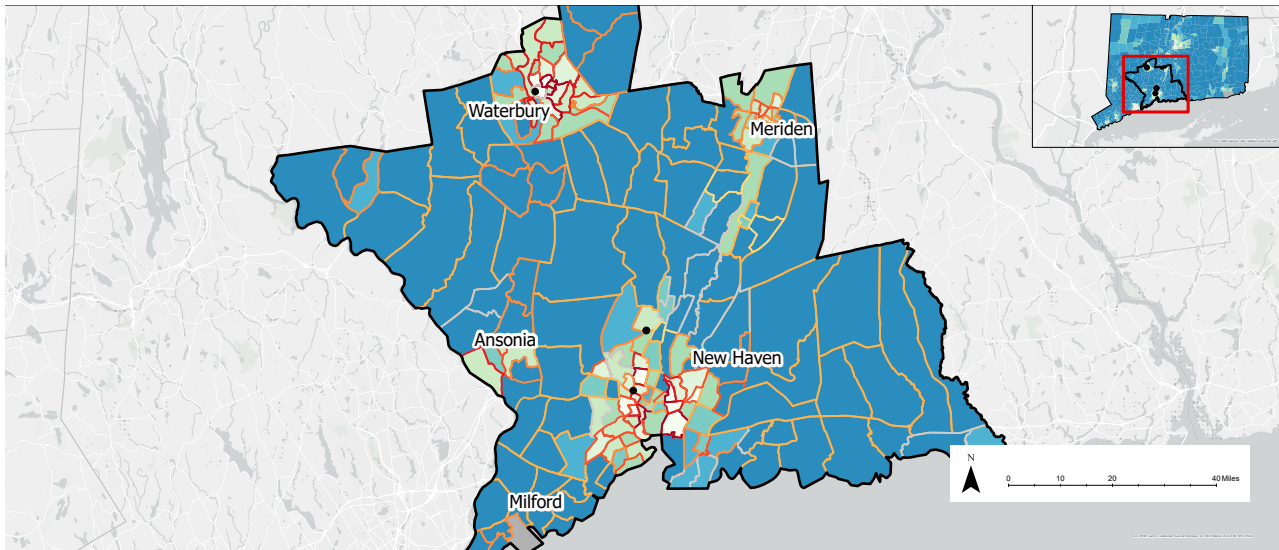
	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

⁴⁴https://www.lawserver.com/law/state/connecticut/ct-laws/connecticut_statutes_31-51yy

New Haven–Milford MSA Workforce Ecosystem

New Haven–Milford MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



NEW HAVEN–MILFORD MSA GEOSPATIAL PROFILE

Population (in 2020): **857,733**

Unemployment Rate: **5.6%**

Average Particulate Matter
2.5 percentile in State: **60**

Average Traffic Proximity Percentile
in State: **77**

Average Energy Costs
(% of household income): **4%**

New Haven–Milford, CT metropolitan area consists of the entire New Haven County.⁴⁵ In 2020, the population was 857,513, with a slight decline from 2019 at 0.21 percent.

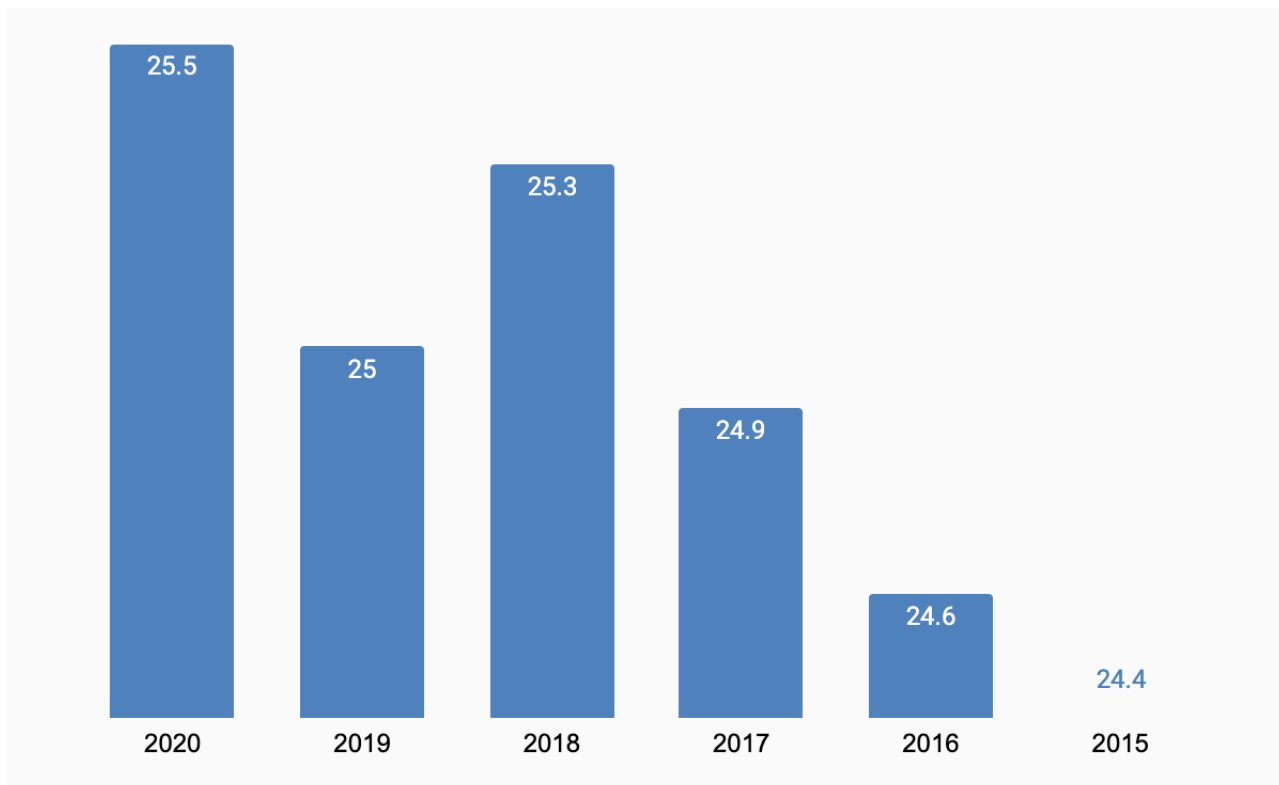
When compared to the state, the New Haven–Milford metropolitan area ranked in the 60th percentile for particulate matter 2.5 pollution levels. Communities proximate to traffic ranked in the top 77th percentile, the highest among the six metropolitan areas observed in this report. On average, residents traveled 25 minutes to work, with 34 percent of households owning three or more vehicles.

⁴⁵ [https://www.bls.gov/cew/classifications/areas/county-
msa-csa-crosswalk.htm](https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm)

Appendix 2 –

New Haven–Milford MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
New Haven–Milford MSA 2016–2020



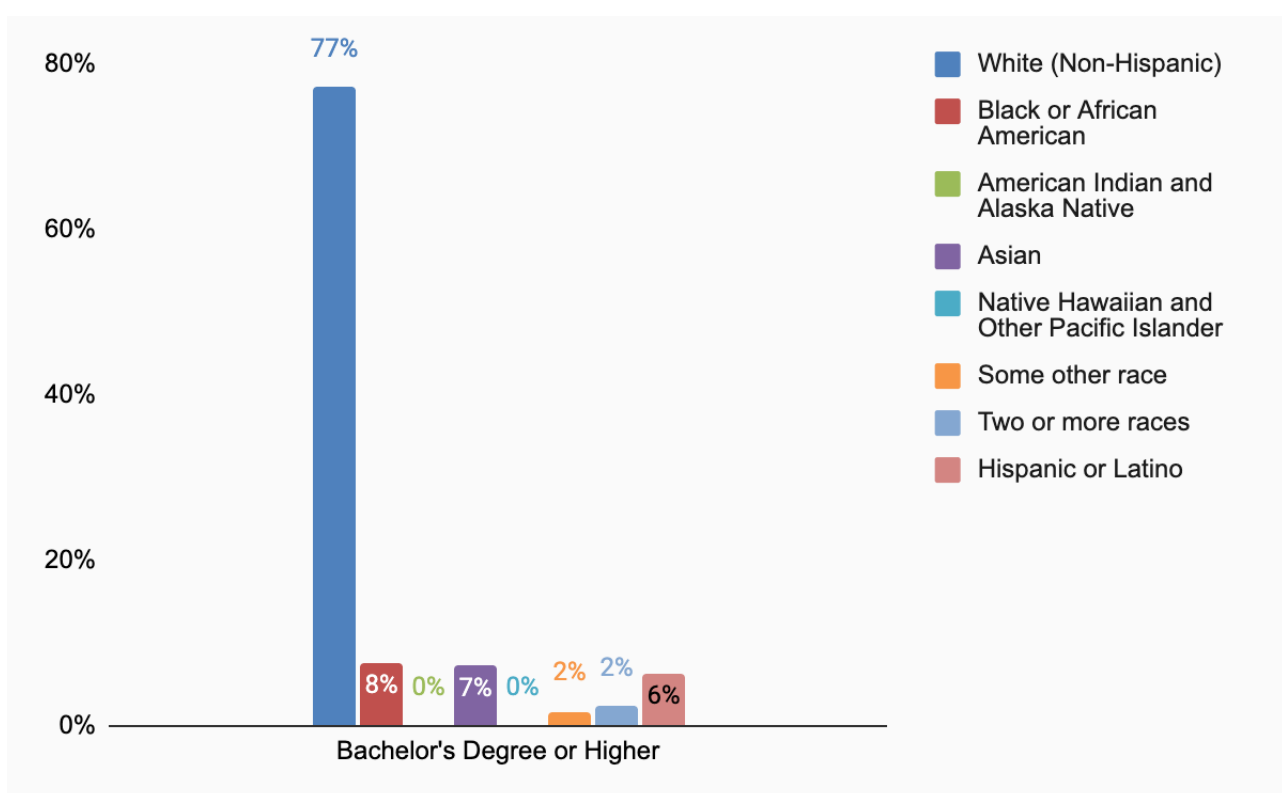
Source: 2016–2020 ACS 5–year estimates

Disproportionate impacts to health and pollutant exposure is largely associated with race/ethnicity and income. Historically under-represented communities represent 14 percent of the New Haven metro population, higher than the other six metropolitan areas observed in this report. Overall, 36 percent of the residents identify as non-White, 10 percent have less than a high school education, 5.6 percent are unemployed, 14 percent have incomes at or below 65 percent below the state median income, and 5 percent live in limited English speaking households.

On average, there were 7.9 times more White (Non-Hispanic) residents than any other race or ethnicity in 2020. Of the total population, 62 percent of the residents identify as White, 18.6 percent Hispanic or Latino, 12.5 percent Black or African American and 4 percent Asian American. The share of Hispanic or Latino and Black or African American residents is higher compared to the state population. In Connecticut, 16.4 percent of residents identify as Hispanic or Latino, while 9.9 percent identify as Black or African American.

Appendix 2 –
New Haven–Milford MSA Workforce Ecosystem *continued*

FIGURE 2. Race/Ethnicity by Educational Attainment
 New Haven–Milford MSA 2020



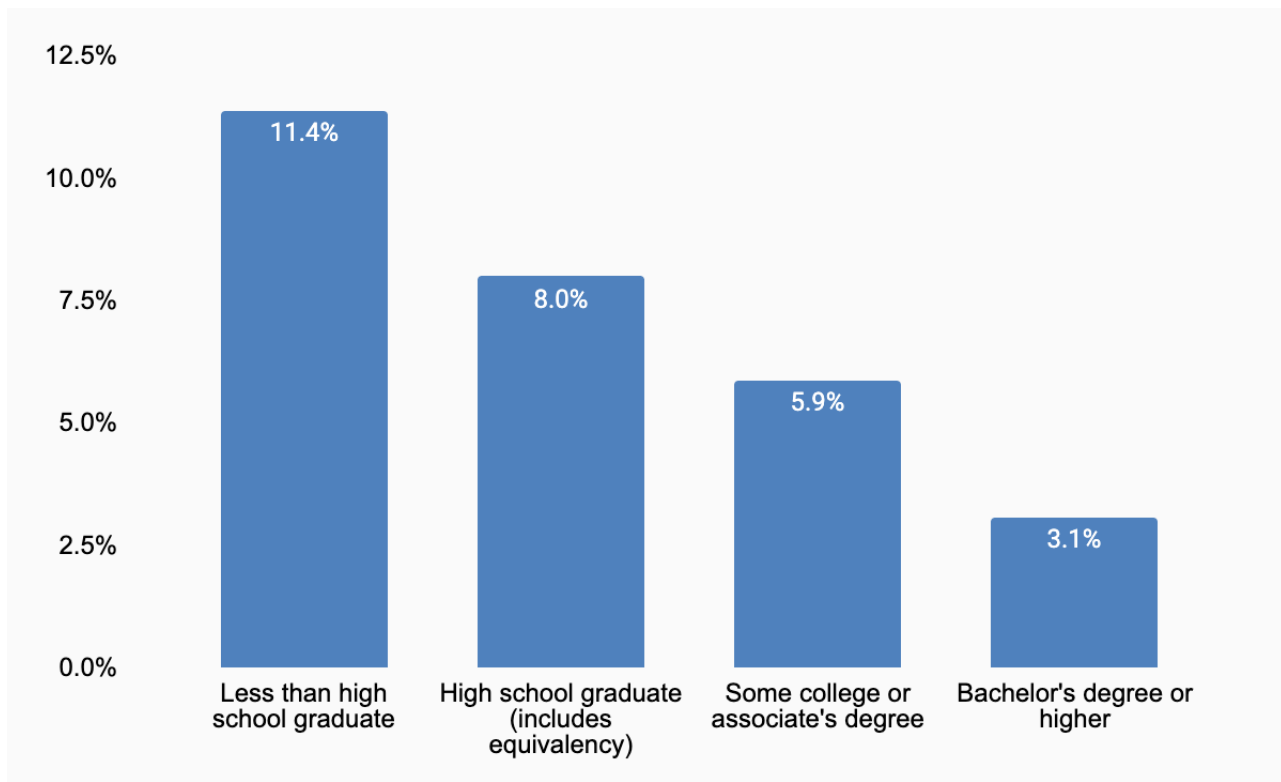
Source: 2016–2020 ACS 5–year estimates

Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Overall, 10 percent of residents earned less than a high school diploma while 30 percent have high school diplomas with no other formal education. Figure shows 2 race & ethnicity by distribution for the New Haven metro area in 2020.

Of those who attained a bachelor’s or higher, only 6 percent identify as Hispanic Latino and 8 percent Black or African American, despite representing 30 percent of the overall population, collectively.

Appendix 2 – New Haven–Milford MSA Workforce Ecosystem *continued*

FIGURE 3. Unemployment Rate by Educational Attainment
New Haven–Milford MSA 2020

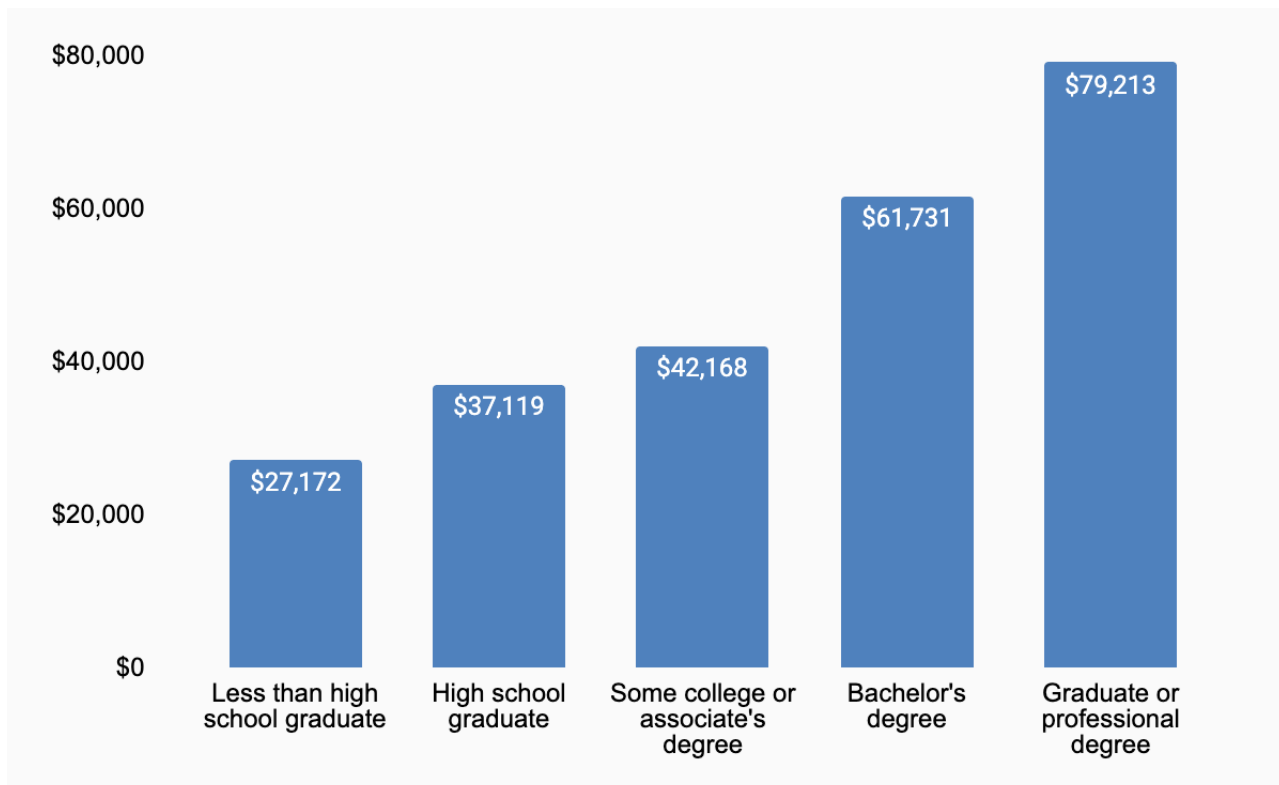


Source: 2020 ACS 5-year estimates

The unemployment rate in 2020 for individuals 25 to 64 years and older was 5.6 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is disproportionately higher at 11.4 percent and 8.0 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than the New Haven metro unemployed population at 3.1 percent (Figure 3).

Appendix 2 – New Haven–Milford MSA Workforce Ecosystem *continued*

FIGURE 4. Median Earnings and Educational Attainment
New Haven–Milford MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlates with educational attainment. Workers with a bachelor's earned nearly \$35,000 more in annual wages than those with less than a high school education (Figure 4).

English-capability is an important aspect of employment participation. Overall, 24 percent of the New Haven metropolitan population speak a language other than English at home with Spanish being the most common language at 14 percent, followed by Indo-European speaking households at 6 percent and Asian and Pacific Island households at 1 percent. Collectively, 5 percent of residents speak limited English at home.

New Haven–Milford MSA Clean Energy Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 –

New Haven–Milford MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager AKA “Backbone Team”	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 –

New Haven–Milford MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

In 2018, the City of New Haven launched the Climate & Sustainability Framework with set strategies to address climate and sustainability challenges, particularly through electric power and buildings. The city aims to increase the adoption of renewable energy by utilizing state programs such as Solarize CT which subsidize renewable energy installation in addition to supporting customer reduced energy usage, as many of these programs are underutilized. Other state programs such as Energize CT provide residents with home energy consultants and financial assistance for energy efficiency upgrades will be promoted through outreach campaigns. The city built upon these efforts by adopting the [Climate Emergency Resolution](#) which calls for the end of greenhouse gas emissions by 2030 and the commitment to work with local organizations and communities in the development of equitable clean jobs.

STRENGTHS

Energy programs at the state level have invigorated the labor demand for energy efficiency retrofits in the commercial and residential market. New Haven has more than 735 kilowatt-hour of installed solar PV on residential buildings through the success of state energy programs.⁴⁶ New jobs and training programs are being developed to support the demand. Firms are partnering with advocacy organizations and community workforce programs to recruit and support individuals from underrepresented communities to participate in internship programs.

New Haven has several workforce training assets to support pathways into clean energy careers. There are four Job Corps pre-apprenticeship programs throughout the State of Connecticut that serve New Haven and Hartford. The programs offer free supportive services and training to youth ages 16–24 years old. There is also the Industrial Management & Training Institute, which is a tuition based, nonunion affiliated, coeducational technical school that offers programs for electricians, plumbers, solar installers and HVAC mechanics. The Institute is accredited by the National Center for Construction Education & Research (NCCER).

⁴⁶ https://yale.learningu.org/download/5c2e35d5-5e36-407c-9d07-7f79dcc49e7a/S3227_Splash%20Handout.pdf

Appendix 2 –

New Haven–Milford MSA Workforce Ecosystem *continued*

CHALLENGES

There is a shortage of labor for many of the entry level occupations needed to meet the labor market demand for energy retrofits, such as solar installers, electricians, building analysts and HVAC installers. The shortage is partly attributed to low wages. Utility incentive structure makes it difficult to scale demand in the residential labor market as the downward pressure on growing the labor supply persists. Funding allocated through state weatherization programs is not enough to sustain firms and meet the market demand. Firms are left reducing staff to stretch funding for additional months, unlike commercial market programs which have more financing options.

OPPORTUNITIES

Similar to the Hartford metropolitan region, there is a high demand for MC3 pre-apprenticeship programs as well as wrap-around service providers to diversify and increase the labor supply in the energy efficiency field. Workforce training programs could partner with public schools to expand career exposure to apprenticeships and clean energy careers at the middle and high school level. Access to a high-road and equitable career pathway starts with strong partnerships with high schools and community-based organizations who are working with priority populations that can provide career exposure and wrap-around support services.

There is also an opportunity for Gateway Community College to partner the Building and Construction Trades and clean energy employers to develop certificates and training programs relevant to meeting the growing

demand in these industries. Gateway Community College is Connecticut's largest community college, but currently does not have any identifiable, construction and clean energy programs, based on information gathered from their website.

Additionally, the New Haven American Job Center offers financial assistance to Connecticut manufacturers for growing innovative and technology-based manufacturing business in Connecticut and training incumbent workers in the appropriate skills to meet current and emerging market needs. It is unclear if these opportunities are connected to clean energy manufacturers, but this could present an important economic opportunity.

CONSIDERATIONS

A limited number and types of interviews makes it difficult to draw conclusions apart from the state-level work described above. The local workforce development agency appears to have connections to the Connecticut State Building and Construction Trades. However, it is hard to make determinations about what is happening in New Haven. On one hand, the region has Job Corps as a gateway for new entrants into energy efficiency and clean energy pathways. On the other hand, the training infrastructure beyond basic workforce preparation is not clear.

Also, it is unclear how the [Climate Action Strategy at Yale University](#)—an important anchor institution in New Haven—is going to spark labor market demand. The institution plans to reduce carbon emissions from its power plants by 65 percent by 2025, increase capital spending from \$15 million to \$25 million per year

Appendix 2 – New Haven–Milford MSA Workforce Ecosystem *continued*

and will focus on “the judicious use of carbon offsets to supplement the reduction of actual emissions by 2050.”⁴⁷ The University notes the scale of having to upgrade 400 buildings and “provides an exciting opportunity to support innovations in workforce development...as success requires a talented workforce and a supportive community.”⁴⁸ While the institution makes a nod to workforce development, it is hard to determine how the institution will invest in these innovative strategies over the next 27 years. While this represents an important opportunity to spark economic opportunity in the region, it is hard to discern how the ecosystem is organized to realize the level of innovation called for in the Strategy.

The following questions remain unanswered:

- How will new entrants move from initial training opportunities to additional skills training leading to employment?
- How successful is the American Job Center incentive program aimed at getting manufacturers to hire and train incumbent workers?
- How are investments in anchor institutions such as Yale University going to be leveraged to benefit communities within the region?

Assessment: Based on these findings, the team assessed the New Haven–Milford based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

Connectivity Characteristics at the Regional Level: A Snapshot

	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

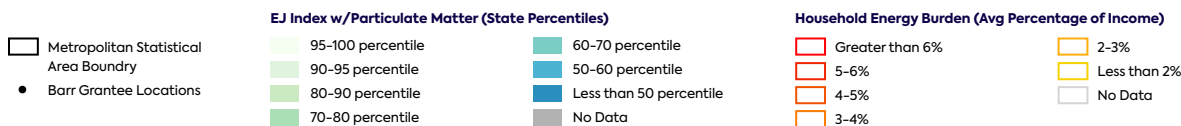
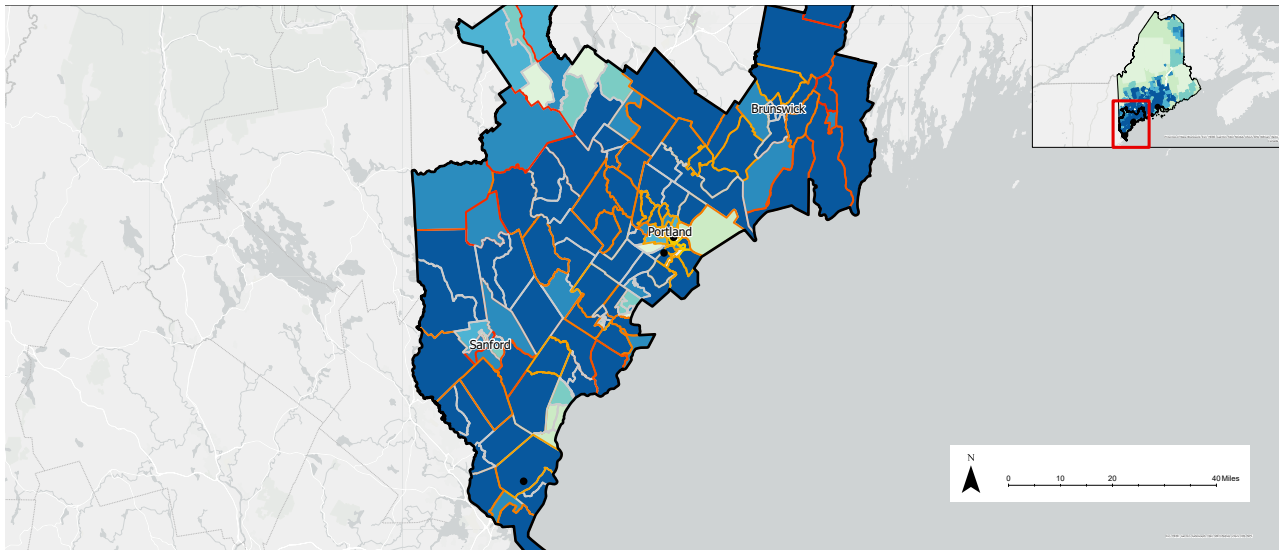
X = Present X* = Significant presence ? = Could not be confirmed

⁴⁷ Yale University Climate Strategy, 2023 <https://sustainability.yale.edu/priorities-progress/climate-action/climate-action-strategy>

⁴⁸ Ibid.

Portland-South Portland MSA Workforce Ecosystem

Portland-South Portland MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



PORTLAND-SOUTH PORTLAND MSA GEOSPATIAL PROFILE

Population (in 2020): **536,314**

Unemployment Rate: **2.5%**

Average Particulate Matter
2.5 percentile in State: **70**

Average Traffic Proximity Percentile
in State: **67**

Average Energy Costs
(% of household income): **4%**

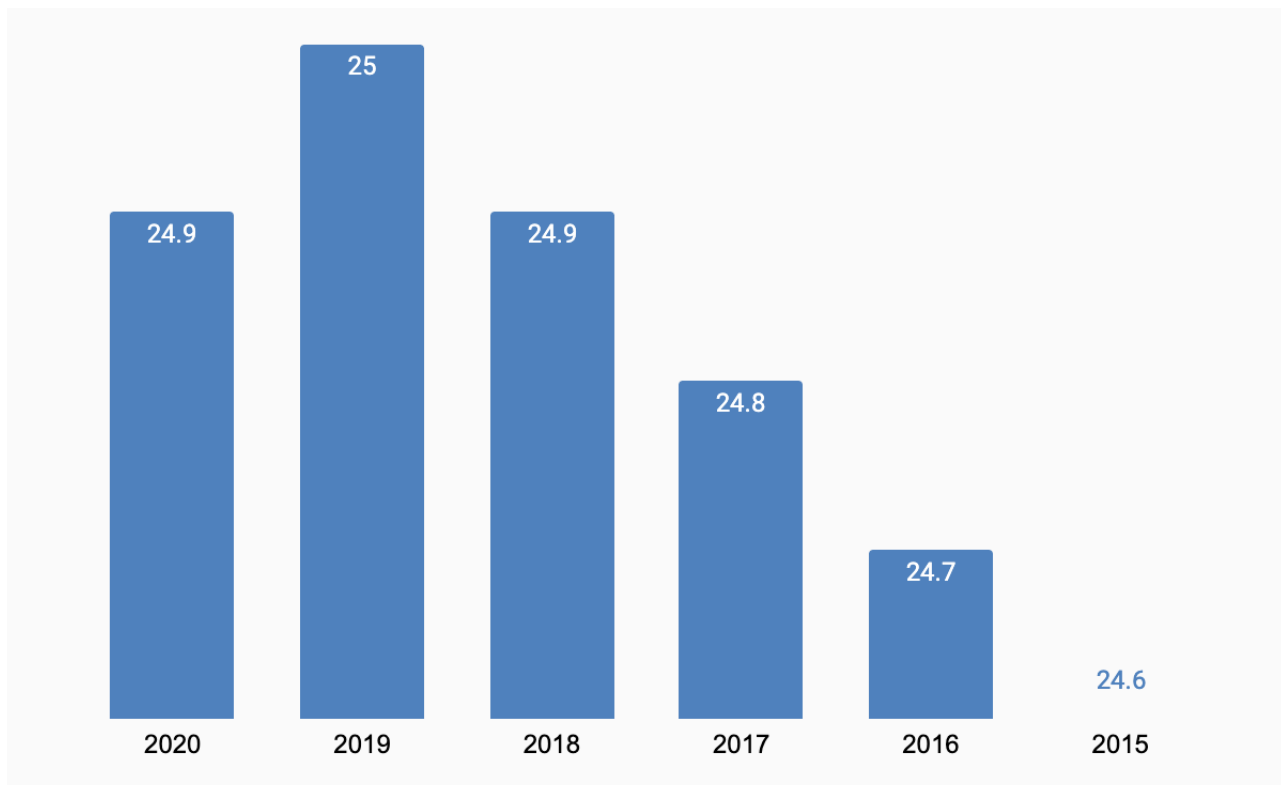
Portland-South Portland, ME metropolitan area is located near the southern region of Maine. The metropolitan region consists of Cumberland County, Sagadahoc County and York County.⁴⁹ In 2020, the population was 536,314, with a slight increase from 2019 at 0.80 percent.

When compared to the state, the Portland-South Portland metropolitan area ranked in the 70th percentile for particulate matter 2.5 pollution levels and the top 67 percentile when measuring communities proximate to traffic. On average, residents traveled 25 minutes to work, with 33 percent of households owning three or more vehicles. Only 2 percent of households did not have access to a vehicle.

⁴⁹ <https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm>

Appendix 2 – Portland-South Portland MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
Portland-South Portland MSA 2016-2020



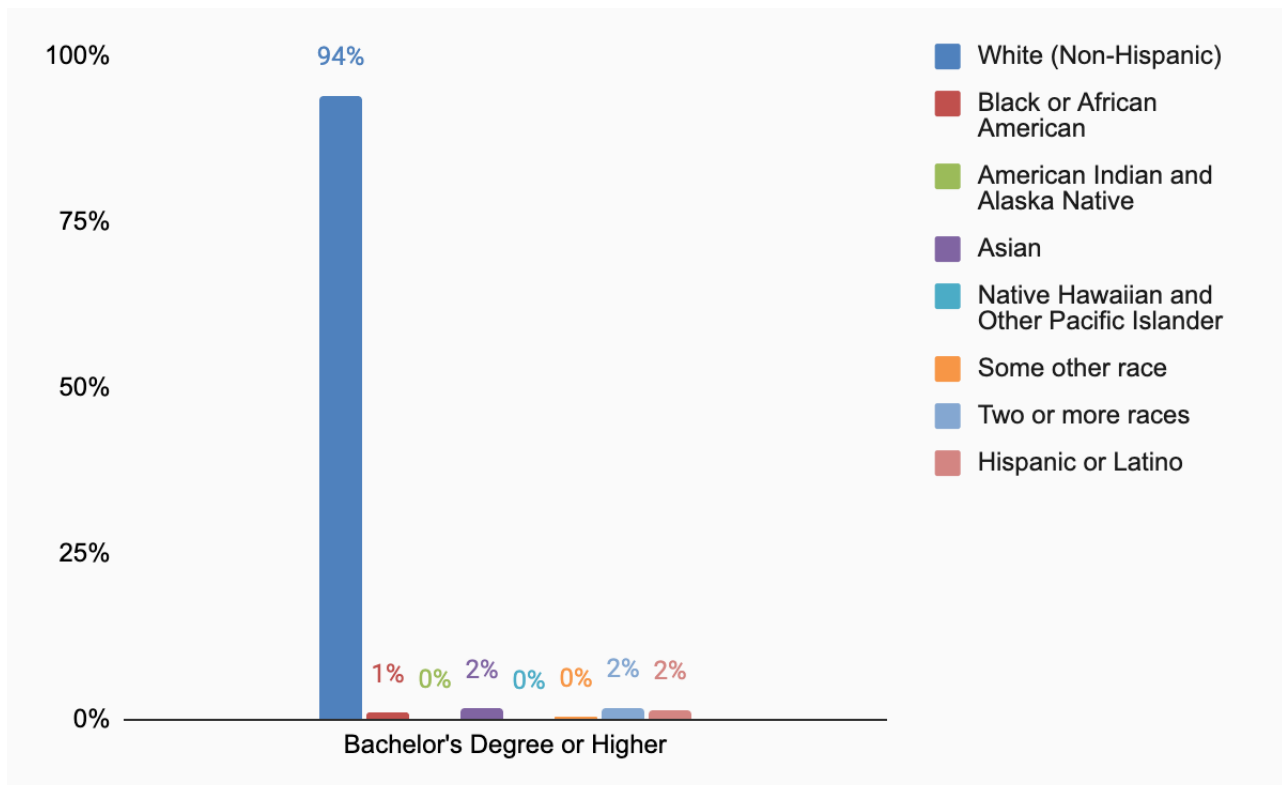
Source: 2016-2020 ACS 5-year estimates

Disproportionate impacts to health and pollutant exposure is largely associated with race/ethnicity and income. Historically under-represented communities represent 5 percent of the Portland metro population. Overall, 6 percent of the residents identify as non-White, 5 percent have less than a high school education, 2.5 percent are unemployed, 10 percent have incomes at or below 65 percent below the state median income, and 1 percent live in limited English-speaking households.

On average, there were 47.8 times more White (Non-Hispanic) residents than any other race or ethnicity in 2020. Of the total population, 91 percent of the residents identify as White, 2 percent Hispanic or Latino, 2 percent Black or African American and 1.7 percent Asian America. The share of Hispanic or Latino and Black or African American residents is slightly higher compared to the state population. In Maine, 1.7 percent of residents identify as Hispanic or Latino, while 1.3 percent identify as Black or African American.

**Appendix 2 –
Portland-South Portland MSA Workforce Ecosystem *continued***

FIGURE 2. Race/Ethnicity by Educational Attainment
Portland-South Portland MSA 2020

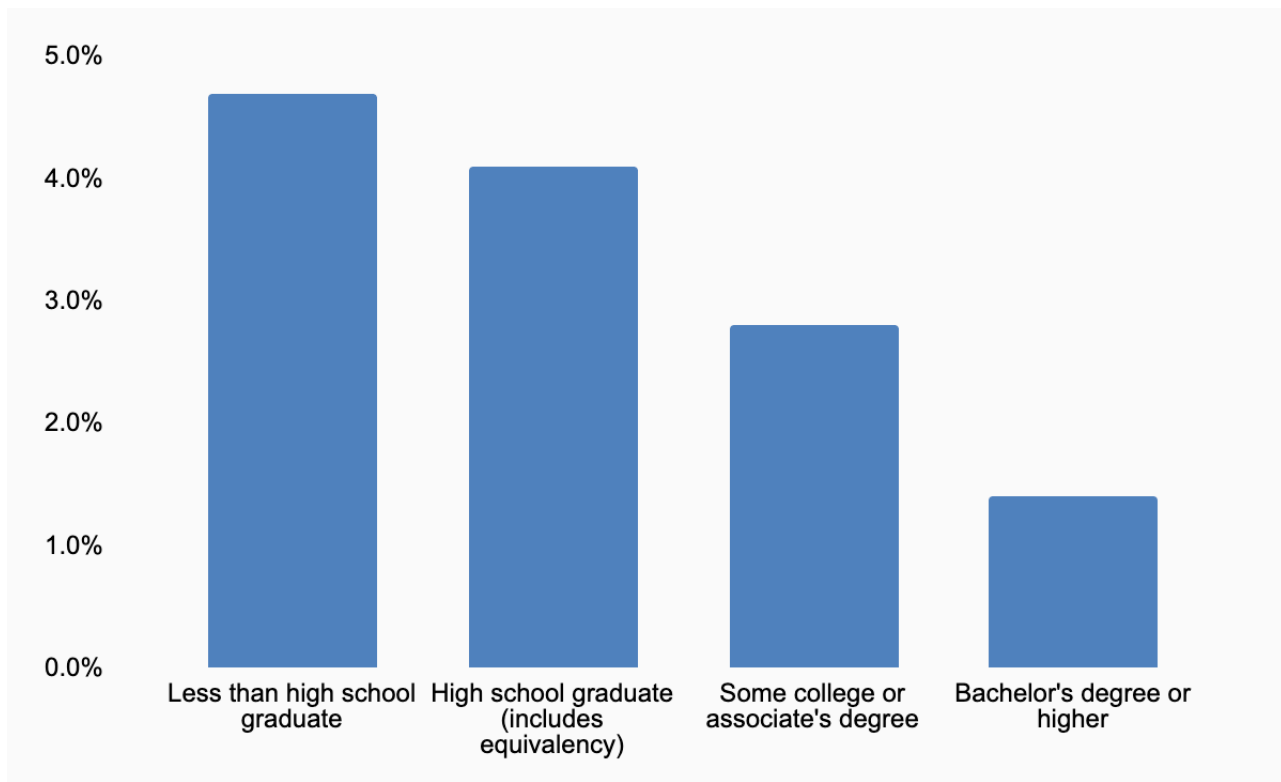


Source: 2016-2020 ACS 5-year estimates

Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Overall, 5% of residents earned less than a high school diploma, while 25% have high school diplomas with no other formal education. Figure 2 shows race & ethnicity by distribution for the Portland metro area in 2020. Of those who attained a bachelor’s or higher, only 1 percent identify as Black or African American.

Appendix 2 – Portland-South Portland MSA Workforce Ecosystem *continued*

FIGURE 3. Unemployment Rate by Educational Attainment
Portland-South Portland MSA 2020

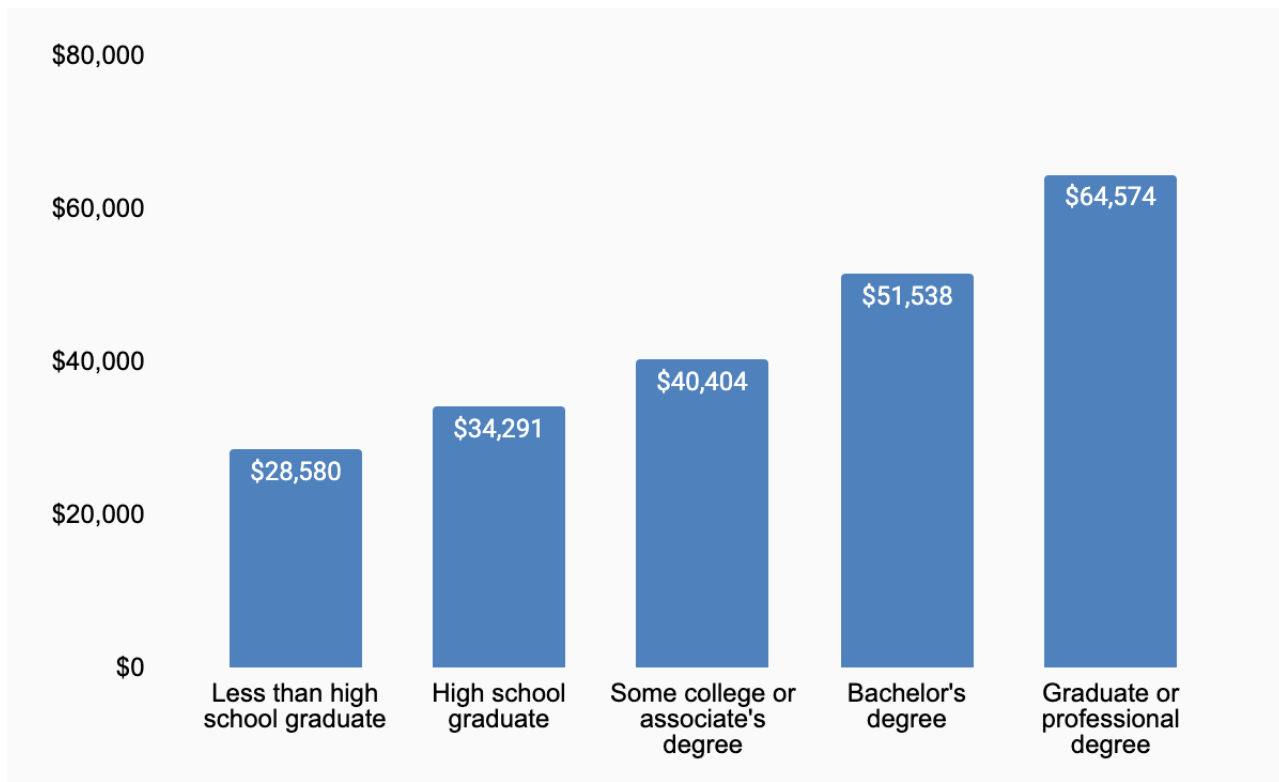


Source: 2020 ACS 5-year estimates

The unemployment rate in 2020 for individuals 25 to 64 years and older was 2.5 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is higher at 4.7 percent and 4.1 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than the Portland metro unemployed population at 1.4 percent (Figure 3).

Appendix 2 – Portland–South Portland MSA Workforce Ecosystem *continued*

FIGURE 4. Median Earnings and Educational Attainment
Portland–South Portland MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlate with educational attainment. Workers with a bachelor's earned nearly \$23,000 more in annual wages than those with less than a high school education (Figure 4).

English-capability is an important aspect of employment participation. Overall, 9 percent of the Portland metropolitan population speak a language other than English at home with Indo-European being the most common language at 6 percent, followed by Spanish-speaking households at 1 percent and Asian and Pacific Island households at 1 percent.

Collectively, 1 percent of residents speak limited English at home.

Portland MSA Clean Energy Workforce Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 –

Portland-South Portland MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager (AKA “Backbone Team”)	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven • Example
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 – Portland–South Portland MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

The city of Portland and South Portland developed a joint climate action plan demonstrating their commitment to address climate change in partnership. The plan includes goals to reduce greenhouse gas emission as well as prepare communities for the effects of climate change, with key focuses on building and energy, transportation and land use, waste reduction, and climate resilience. With a goal to run all municipal operations on 100 percent renewable energy by 2040, Portland and South Portland aim to build better, smarter buildings by retrofitting existing buildings, while providing financial incentives to make retrofits more affordable in the residential market. The cities aim to replace 80 percent of natural gas and fossil fuel use in residences with electric heating and cooling systems by 2050, providing a large economic opportunity in terms of construction and manufacturing jobs and small business development.

As Maine’s renewable portfolio standard scales to meet 100 percent by 2050, Portland and South Portland will expand their solar capacity to generate all municipal electricity with renewable energy by 2032 as well as launch a community solar program to expand distributed energy resources throughout both cities.

Most recently, South–Portland pursued a 1.3 million kilowatt-hour off-site solar project to meet 80 percent of the City’s electricity needs, with the remainder potentially supplied by onshore or offshore wind through power purchasing agreements providing another huge economic development for the region.⁵⁰

STRENGTHS

Maine’s leadership and recent actions towards achieving clean energy, equity and economic goals has fostered momentum and burgeoning collaborations at the state and regional levels. The State’s prioritization of high-road jobs in solar and offshore wind along with the commitment to diversity, equity and inclusion hiring in the public and private sector, has led to the allocation of a combined \$3 million in funding to support diverse hiring, prevailing wages and the development of registered apprenticeship programs for the renewable energy sector.

Similarly, the State is focused on convening tables to forge collaborations among stakeholders within the ecosystems. The state’s Climate Council will convene community-based organizations and others that work on issues related to climate and equity, while the state’s Clean Energy Partnership will convene stakeholders in the infrastructure and clean energy sectors such as the Governor’s Office, the state Department of Labor, the state Economic and Community Development Department, community colleges, organized labor and the private sector.

The State has a strong partnership with the Maine Building and Construction Trades Council, which has demonstrated public commitments to equity and supporting more underrepresented communities in the trades to gain access

⁵⁰ https://www.oneclimatefuture.org/wp-content/uploads/2021/02/OneClimateFuture_FinalJan2021_Downized.pdf

Appendix 2 –

Portland–South Portland MSA Workforce Ecosystem *continued*

to climate employment opportunities. Federal funds have enabled the Maine State Building and Construction Trades Council to develop an MC3 pre-apprenticeship program for people from underrepresented communities—women, BIPOC, justice involved individuals, single parents, which is slated to launch its first cohort since COVID in May 2023.

Another significant training asset is Southern Maine Community College, which has a robust Industrial Technology and Transportation Pathway offering a dozen certificate and associate degree programs in construction and climate sector industries. The college offers free tuition to high school graduates from 2020–2023, financial aid and has the lowest tuition fees in New England, making classes more accessible for people from low–moderate income families. The college also offers individual advising and career counseling and has relationships with many local businesses that provide students with internships and job opportunities.

CHALLENGES

There is a current labor shortage in the construction sector that will be further exacerbated by the increased opportunities in the clean energy sector and an influx of workers retiring from the field, known as the “gray tsunami.” Currently, many people who work in the construction industry are undocumented workers that face obstacles in the workplace and don’t always have access to work safe environments that pay good wages.

The existing workforce training infrastructure could benefit from more community-based workforce development to build regional capacity. Navigating the clean energy workforce landscape is challenging among the partners,

as industry acronyms and lingo are barriers to understanding and navigating the sector. There is a need for cohesion in the ecosystem. Similarly, greater efforts are needed to educate and promote clean energy jobs as more opportunities for youth become available. There is a stigma associated with jobs in construction among youth, where many clean energy jobs exist.

OPPORTUNITIES

Given the current shortage in the labor market there is an opportunity to scale and increase MC3 pre-apprenticeship programs that provide an on-ramp into construction and clean energy careers, particularly for jobs in offshore wind. While these jobs don’t exist at present, there will be demand for workers in the near future. Developing an economic inclusion plan for offshore wind will ensure that these jobs are accessible to individuals from underrepresented communities. Funding for community-based organizations to provide basic industry skills training and wrap-around services will increase the likelihood of participants successfully matriculating through pre-apprenticeship and apprenticeship programs towards employment.

Furthermore, there is opportunity for regional collaboration. While there is an existing infrastructure between partnered organizations, there could be greater linkages between contractors, the Building and Construction Trades council, nonprofit workforce training organizations, community colleges, and community-based organizations. In the residential decarbonization sector, there is an opportunity to cultivate small business contractors and support BIPOC workers entering this industry.

In particular, the Portland Housing Authority could provide a tremendous opportunity to

Appendix 2 –

Portland–South Portland MSA Workforce Ecosystem *continued*

meet Maine’s clean energy goals while fostering regional collaboration and the creation of high-road jobs through policies like HUD Section 3. This federal guidance has been in place for public housing since 1968. It establishes priorities for employment and contracting for public housing programs,⁵¹ could ensure employment and other economic opportunities are directed towards low-income and very low-income people, especially those who are recipients of government assistance. The HUD Section 3 policy mandates contractors make concerted efforts to employ participants from YouthBuild, a federally funded program housed in LearningWorks a community-based organization. This policy is likely to gain traction as the Portland Housing Authority Buildings moves towards its decarbonization goals. This could significantly move the needle on both climate goals and diversifying the industry. If Section 3 is seriously implemented by the Housing Authority, it could shape procurement practices related to the

climate sector and increase the likelihood for employment of individuals living in and around Portland Housing Authority properties.

CONSIDERATIONS

Peripheral communities have limited access to climate workforce opportunities as a fraction of climate projects occur in rural communities when compared to urban areas. More education and outreach programs are needed to educate communities about the incentives and workforce opportunities for building upgrades and energy generation. Increased funding could also support on-the-job-training programs as an alternative approach for providing accessible employment opportunities. Additionally, further legislation and policies that promote job quality, labor standards, registered apprenticeship standards and gender and racial diversity benchmarks are needed to ensure clean energy jobs are quality jobs, inclusive and accessible for people historically under-represented in the sector.

Assessment: Based on these findings, the team assessed the New Haven–Milford based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

Connectivity Characteristics at the Regional Level: A Snapshot

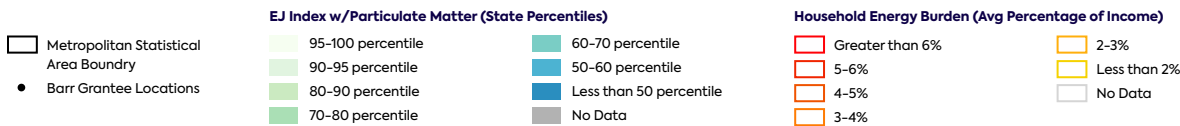
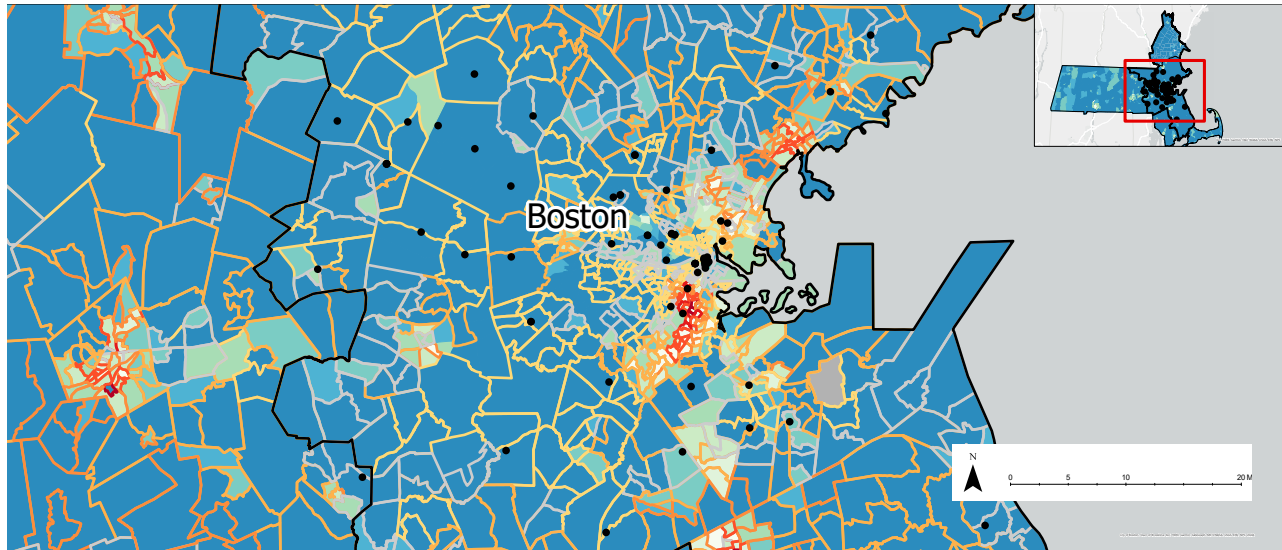
	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

⁵¹ <https://ha.internationalprocurement.com/files/requests/RFPs/9044/8.4%20-%20Attachment%20G-4%20%28Section%203%20Plan%29.pdf>

Boston-Cambridge-Newton MSA Workforce Ecosystem

Boston-Cambridge-Newton MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



BOSTON-CAMBRIDGE-NEWTON MSA GEOSPATIAL PROFILE

Population (in 2020): **4.8 million**

Unemployment Rate: **4.1%**

Average Particulate Matter
2.5 percentile in State: **61**

Average Traffic Proximity Percentile
in State: **65**

Average Energy Costs
(% of household income): **3%**

Boston-Cambridge-Newton, MA-NH metropolitan area is located towards the eastern and southern region of Massachusetts and New Hampshire, respectively. This region consists of Essex County, Middlesex County,

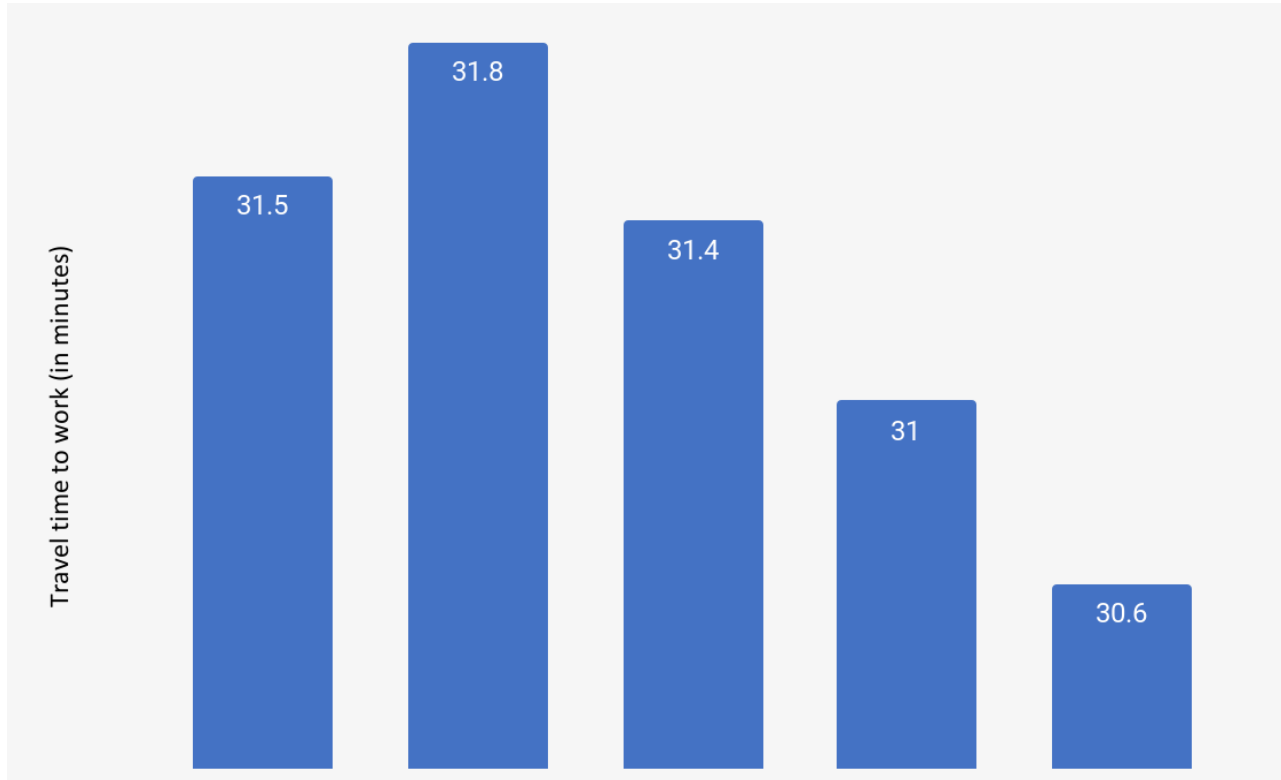
Norfolk County, Plymouth County, Suffolk County, Rockingham County and Strafford County.⁵² In 2020, with a population of 4.8 million, it was the tenth largest metropolitan area in the country. Between 2019 and 2020, the population grew from 4.83 to 4.85, a 0.46 percent increase.

When compared to the state, the Boston-Cambridge-Newton metropolitan area ranked in the top 61 percentile for particulate matter 2.5 pollution levels and the top 65 percentile when measuring communities proximate to traffic. Particulate matter is one of the most common air pollutants as it largely derives from traffic, diesel exhaust or dust from a construction facility. In 2020, residents traveled more than 30 minutes to work on average, with nearly 30 percent of households owning three or more vehicles.

⁵² <https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm>

Appendix 2 – Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
Boston-Cambridge-Newton MSA 2016-2020



Source: 2016-2020 ACS 5-year estimates

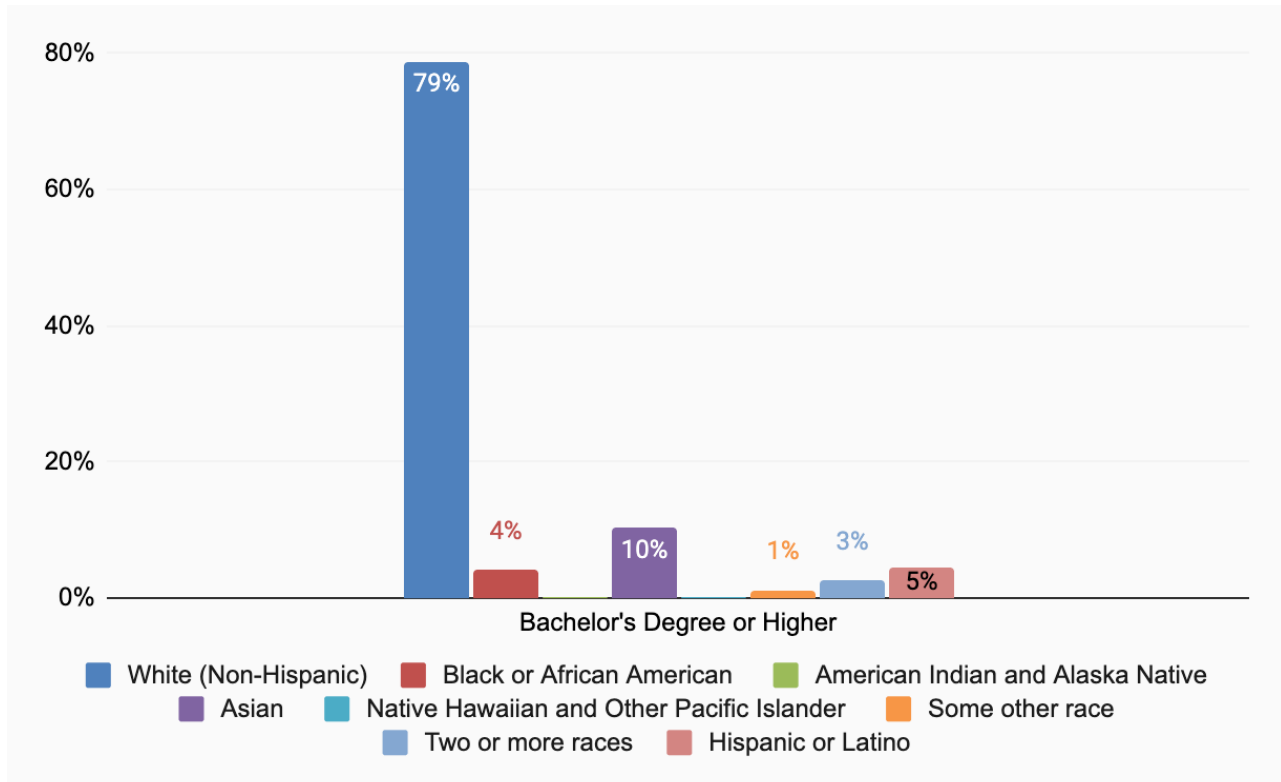
Disproportionate impacts to health and pollutant exposure is largely associated with race/ethnicity and income. Historically underrepresented communities represent 12 percent of the Boston metro population. Overall, 30 percent of the residents identify as non-White, 8 percent have less than a high school education, 4 percent are unemployed, 11 percent have incomes at or below 65 percent below the state median income, and 6 percent live in limited English-speaking households.

On average, there were 8 times more White (Non-Hispanic) residents than any other race or ethnicity in 2020. Of the total population, 69.6 percent of the residents identify as White, 8.1 percent Asian America, 11.3 percent Hispanic or Latino and 7.4 percent Black or African American. The share of Hispanic or Latino and Black or African American residents varies slightly from the state population. In Massachusetts, 12 percent of residents identify as Hispanic or Latino, while 6.8 percent identify as Black or African American.

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

FIGURE 2. Race/Ethnicity by Educational Attainment
Boston-Cambridge-Newton MSA 2020



Source: 2016-2020 ACS 5-year estimates

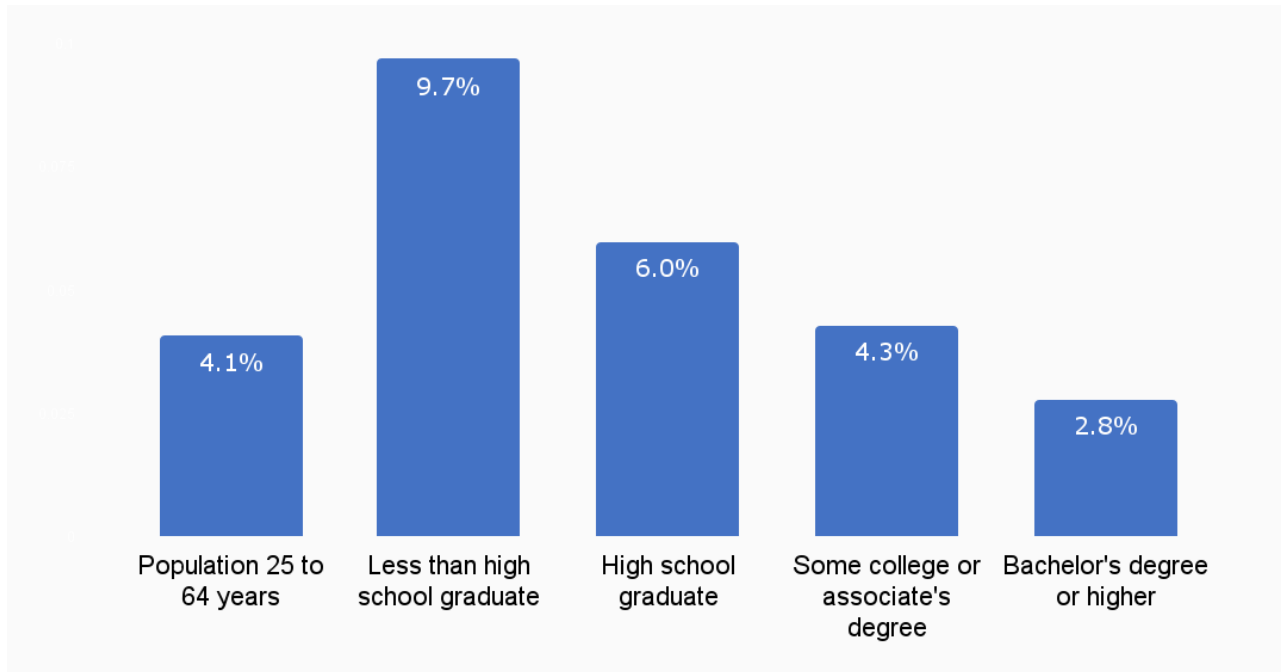
Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Nearly 8 percent of residents have earned less than a high school diploma, while 22 percent have high school diplomas with no other formal

education. Figure 2 shows race & ethnicity by distribution for the Boston metro area in 2020. Nearly 80 percent of White residents earned a bachelor's or higher compared to the rest of the population.

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

FIGURE 3. Unemployment Rate by Educational Attainment
Boston-Cambridge-Newton 2020



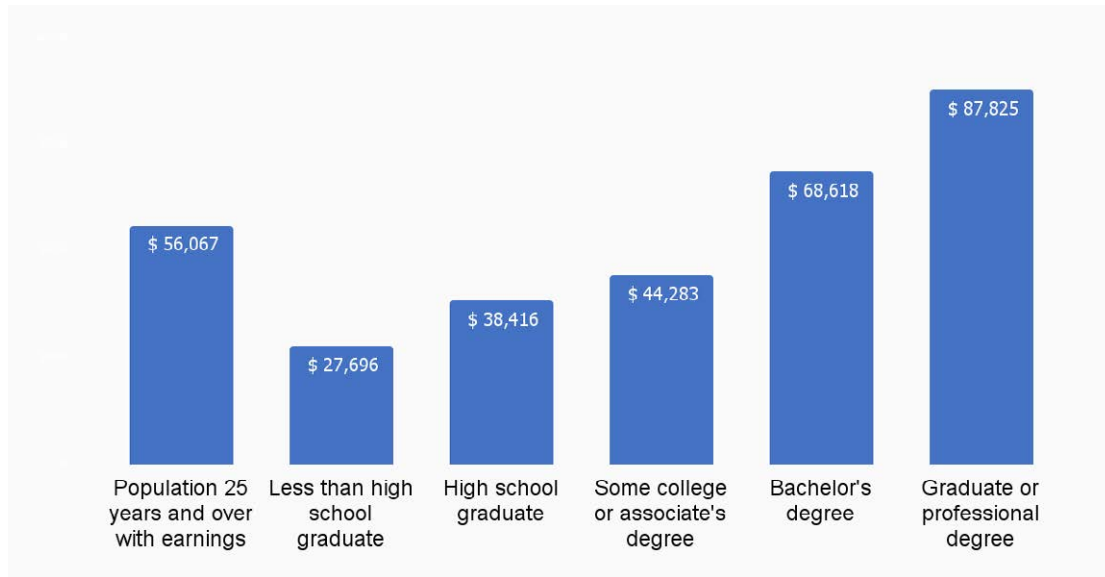
Source: 2020 ACS 5-year estimates

Overall unemployment rate for individuals 25 to 64 years and older was 4.1 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is disproportionately higher at nearly 9.7 percent and 6 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than general Boston metro unemployed population at 2.8 percent (Figure 3).

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

FIGURE 4. Median Earnings and Educational Attainment
Portland-South Portland MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlate with educational attainment. Workers with a bachelor's earned \$40,000 more in annual wages than those with less than a high school education (Figure 4).

English-capability is an important aspect of employment participation. Nearly 30 percent of the Boston metropolitan population speak a language other than English at home with Indo-European being the most common language at 10.8 percent, followed by Spanish-speaking households at 9 percent and Asian and Pacific Island households at 6 percent. Collectively, 6 percent of residents speak limited English at home.

When compared to the state, the Boston-Cambridge-Newton metropolitan area ranked in the top 61 percentile for particulate matter 2.5 pollution levels and the top 65 percentile when measuring communities proximate to traffic.

Particulate matter is one of the most common air pollutants as it largely derives from traffic, diesel exhaust or dust from a construction facility.

Particulate matter also comes from a lesser extent from fossil fuel combustion for electricity. In 2020, residents traveled more than 30 minutes to work on average, with nearly 30 percent of households owning three or more vehicles.

Boston-Cambridge-Newton- New Hampshire MSA Workforce Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager AKA “Backbone Team”	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

In 2019, the City of Boston updated its climate action plan to further accelerate progress in climate action goals. With the aim of reaching carbon neutrality by 2050, the plan outlines key targets for the building, transportation and energy sector over the next five years. Boston is largely focused on building performance and climate resilience as buildings account for 71 percent of carbon emissions, representing the greatest opportunity for emission reduction. Decarbonizing the building sector will require retrofitting and electrifying at least 80 percent of existing buildings over the next 30 years.⁵³ To help meet these goals Boston recently revised and implemented the Building Emissions Reduction and Disclosure Ordinance (BERDO) policy which sets greenhouse reduction requirements for large buildings. The City of Cambridge passed a similar policy in 2023, which will drive additional retrofit demand. In August 2020 City Councilor Michelle Wu put forth a vision for the City of Boston in the document [Planning for a Boston Green New Deal and Just Recovery](#). It offered sweeping proposals in 15 areas including green workforce development, a justice audit and framework, decarbonization and clean

energy financing. As Mayor, Wu pledged to implement a Green New Deal for Boston Public Schools, investing \$2 billion in school construction.⁵⁴ The Office of Worker Empowerment and the Office of the Mayor's Green New Deal Director are working in close partnership to conduct an analysis of the workforce needs in the region. The City of Boston is positioning itself to become an important workforce hub for the region.

STRENGTHS

Stakeholders in the Boston metropolitan region are actively involved in the equitable development of a local and regional clean energy workforce. This strength derives from an existing infrastructure of community-based organizations, advocacy organizations, organized labor, educational institutions, regional and state agencies, and firms in the climate sector. Stakeholders are committed to building coalitions and good faith partnerships to maintain and increase workforce programs tailored to placement in clean energy jobs or new educational pathways. Regional collaboration is also strengthened by quasi-governmental organizations like Massachusetts Clean Energy Center (MassCEC), convening and fostering collaboration among diverse groups ranging from educational institutions to environmental justice groups, providing funding opportunities and expertise to drive equitable workforce and business development in the clean energy sector.

Through these collaborations a few successful pre-apprenticeship models focused on getting women and people of color into apprenticeship programs have been developed. The Build-

⁵³ https://www.boston.gov/sites/default/files/embed/file/2019-10/city_of_boston_2019_climate_action_plan_update_4.pdf

⁵⁴ Wikipedia. *Boston Green New Deal*. Last updated Apr 6, 2023. https://en.wikipedia.org/wiki/Boston_Green_New_Deal

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

ing Pathways pre-apprenticeship program shared that of the participants enrolled in their program, 84 percent have been placed in apprenticeship industry related programs, 90 percent are people of color, and 42 percent are women. Preapprenticeship programs are well supported and coordinated with the Building and Construction Trades Council of the Metropolitan District, serving the Greater Boston metropolitan region. The building trades council has invested in pre-apprenticeship programs and worked collaboratively with local community-based organizations to build equitable pathways into the building trades. According to the leadership, this has been the product of work over the past twelve years addressing historical harms and systemic racism in the trades. The building trades council implemented programs to diversify the trades with set goals and benchmarks embedded in project labor agreements and community benefits agreements—which include DEI training, funding for pre-apprenticeship programs and equity goals. Local unions such as the IBEW local 103 electricians union are paving the way and making strides in meeting diversity, equity and inclusion goals.

Private industry is actively working with community-based organizations to support the development and delivery of key training, career placement opportunities, and financial support. Firms like Eversource launched a clean energy pathways program designed to channel individuals into energy efficiency careers in weatherization through on-the-job training. PowerCorps is another effort linking opportunity youth and returning citizens to clean energy employment opportunities in partnership with Roxbury Community College and the private sector.

In addition to initiatives in pre-apprenticeship, the technical and community colleges are actively working to create programming and strategic partnerships. Franklin-Cummings Technical College has established the Center for Energy Efficiency and the Trades to train diverse talent in clean energy and other sustainability areas. They have established partnerships with Browning the Green Space's ACCESS program to train aspiring entrepreneurs, Vineyard Wind, and the Boston Green Ribbon Commission to connect graduates to career pathways. Roxbury Community College has created a rapid credentialing program to get incumbent workers connected to employers in building operations and maintenance through the Center for Workforce Development.

Collectively, organizations in the Boston metro region have demonstrated a range of public facing commitments to diversity, equity and inclusion that are connecting women and people of color to workforce opportunities in clean energy.

CHALLENGES

With low unemployment rates and high demand for clean energy jobs, there is and will be a shortage of workers to meet climate goals. Currently there are not enough workers to meet the labor demand in energy efficiency. While there is immediate demand, delays in moving graduates of pre-apprenticeship programs into apprenticeship training is a persistent challenge as building and construction trades attempt to modulate the number of apprentices with the pace of Project Labor Agreements for larger scale, commercial projects. These are slowly and meticulously negotiated amid the rapid pace of labor market demand for smaller scale,

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

non-commercial projects. While community stakeholders are invested in directing new entrants and incumbents onto union pathways, they are perplexed by the slow pace of placements. Community stakeholders identify low trainer to trainee ratios as part of the problem. There needs to be immediate placement opportunities for graduates of pre-apprenticeship until they are accepted into apprenticeship programs or pre-apprenticeship will lose its allure as an access point to high-road employment. Shortage in the labor supply is also partly attributed to limited workforce development programs providing wraparound services for those in need. Reliable transportation and child care services are often cited as key resources needed by program participants. Insufficient transportation makes it difficult for participants to travel to job sites, training programs, or take part in employment opportunities. Wrap around services “breaks away barriers” to participate in the labor market. Innovative efforts such in these areas need to be taken to scale.

Also, organizations are grappling with how to clearly communicate the various workforce opportunities in the clean energy sector. Women, people from disadvantaged communities in workforce training programs, and students in middle and high school who participate in the Career and Technical Education system could benefit from awareness campaigns about the career opportunities available as the region takes action to address the climate crisis. This connection is not part of the mainstream consciousness of jobseekers and the messaging about these connections has been inconsistent at best.

OPPORTUNITIES

While there are many regional workforce actors, the ecosystem needs to be better aligned and coordinated, with the supply-side (workers and training) and demand-side (employers, trades, and associations) organizations, in order to meet the 2030 and 2050 clean energy goals and create access for people that are underrepresented in the sector. There is a huge amount of federal dollars for high-road jobs in the clean energy sector, however cities and organizations do not have the capacity, staff, and knowledge to navigate the process, convene key stakeholders and respond to grant proposals. More technical assistance and funding needs to go to organizations and cities to be able to benefit from this opportunity.

For instance, offshore wind is a nascent industry that is not ready for an influx of workers, but planning is required to ensure programs are prepared to train a ready workforce to fill the future job openings. There will be an opportunity to prepare a workforce equipped for jobs directly in offshore wind or in the regional supply chain such as manufacturing jobs related to industry materials and parts like cables and wind turbine parts. In order to do this effectively, it will require a planned approach engaging all ecosystem actors to ensure job accessibility for underrepresented populations and the calibration of supply and demand.

In terms of diversity, equity and inclusion, Massachusetts has legislation committed to workforce diversity goals, however these goals are meaningless if they are not tracked, monitored or enforced. There is an opportunity to create more

Appendix 2 –

Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

accountability and enforcement within legislation. Similarly, to create inclusive workforce environments requires a significant effort on the part of firms to address cultural biases and better representation at all levels of the company. Programs like RISE (Respect, Inclusion, Safety and Equity) in the construction trades are being initiated by the building trades to help employers address implicit bias, microaggressions, and create safe workplaces.

Finally, a robust clean energy economy is likely to require workers from all over this metropolitan area—beyond the City of Boston, even including parts of New Hampshire—to respond to burgeoning labor market demand. While local hire and targeted hire provisions will be important for cities and towns, the demand for a qualified workforce will still need to draw upon the talent across the metropolitan area to keep pace. This represents an important opportunity to build a strategy that incorporates assets across this metropolitan region.

CONSIDERATIONS

The majority of clean energy jobs are in the construction sector. However, jobs without labor standards, community workforce agreements, and commitments to employ and retain for people from underrepresented communities could end up being either low quality jobs and or inaccessible. One way to address this is by increasing unionization rates among women and people of color. Overall 10 percent of women and 30 percent of people of color are in union building trades apprenticeship programs. While the building trades have taken great strides to diversify membership, more is required to increase diversity at all levels and address DEI workplace

issues and perceptions. Furthermore, high-road opportunities are needed for both union and nonunion jobs. The unionized sector in construction largely focuses on government buildings, commercial and large-scale multi-family. Non-union sector is largely attributed to residential buildings including market rate and affordable housing. Without labor standards, the residential sector is typically low-road. Graduates of pre-apprenticeship programs need to be placed onto worksites where they can gain valuable experience in preparation for their placement as apprentices. In the past there have been agreements with community development corporations and housing authorities, for unionized labor to work at negotiated rates to produce affordable housing or to work on sites with non-union contractors. Sources suggest these efforts have been difficult to navigate, but could be an important opportunity with rising demand for building upgrades and prevailing wage requirements attached to federal funding.

In Massachusetts, and possibly in other states in New England, utility energy efficiency incentive programs are not readily available for older building stock since they often have “pre-weatherization barriers” such as knob and tube wiring and vermiculite wallcovering. If households or building owners lack the upfront capital to address these issues, buildings cannot be weatherized. Utility incentive programs do not cover these types of issues if they exceed certain spending to energy savings ratios. It could be argued that this problem, which affects low-income households most acutely, depresses the demand for residential energy efficiency. Funding support for pre-weatherization work could remove this barrier.

Appendix 2 – Boston-Cambridge-Newton MSA Workforce Ecosystem *continued*

The Massachusetts utility energy efficiency incentive program provides a big opportunity for job creation as the demand for work under this program intensifies. However, there are concerns regarding transparency on background checks and what is and what is not a barrier to entry for people with a criminal record. The general narrative is that people with a Criminal Offender Record Information (CORI) are not allowed to work in residential energy efficiency work. In reality there may be opportunities depending on the CORI and other circumstances. Most contractors under this program do not know that opportunities exist to employ someone with a limited CORI, nor are they aware of the process for requesting an exception. Insurance coverage may also present some potential barriers but not enough research has been done regarding these issues to say definitively. Therefore, work can be done to narrow and define impermissible

CORIs, educate the sector as a whole on possible opportunities for employing people with CORI's and provide transparency on the process for requesting an exception if a background check comes back positive. Clarifying these issues alone would open up tremendous workforce development opportunities for a large number of people currently excluded from careers in this sector.

Creating equitable access to clean energy jobs requires funding for supportive services. This ensures workers can participate in training opportunities. Increasing efforts to increase available childcare options, and generating solutions to ensure transportation is accessible are examples of the types of services that will increase retention of workers in high-road jobs.

Assessment: Based on these findings, the team assessed the Boston-Cambridge-Newton-New Hampshire based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

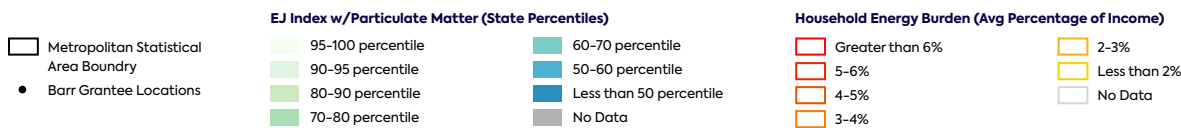
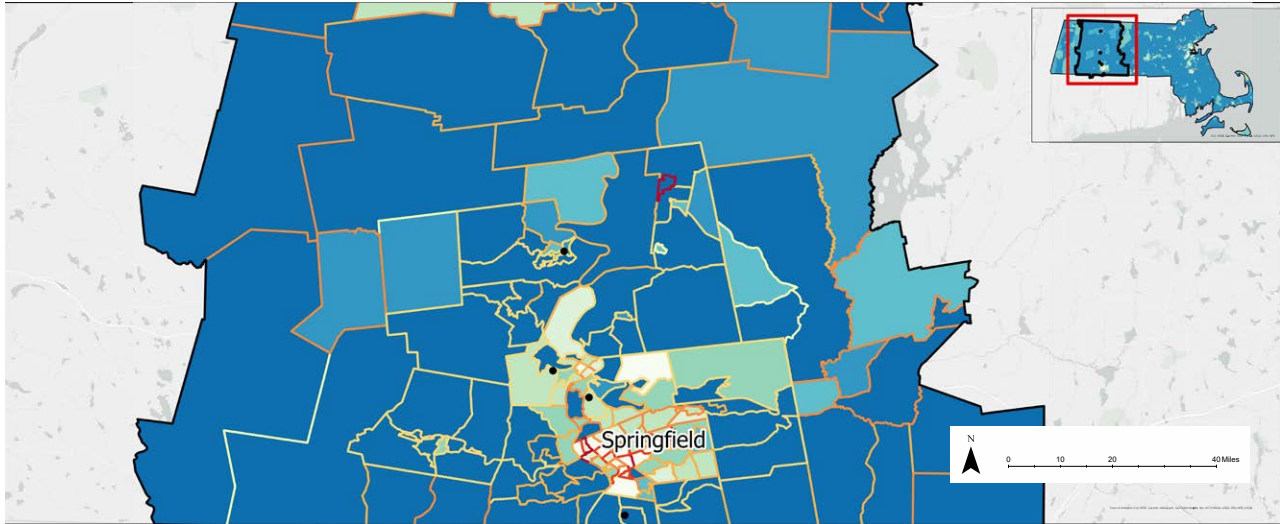
Connectivity Characteristics at the Regional Level: A Snapshot

	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

Springfield MSA Workforce Ecosystem

Springfield MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



SPRINGFIELD, MA METROPOLITAN STATISTICAL AREA GEOSPATIAL PROFILE

Population (in 2020): **698,537**

Unemployment Rate: **4.6%**

Average Particulate Matter
2.5 percentile in State: **25**

Average Traffic Proximity Percentile
in State: **50**

Average Energy Costs
(% of household income): **4%**

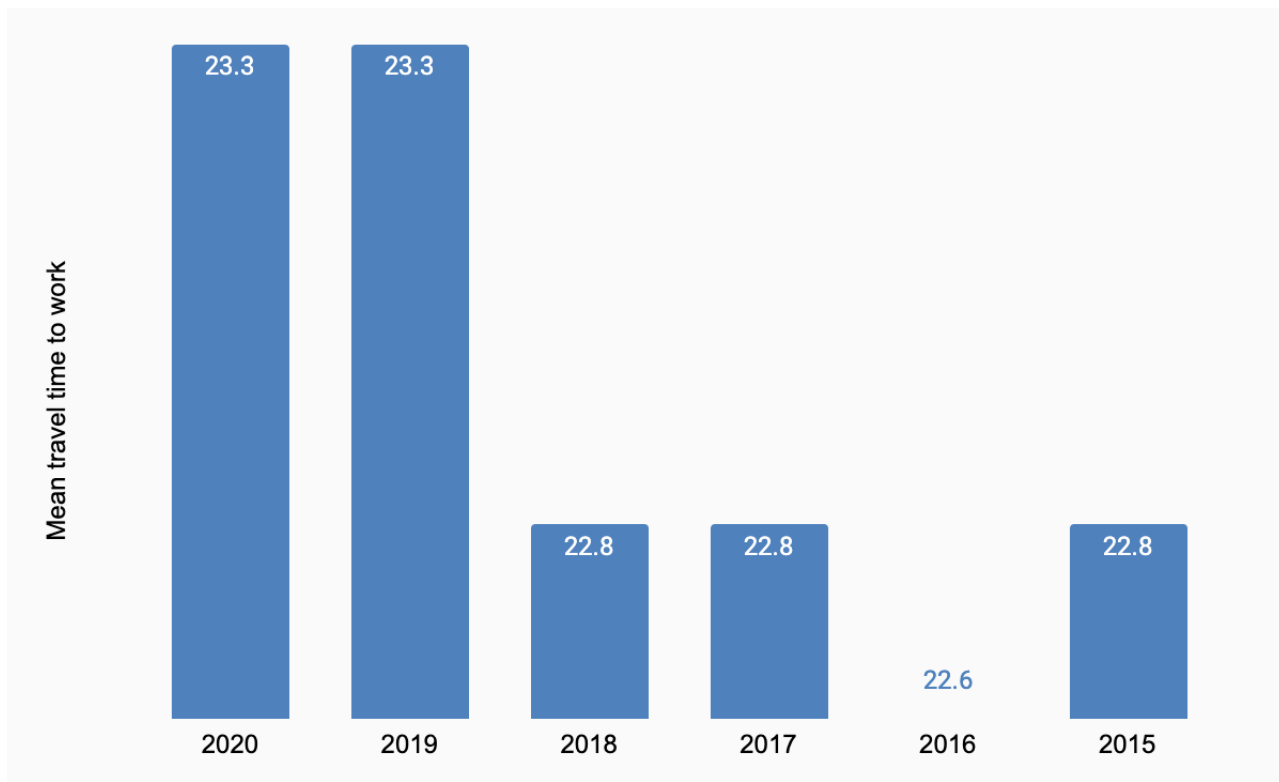
Springfield metropolitan area is located in the western region of Massachusetts. This metropolitan region consists of Hampden County and Hampshire County.⁵⁵ In 2020, the population was 698,537, a slight decrease from 2019 at 0.13 percent.

When compared to the state, the Springfield metropolitan area ranked in the 25th percentile for particulate matter 2.5 pollution levels and the 50th percentile when measuring communities proximate to traffic. On average, residents traveled less than a half hour to work, with 31 percent of households owning three or more vehicles.

⁵⁵ <https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm>

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
Springfield MSA 2016–2020



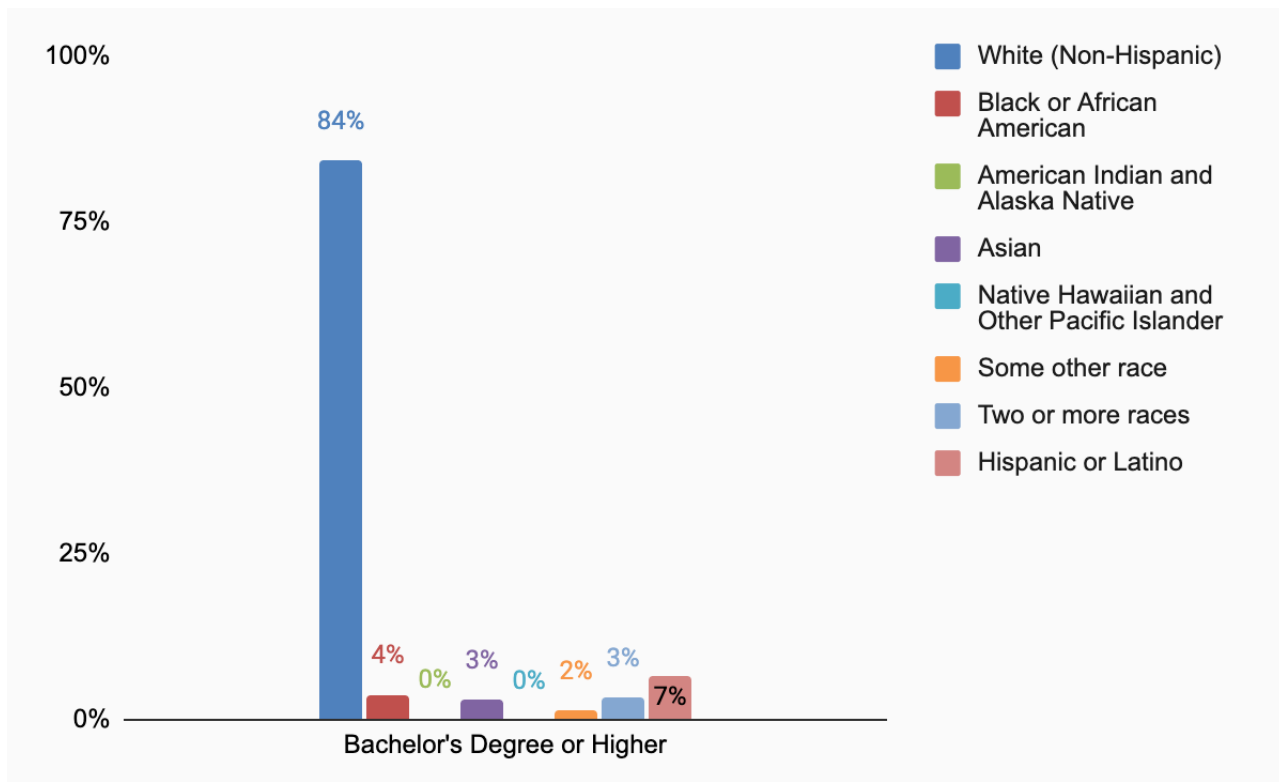
Source: 2016–2020 ACS 5-year estimates

Disproportionate impacts to health and pollutant exposure is largely associated with race/ethnicity and income. Historically under-represented communities represent 13 percent of the Springfield metro population. Overall, nearly 30 percent of the residents identify as non-White, 11 percent have less than a high school education, 4.6 percent are unemployed, 16 percent have incomes at or below 65 percent below the state median income, and 5 percent live in limited English speaking households.

On average, there were 13 times more White (Non-Hispanic) residents than any other race or ethnicity in 2020. Of the total population, 70 percent of the residents identify as White, 19 percent Hispanic or Latino, 6 percent Black or African American and 3 percent Asian America. The share of Hispanic or Latino is higher compared to the state population. In Massachusetts, 12 percent of residents identify as Hispanic or Latino.

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

FIGURE 2. Race/Ethnicity by Educational Attainment
Springfield MSA 2020



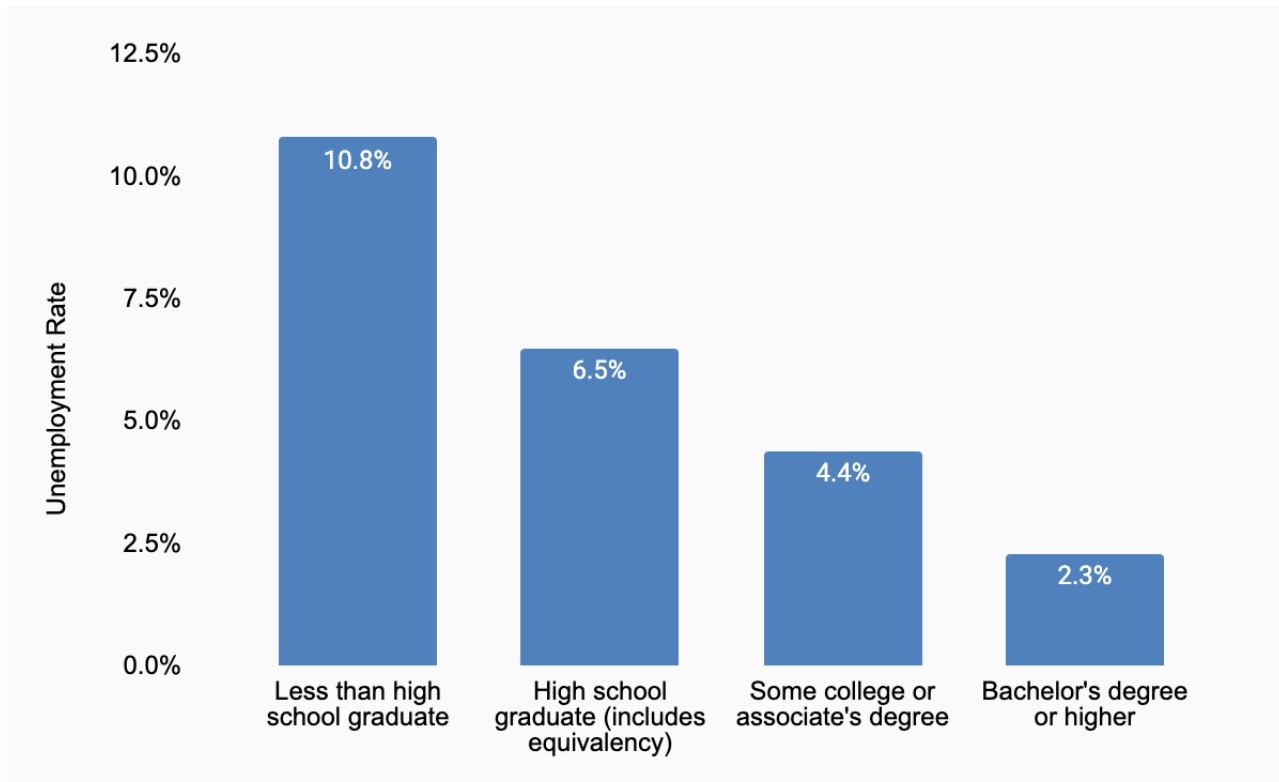
Source: 2016–2020 ACS 5-year estimates

Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Overall, 11 percent of residents earned less than a high school diploma, while nearly 30 percent have high school diplomas with no other formal

education. Figure 2 shows race & ethnicity by distribution for the Springfield metro area in 2020. Of those who attained a bachelor’s or higher, only 7 percent identify as Hispanic or Latino and 4 percent identified as Black or African American.

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

FIGURE 3. Unemployment Rate by Educational Attainment
Springfield MSA 2020

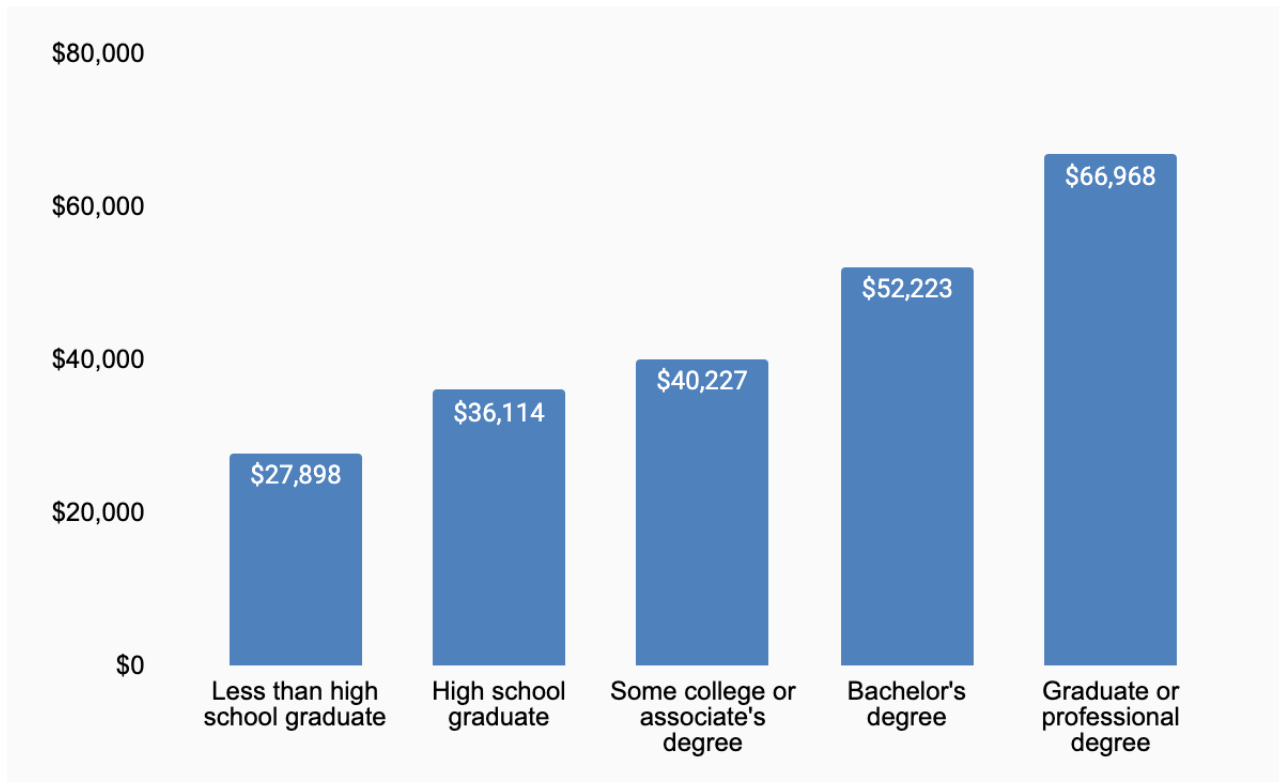


Source: 2020 ACS 5-year estimates

The unemployment rate in 2020 for individuals 25 to 64 years and older was 4.6 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is disproportionately higher at 10.8 percent and 6.5 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than the Springfield metro unemployed population at 2.3 percent (Figure 3)

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

FIGURE 4. Median Earnings and Educational Attainment
Springfield MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlates with educational attainment. Workers with a bachelor's earned \$24,300 more in annual wages than those with less than a high school education (Figure 4).

English-language capability is an important aspect of employment participation. Overall, 23 percent of the Springfield metropolitan population speak a language other than English at home, with Spanish being the most common language at 14 percent, followed by Indo-European-speaking households at

6 percent and Asian and Pacific Island households at 2 percent. Collectively, 6 percent of residents speak limited English at home.

Springfield MSA Workforce Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager AKA “Backbone Team”	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

The City of Springfield’s Climate Action and Resilience plan builds upon previous planning documents with the aim of reducing greenhouse gas emissions by 80 percent in 2050. Given the City’s rich African American cultural history and function as gateway city for migrant Puerto Ricans, immigrants, and refugees from Vietnam, Eastern Europe and Africa, Springfield is committed to ensuring residents equitably recover from climate disasters by promoting economic stability, environmental security and multi-benefit projects in the lower income communities.⁵⁶ A recent report from the Pioneer Valley Planning Commission indicates that 81 percent of the Climate Action plan has either been completed or is underway, and all strategies for managing the Urban Forest have been implemented.⁵⁷ In 2021, Massachusetts awarded Springfield a grant totaling \$2 million for “Trees, Homes, People/ Creating a More Resilient Living Environment.”⁵⁸

Of the strategies proposed to maximize energy efficiency and investing in renewable energy, 6 out of 15 have been collectively completed. The city aims to increase building retrofits by

expanding the Springfield ‘Healthy Homes’ initiative which encourages property owners to fully participate in Mass Save programs in addition to creating incentives to encourage residential and commercial installation of solar panels among other initiatives.

STRENGTHS

Springfield’s infrastructure is emerging to meet clean energy demand, especially roles in energy efficiency. Programs like the energy systems program at Energy Systems Technology Program at Springfield Technical Community College offer a training model for short-term credentialing that is less than six months and rapid attachment to employers such as HVAC contractors. The Energy Systems Springfield Tech Community College has a well-established network of employers. Regionally, the University of Massachusetts in Amherst has established the Community Works pre-apprenticeship program in connection with the carpenters and local building trades unions for transportation and highway projects. Actors within the workforce ecosystem appear to be aware of each other and are able to work in parallel. Also, all these organizations appear to be implicitly—if not explicitly—focused on training a diverse workforce.

CHALLENGES

It is unclear how these actors are working towards any level of connected, coordinated activity. Also, the local policy landscape doesn’t appear to have made the link that leverages climate action for economic opportunity. One

⁵⁶ https://www.pvpc.org/sites/default/files/SHJ_REPORT_FINAL_REV_2017.pdf

⁵⁷ <https://www.springfield-ma.gov/dr/disaster-recovery/resilient-springfield-climate-action-and-resilience>

⁵⁸ <https://www.mma.org/administration-awards-21m-in-climate-change-funding-to-cities-and-towns/>

Appendix 2 – Springfield MSA Workforce Ecosystem *continued*

environmental justice organization reported experiencing challenges getting climate action on the radar of local city officials in Holyoke. When the City finally embraced Climate Action, there were no provisions for workforce in the ordinance.

OPPORTUNITIES

The Springfield metropolitan area appears to have the organizational assets to provide training and support to new entrants. There is an opportunity for a regional entity to emerge to provide leadership by convening key actors in the workforce system and facilitating connectivity.

CONSIDERATIONS

According to the C40 Mayors publication [Climate Action and the Inflation Reduction Act: A Guide for Local Leaders](#), the legislation plans to invest \$369 billion for climate solutions and environmental justice.⁵⁹ A spirited advocacy campaign could influence the Commonwealth to direct more of these federal investment dollars in the Springfield Metropolitan area. If this occurs, more visionary regional leadership could emerge to help convene a table for a regional workforce strategy.

The Barr Foundation has an established portfolio of advocacy organizations. Continuing to invest in advocacy focused on leveraging climate action for community benefits could make a difference in the Springfield Metropolitan area.

Assessment: Based on these findings, the team assessed the Springfield MSA based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

Connectivity Characteristics at the Regional Level: A Snapshot

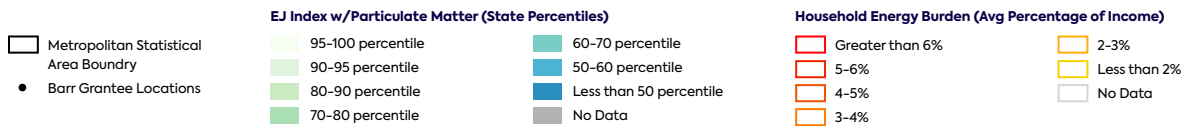
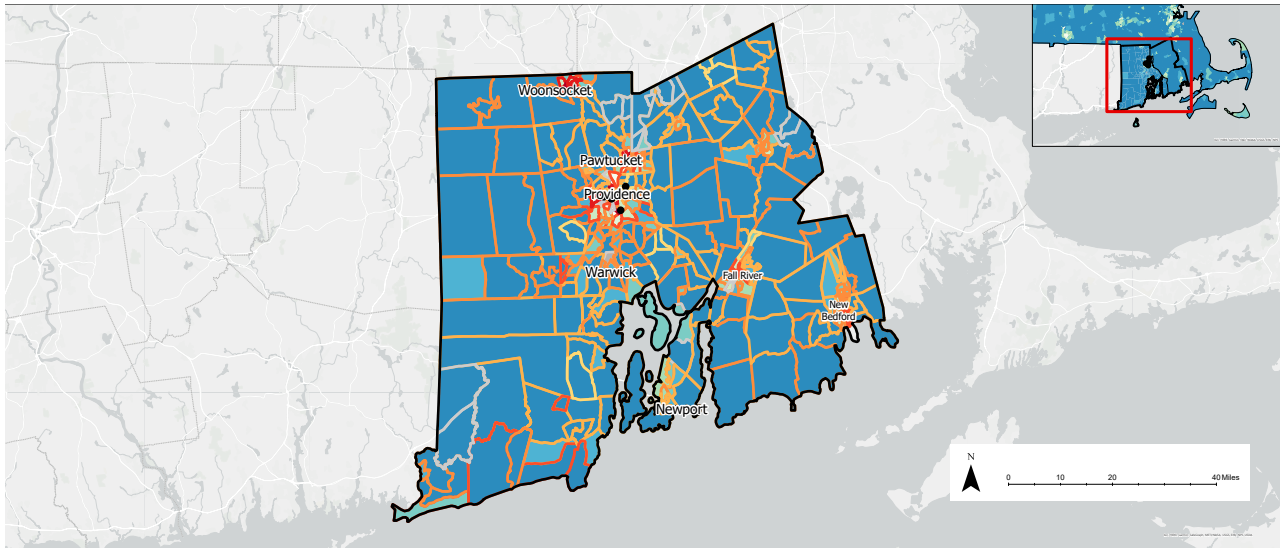
	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

⁵⁹ Climate Action and the Inflation Reduction Act: A Guide for Local Government Leaders, August, 2022 https://www.c40knowledgehub.org/s/article/Climate-action-and-the-Inflation-Reduction-Act-A-guide-for-local-government-leaders?language=en_US

Providence–Warwick MSA Workforce Ecosystem

Providence–Warwick MSA Environmental Justice Index and Energy Burden By Census Tracts 2020



PROVIDENCE–WARWICK MSA GEOSPATIAL PROFILE

Population (in 2020): **1.6 million**

Unemployment Rate: **4.6%**

Average Particulate Matter
2.5 percentile in State: **32**

Average Traffic Proximity Percentile
in State: **47**

Average Energy Costs
(% of household income): **4%**

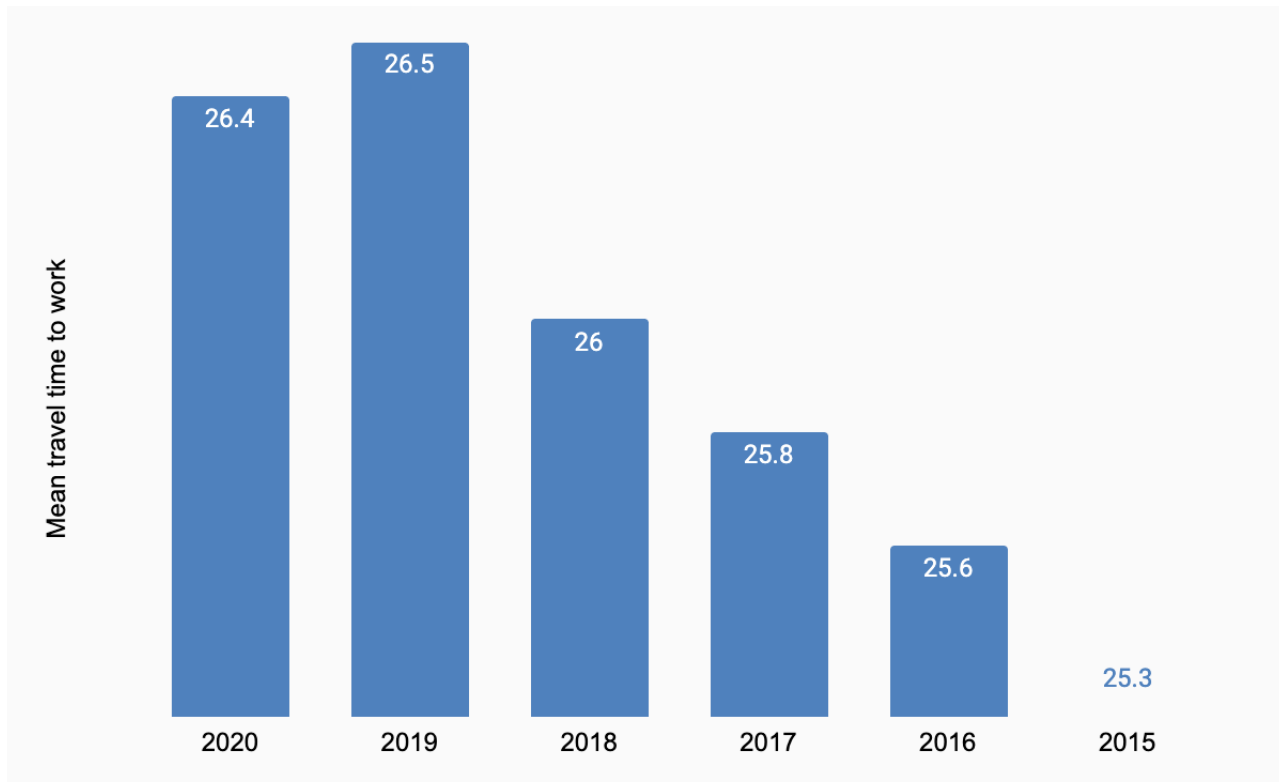
Providence–Warwick metropolitan area extends across six counties located in Rhode Island and Massachusetts. This metropolitan region consists of Bristol County (Massachusetts), Bristol County (Rhode Island), Kent County, Newport County, Providence County and Washington County.⁶⁰ In 2020, the population was 1.6 million, a slight increase from 2019 at 0.17 percent.

When compared to the state, the Providence–Warwick metropolitan area ranked in the 32nd percentile for particulate matter 2.5 pollution levels and the 47th percentile when measuring communities proximate to traffic. On average, residents traveled nearly 30 minutes to work, with 33 percent of households owning three or more vehicles.

⁶⁰<https://www.bls.gov/cew/classifications/areas/county-msa-csa-crosswalk.htm>

Appendix 2 – Providence–Warwick MSA Workforce Ecosystem *continued*

FIGURE 1. Mean Travel Time to Work
Providence–Warwick MSA 2016–2020



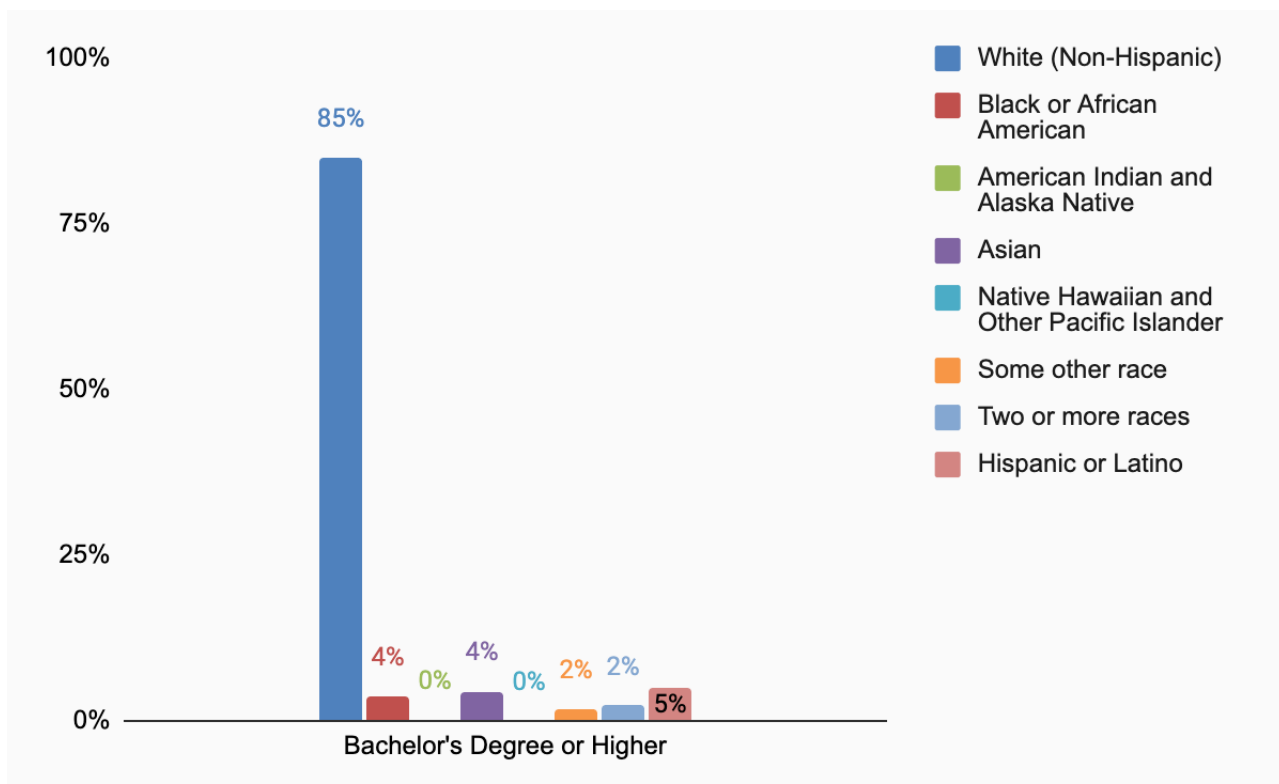
Source: 2016–2020 ACS 5-year estimates

Disproportionate impacts to health and pollutant exposure is largely associated with race/ethnicity and income. Historically under-represented communities represent 12 percent of the Providence metro population. Overall, 23 percent of the residents identify as non-White, 12 percent have less than a high school education, 4.6 percent are unemployed, 13 percent have incomes at or below 65 percent below the state median income, and 5 percent live in limited English speaking households.

On average, there were 15 times more White (Non-Hispanic) residents than of any other race or ethnicity in 2020. Of the total population, 75 percent of the residents identify as White, 13 percent as Hispanic or Latino, 5 percent as Black or African American and 3 percent as Asian American. The share of Hispanic or Latino and Black or African American residents is slightly lower compared to the state population. In Rhode Island, 16 percent of residents identify as Hispanic or Latino, while 5.5 percent identify as Black or African American.

Appendix 2 – Providence-Warwick MSA Workforce Ecosystem *continued*

FIGURE 2. Race/Ethnicity by Educational Attainment
Providence-Warwick MSA 2020



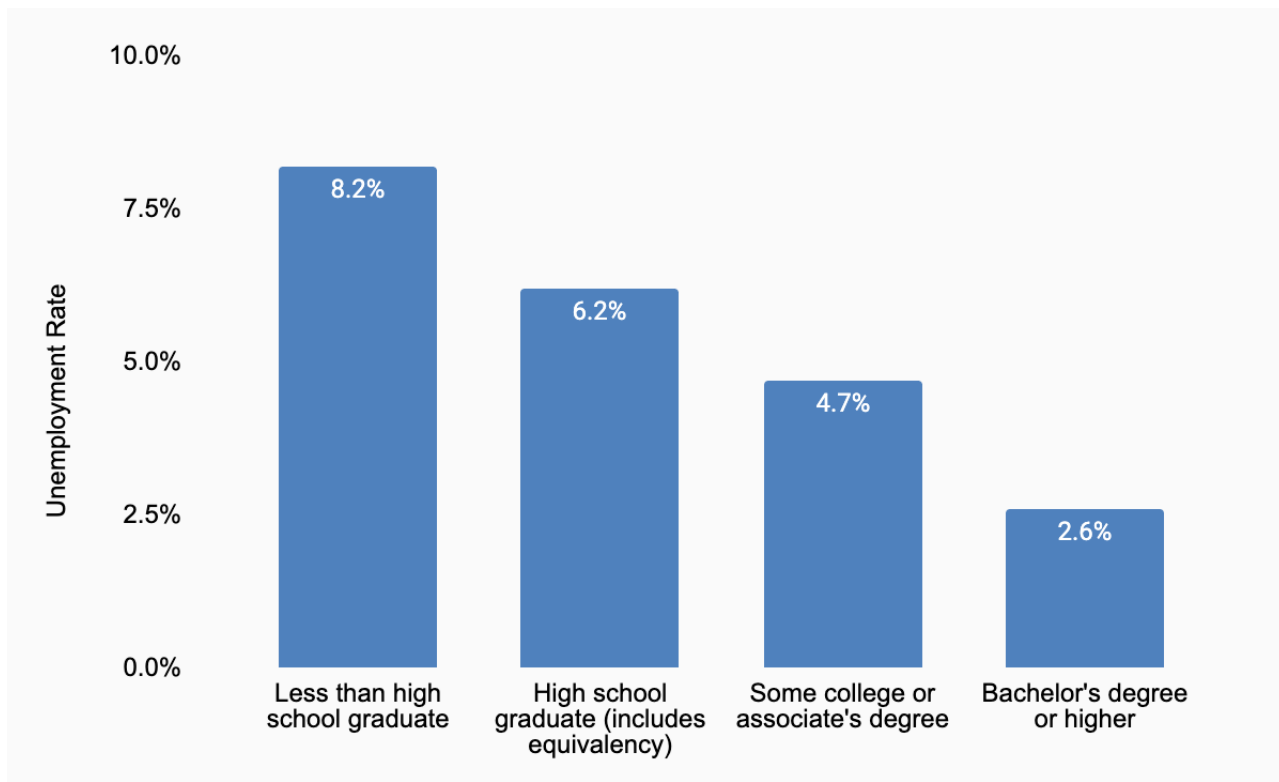
Source: 2016-2020 ACS 5-year estimates

Knowing the educational attainment of the population can provide valuable insight about a specific area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment. Overall, 12 percent of residents earned less than a high school diploma, while nearly 30 percent have high school diplomas with no other formal

education. Figure 2 shows race and ethnicity by distribution for the Providence metro area in 2020. Of those who attained a bachelor's or higher, only 5 percent identify as Hispanic or Latino.

Appendix 2 – Providence-Warwick MSA Workforce Ecosystem *continued*

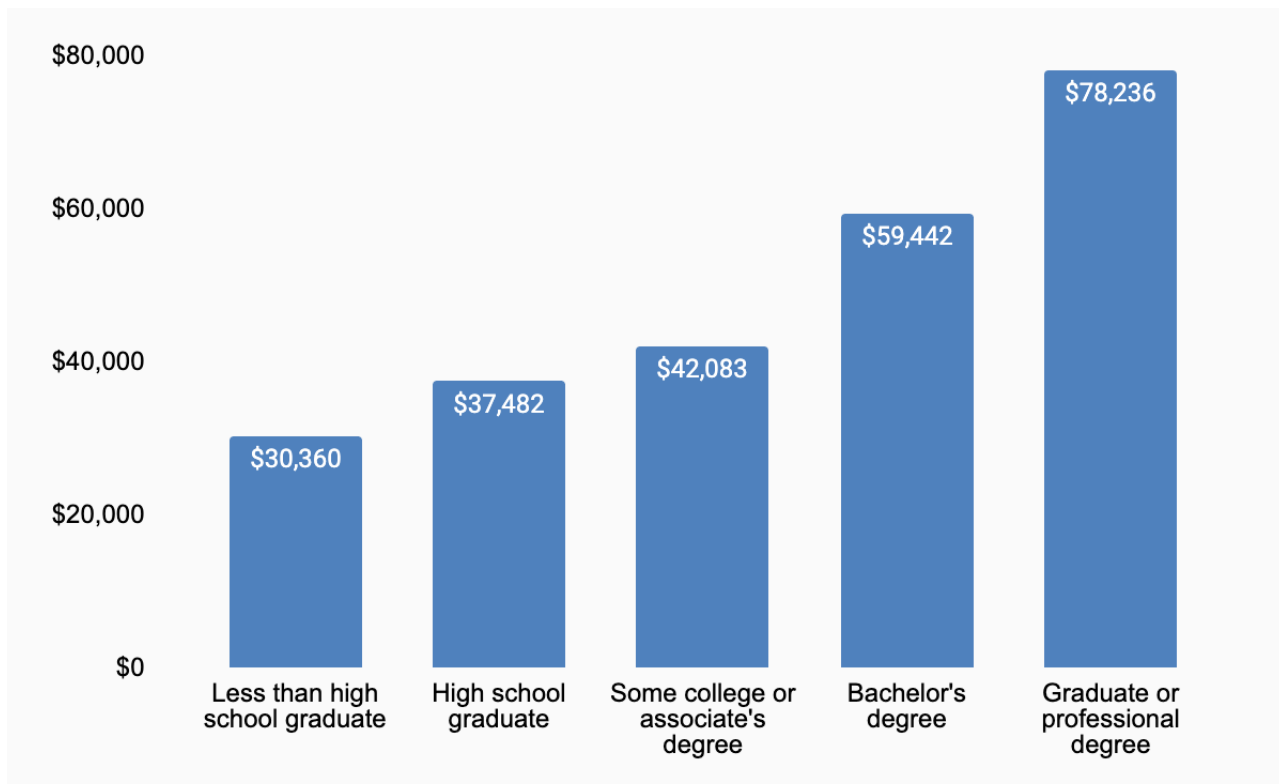
FIGURE 3. Unemployment Rate by Educational Attainment
Providence-Warwick MSA 2020



Source: 2020 ACS 5-year estimates

The unemployment rate in 2020 for individuals 25 to 64 years and older was 4.6 percent. However, for those who attained less than a high school diploma or earned a high school diploma, the rate is disproportionately higher at 8.2 percent and 6.2 percent, respectively. Unemployment rates among residents with a bachelor's or higher is significantly lower than the Providence metro unemployed population at 2.6 percent (Figure 3).

FIGURE 4. Median Earnings and Educational Attainment
Providence–Warwick MSA 2020



Source: 2020 ACS 5-year estimates

Higher earnings also correlate with educational attainment. Workers with a bachelor's degree earned \$29,000 more in annual wages than those with less than a high school education (Figure 4).

English-language capability is an important aspect of employment participation. Overall, 25 percent of the Providence metropolitan population speak a language other than English at home with Indo-European being the most common language at 12 percent, followed by Spanish-speaking households at 10 percent

and Asian and Pacific Island households at 2 percent. Collectively, 5 percent of residents speak limited English at home.

Providence–Warwick Workforce Ecosystem

The collective impact literature provides a good grounding in terms of what it takes for a local workforce system to function well. We adapted this approach to produce a connectivity rubric (on the next page). This helped in developing questions that discerned the nature of connectivity with each MSA.

Appendix 2 –

Providence–Warwick MSA Workforce Ecosystem *continued*

CONNECTIVITY ASSESSMENT RUBRIC

	Description	Key Indicators
Ecosystem Manager (AKA “Backbone Team”)	Ecosystems are anchored by an action oriented organization with the ability to convene frontline organizations and connect them with private sector and public sector opportunities, in addition to demonstrating the capacity to facilitate pass through funding opportunities to smaller organizations and funding to support partnership participation and investment in equity initiatives	<ul style="list-style-type: none"> • Have experience managing diverse stakeholder interests and facilitating and convening the partnership • Are trusted in the community and perceived as an ally to people from frontline and impacted communities • Intentionally and regularly convene community based groups and private and public sector groups within the workforce ecosystem with explicit inclusion of marginalized identities. • Collect or support the collection of disaggregated data across the system • Have access to funding or capacity to apply for grants to support the partnership
Public Facing Partnerships	Ecosystems have established relationships with regional organizations such as CBOs, training organizations, pre-apprenticeships, apprenticeships, community colleges, universities, building trades, and employers to ensure equitable access to in demand clean energy careers	<ul style="list-style-type: none"> • Have MOUs and/or articulation agreements between partners • The partners are representative of the different organizations along a career pathway (CBOs, pre-apprenticeships, high schools, community colleges, apprenticeships, employers) • The partnership has a vision, mission and goals • The partnership prioritizes equity and pathways to quality careers (high road) • The partnership works to calibrate training to labor market demand • The partnership is demand-side driven • Example
Centering Equity	<p>Established commitment to diversity, equity and inclusion among supply-side and demand-side actors by addressing barriers to employment opportunities in clean energy, as well as building equity in leadership and accountability.</p> <p>The work should include equity strategies for collective impact such as, strategies grounded in data and context, solutions focused on systems change, in addition to programs and services that listen to and act with the community.</p> <p>This might include active outreach to underrepresented communities, providing wrap-around services to enable program participation such as (subsidized child care, transportation, application fees, etc.)</p>	<ul style="list-style-type: none"> • Ecosystem manager leadership and the collaborative is led by members of the community and centers the lived experience of community members. • Operate using a systems based approach • Use of disaggregated racial data to understand where the ecosystem is and where it needs to go • Sets goals for quality equity initiatives • Investment in capacity of frontline organizations/CBOs • Training organizations are based in underrepresented communities • Public procurement policies are in place to promote utilization of MDWBEs • Public policies set targets for apprenticeship utilization • Public policies in place for targeted or local hire • Providing training opportunities that prevent occupation segregation • Inclusive hiring policies • Organizations provide participants with comprehensive exposure to a career pathway
Mutual Reinforcing Actions	WEs enable mutual reinforcing actions (referrals, stakeholder engagement, advocacy, work-based learning), among partner organizations through shared values, defined common standards that create industry recognized credentials	<ul style="list-style-type: none"> • Develop shared vision, mission and goals • Work on local, state and/or federal policies that support equity goals and job quality as well as clean energy accessibility for impacted communities • Evidence of alignment of credentials certifications, curriculum, and credits to create industry standards • Provide work based learning and on-the-job training opportunities as well as career exposure through field trips, shadowing and presentations • Review critical documents such as: Climate Actions Plans, Building Performance Standards, etc. to include strategies and language that support equity and economic inclusion • Develop and implement community workforce agreements and community benefit agreements • Engage impacted communities in policy and program design • Work with employers to develop retention strategies for women and BIPOC employees • Develop and adopt labor standards to ensure job quality and equitable access
Share Information and Best Practices	WEs share information and best practices that help ecosystem partners understand and navigate the landscape	<ul style="list-style-type: none"> • Learn from national best practices that include equity and economic inclusion principles in their climate action and workforce development policies and programs development • Map the workforce ecosystem and understand assets, gaps, and opportunities • Transparent and share critical documents to help align the ecosystem

Appendix 2 – Providence-Warwick MSA Workforce Ecosystem *continued*

Based on interviews and desk audits, the team drew these conclusions about the nature of connectivity within each MSA. Since this was based on single interviews, and the rubric was not shared with the interviewees, the conclusions are more impressionistic. An improved methodology would have included self-assessments of connectivity among staff from different workforce development organizations.

CONTEXT OF LOCAL POLICY

The City of Providence Climate Justice Plan sets carbon-neutral goals while providing dedicated resources and support to frontline communities. The plan builds on the City's progress to meet climate goals while prioritizing low-income communities of color affected by their proximity to pollution. The plan calls for continued efforts to improve building energy efficiency through lighting, HVAC, and building envelope/weatherization upgrades while increasing low-income energy efficiency program participation.⁶¹ In 2021 the City Council codified the goals and targets of the Climate Justice Plan in the city's code of ordinances. Recently, the City passed the Building Energy Reporting Ordinance (BERO) ordinance which mandates energy and emissions reporting for buildings more than 10,000 square feet. The city has also prioritized development of offshore wind in the ports. Support for this burgeoning industry ensures the growing offshore wind industry in the ports.

STRENGTHS

The Providence metropolitan region has strong community-based organizations actively supporting residents from system-impacted and environmental justice communities entering the clean energy workforce. These organizations provide an on-ramp to high-road construction and clean jobs as well as case management and wraparound services to assist individuals in successfully entering their career pathway. To matriculate individuals along the career pathway, community-based organizations are exploring partnership opportunities with existing pre-apprenticeship programs as well as clean energy employers and community colleges.

The Providence metropolitan area has one of the strongest pre-apprenticeships models in the region. Organizations like Building Futures RI focus on enrolling applicants from underrepresented communities and providing them with paid training opportunities. Eighty percent of their participants are people of color. Building Futures RI has strong partnerships with supply- and demand -organizations that support the pipeline of participants into pre-apprenticeships and then into apprenticeships upon graduation, resulting in a notable apprenticeship retention rate. Given this program's impressive rates of placement and retention, this model has been replicated in other parts of the New England region. Additionally, Building Futures RI recently joined a partnership with the Community College of Rhode Island, the Rhode Island Department of Labor and Training, the Rhode

⁶¹ <https://www.providenceri.gov/wp-content/uploads/2019/10/Climate-Justice-Plan-Report-FINAL-English.pdf>

Appendix 2 – Providence–Warwick MSA Workforce Ecosystem *continued*

Island Chamber of Commerce, and the Rhode Island Building and Construction Trades Council to establish the state’s first Global Wind Organization (GWO) training certificate program,⁶² geared to the education and training of offshore wind workers for burgeoning projects near the ports.

As one of the leading national leaders in offshore wind, the state is continuing its efforts by growing the offshore wind industry in the ports of Providence. The prioritization of this industry from the city and state will provide an economic and workforce development opportunity for environmentally impacted communities near the ports. Efforts for long-term procurement of wind generation include baseline requirements for labor standards, and equity and inclusion measures. Project developers are mandated to submit DEI plans that at minimum propose a strategy that “enables access to employment and vendor opportunities for historically marginalized communities.”⁶³ Such policies demonstrate a commitment to workforce equity and supplier diversity. To yield the desired result, policies should not only include workforce protections, hiring goals, and representation in procurement practices, but also require benchmarks, monitoring, and tracking toward the goals to ensure investments are actualized.

⁶² <https://www.ri.gov/press/view/44112>

⁶³ <https://legiscan.com/RI/text/S2583/id/2592036>

CHALLENGES

There is limited visibility of statewide efforts to increase workforce readiness for growing industries like offshore wind projects. More engagement from community-based organizations and advocacy organizations are needed to ensure workers and individuals from impacted communities are aware of clean energy workforce opportunities. Community-based workforce organizations that work with people from impacted communities have difficulty navigating the clean energy sector and find the industry language confusing. This creates an exclusionary sense of being part of an ingroup or outgroup. Some organizations expressed feeling disconnected from clean energy opportunities. Getting organizations to partner could be a challenge.

Additionally, there is limited diversity in the clean energy and energy efficiency workforce. Environmental justice organizations have encountered formidable barriers to getting BIPOC participation in construction jobs. Environmental justice groups have reported incidents of outright racism from building trades unions. Part of this is based upon the experiences of individual people of color who have attempted to pursue careers in the trades. It is also due to a lack of connection between organized labor and environmental justice groups. Whatever the reason, there appears to be a deep distrust of the building trades among environmental justice advocates.

While the demand for offshore wind jobs is slated to grow, bringing quality pay, benefits and career advancement and significant

Appendix 2 – Providence-Warwick MSA Workforce Ecosystem *continued*

climate benefits, there are barriers to occupations in offshore wind construction. Offshore wind will drive the demand for short-term construction jobs. However, the structure of these jobs, which require significant time away from family due to time required offshore, such jobs can be challenging, especially for single parents.

Similarly, jobs in residential energy efficiency present barriers to employment due to lower job quality and inequitable access to jobs. The region has a shortage of HVAC technicians and electricians and it is difficult to hire for those positions, as vacancies sit open for months. Residential energy efficiency jobs are often undermined by lower project cost objectives which disincentivizes workers seeking access to quality jobs.

OPPORTUNITIES

Greater alignment at the state level looks promising as organizations collaborate on developing partnerships to meet the climate demand. The Department of Labor was often cited as a potential convenor to coordinate the supply and demand side organizations in the ecosystem. The office has existing relationships with labor organizations and community-based organizations and seeks to engage the governor's workforce board to convene conversations around clean energy. Similarly, the Office of Energy Resources has taken steps to ensure Justice 40 principles are embedded throughout the office, suggesting they aspire to apply these ideas beyond their administration of federally funded programs. The office recently hired

an Energy Justice manager to coordinate the adaptation of federal Justice 40 principles into program design and the department's distribution of resources. The office also commissioned a workforce assessment to develop a baseline for climate workforce opportunities in the state.

CONSIDERATIONS

Barriers to employment exist for formerly incarcerated individuals. Training programs that support system-impacted individuals are unable to place them in offshore wind projects given that they cannot pass a criminal background check. Community-based organizations are critical in supporting the transition from prison to employment and require more funding to support this transition. Returning citizens face a myriad of challenges such as lack of a valid driver's license, reliable transportation, stable housing, digital savviness, and unpaid fines. Overall, they require a great deal of additional support in their transition to gainful employment. While there have been pockets of success, there is a need to take the efforts of organizations like Man Up and Roots2Empower to scale.

Taking this kind of effort to scale will inevitably be blunted by another dynamic. There seems to be a bifurcated understanding of the transformative nature of workforce opportunities through climate action. On one hand, government officials and community-based workforce organizations are aware of the opportunity and starting to position for the flow of resources. On the other hand, there are environmental justice and community-based organizations with less capacity that are either less aware of these

Appendix 2 – Providence-Warwick MSA Workforce Ecosystem *continued*

opportunities or highly suspicious of organized labor and better funded organizations. Bridge building and awareness building across these organizations will be essential to introducing more people of color and women to clean energy opportunities. In this case, state government agencies seem to be trusted by both parts of this divide and could play an important con-

vening role. A lot is at stake. If the state government is an effective convener, past harms will be voiced, relationships of cooperation, and the intent of Justice40 will be realized. If the state government misses this moment, the divides will harden and the environmental justice community will be aggrieved.

Assessment: Based on these findings, the team assessed the Providence-Warwick MSA based on the rubric presented. Here is a summary of the findings compared to the other MSAs in New England. To review findings from other MSAs, please see the full report or another MSA profile.

Connectivity Characteristics at the Regional Level: A Snapshot

	Ecosystem Manager	Public Facing Partnerships	Centering Equity	Mutual Reinforcing Action	Sharing Information & Best Practice
Metropolitan Region					
Hartford MSA (CT)	X*	X*	X*	?	?
New Haven MSA (CT)	X*	X*	X*	?	?
Portland MSA (ME)	X*	X	X	?	?
Boston MSA (MA)	X	X	X	X	?
Springfield MSA (MA)	?	?	?	?	?
Providence MSA (RI)	?	X	X	X	?

X = Present X* = Significant presence ? = Could not be confirmed

Appendix 3 – Focus Group Takeaways

In March and April, the research team supporting Barr Foundation led focus groups of workforce leaders, clean energy experts, and other partners from the New England region. Each focus group brought together participants to 1) review key takeaways and recommendations from the research to uncover shared and different perspectives among the group; and 2) workshop initial funding concepts. Key takeaways from these discussions are highlighted below, along with a full summary of gathered input from the human-centered design sessions.

- Participants were in strong agreement that the level of climate and clean energy public funding available, especially at the federal level, is momentous, and there is a real risk of missing a unique opportunity to expand diversity and community inclusion in the clean energy economy, especially focused around workforce and organized labor.
- Achieving this goal will be challenging for many reasons, in part because addressing climate and clean energy workforce development requires integrating many sectors and issues, a number of which are especially siloed. Considerable education across those sectors will be required to more closely link climate and workforce champions.
- A great deal of assets (training and otherwise) are already available in the workforce ecosystem that can be leveraged to promote clean energy workforce development. What is needed now is to prioritize the diversification of that future clean energy workforce and better connectivity of existing workforce actors.

Appendix 3 – Focus Group Takeaways *continued*

- Labor unions, which provide high-quality jobs and extensive training, will continue to have much less difficulty finding workers than nonunion employers. Supporting efforts towards greater access and inclusion in those union jobs will need to be an important emphasis.
- Work is already being done at the metropolitan statistical area (MSA) level and there is significant value in Barr pursuing this approach. But old ways of thinking could lock in structures that are not fully inclusive of community voices.
- Philanthropy can be a valuable source of funds for future clean energy workforce opportunities, especially if it is flexible, goal-oriented and focused on innovative ideas, as opposed to operating through a traditional lens that is difficult for people of color and MB-WEs to access.

Generally, there was consistent alignment and consensus of focus group participants with earlier learnings from one-on-one interviews—including from a range of actors in the workforce ecosystem and leading foundations. Several questions from participants focused on the high-road pathway presented, including how to shorten the pathway, the role of exit and entry points, and ensuring non-linear approaches within the pathway. Other questions explored the motivation in considering an MSA-targeted approach to funding, and how philanthropic funding was characterized.

Moving forward, a key next step in the field is to pursue clarity, alignment and then commitment among relevant stakeholders and funders on what it will take to move the needle on inclusive climate and clean energy workforce development in the long term.

As part of the focus groups, the research team used a human-design centered exercise known as Rose Thorn Bud to explore expert responses to two prompts from the three focus groups. One prompt focused on the value of emphasizing workforce development at the regional Metropolitan Statistical Area (MSA) compared to state-level approaches. The second prompt explored how philanthropy could best support climate and clean energy workforce development. Key takeaways from each prompt are below, followed by detailed responses.

RESPONSE FROM FOCUS GROUPS: Regional MSA Compared to State Approach

Participants generally supported a regional MSA approach because it is more focused, responsive, and collaborative, and aligns well with the existing workforce and economic ecosystems. However, they expressed caution about the need for intentional focus on state and local elements that may be left out, as well as the increased risk for competition or duplication. The most popular ideas for further testing centered on connection, partnership and learning and sharing best practices with others operating at the regional MSA level.

What do you like about a regional MSA approach?

- Can customize, target, be more responsive (16)
- Stronger collaboration opportunities at the local level (15)
- Responds to how other aspects of workforce and economy are organized (12)
- Easier to measure results (3)
- Regional economic hubs allow cross-state initiatives (3)

Challenge or concern with a regional MSA approach?

- Other aspects of workforce development work better at state level (8)
- Might increase competition and/or lead to less collaboration (7)
- MSA approach does not fully align with workforce development approaches at both local and state levels (7)
- Risk of leaving folks out (5)
- Risk of duplication of efforts by being too focused (5)
- MSA approach may still not be local enough (3)

What ideas does this concept spark that you would like to test?

- Leverage and invest in opportunities to connect and partner with other stakeholders operating at the MSA regional level (9)
- Learn, share, scale, and support best practices and models across regional MSA peers (5)
- Improve recruitment of potential workers through more targeted focus (3)
- Go even deeper than regional MSA level (2)
- Increase engagement and coordination on federal funding opportunities (2)
- Inform and support policy advocacy through MSA-level focus (2)



Emerald Cities Collaborative. Photo credit: Marilyn Humphries

FOCUS GROUP: Philanthropic Engagement in Workforce Development

Participants believed that philanthropy was doing well in several foundational elements of workforce development, such as forming partnerships and collaborating with key stakeholders, engaging on equity, filling funding gaps, and, at least initially, focusing on areas such as innovation and wraparound support. However, there were concerns connected to a lack of alignment between current funding models and general philanthropic approaches, and the specific needs of the workforce sector. Participants also highlighted the importance of thinking long-term, being less prescriptive in general while also being more intentional around equity and increasing knowledge among philanthropists of the needs of the workforce development space. The most popular ideas for philanthropy were to focus on collective impact, active expansion of equity, exploring underfunded areas, and emphasizing knowledge-sharing, learning, coalition building and collaboration.

What is philanthropy doing in this field that is working well?

- Forming partnerships and supporting collaborations and network development (7)
- Directly engaging around equity (6)
- Understanding and engaging on career pathways (4)
- Providing gap-filling funding to address needs beyond available funding streams (4)
- Connecting with employers (4)
- Approaching issues with a bigger, more holistic perspective (4)
- Thinking about both supply and demand (3)
- Supporting innovation and specific pilots (3)
- Appreciating value of wraparound support (2)
- Funding is available (2)

What are obstacles to philanthropy working better?

- Funding approach and strategy is not meeting workforce organization needs (12)
- Need to think more long-term, be patient, and provide more continuous funding (10)
- Incorporating equity in workforce development requires an intentional focus by philanthropy (8)
- General lack of knowledge about workforce and its intersection with clean energy (8)
- Difficulty embracing their ignorance in this space, breaking down existing silos and not relying on the same models (7)
- Grantmaking administrative process is challenging for workforce organizations, especially smaller ones (6)
- Barriers to coordination and collaboration creating duplication and fragmentation (6)
- Lack of clarity and understanding about unions (2)

What should philanthropy focus on going forward?

- Emphasize collective impact approaches and workforce ecosystem development (15)
- Actively support and expand equity-driven clean energy workforce development (13)
- Provide grants for different approaches and opportunities that are typically underfunded (13)
- Create platform or network for knowledge sharing, learning and collecting (10)
- Support and fund coalition-building and collaboration, especially directed towards issues of equity (9)
- Increase field-wide education and research (7)
- Encourage innovation and pivot from pilots towards scale (6)
- Think across region and into other sectors and issues (4)
- Increase capacity in individual organizations (3)
- Support leaders, organizers and groups on the ground (3)
- Support high-road training (2)
- Improve/simplify grant application process (2)