Equitable Workforce Best Practice Guidance

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About NEEP

NEEP was founded in 1996 as a non-profit whose mission is to serve the Northeast and Mid-Atlantic to accelerate regional collaboration to promote advanced energy efficiency and related solutions in home, buildings, industry, and communities. Our vision is that the region's homes, buildings, and communities are transformed into efficient, affordable, low-carbon resilient places to live, work, and play.

Introduction to an Equitable Clean Energy Workforce

As states and communities move towards building decarbonization and a carbon-free economy, the building energy sector and the best practices to make it more efficient must work together. Decarbonizing the building energy sector requires holistic market transformation to drive the deployment of technologies and products through increased consumer demand and robust workforce training. NEEP has previously produced numerous resources explaining how energy efficiency benefits consumers and detailing how new technology advancements make building decarbonization possible. This resource focuses on **the third leg of the stool: the importance of building a pathway towards a robust and trained workforce**. This resource aims to provide states, local jurisdictions, and program administrators with best practices for expanding their local workforce and creating training opportunities that will drive equity and inclusion in the building energy sector.

Three-Legged Stool of the Carbon-free Economy

The carbon-free economy is supported by focusing on:

1. Driving consumer demand for decarbonization
2. Improving energy efficient technology
3. Building a trained/robust workforce.

Building technologies have improved considerably when there has been a sustained demand and resources focused on improving building energy. For example, heat pumps and variable refrigerant flow systems (VRF) have electrified HVAC systems and dramatically increased the energy efficiency of buildings and homes. Improvements to building energy codes and above-code building certifications like LEED, Passive House, and Living Building Challenge have resulted in more energy-efficient buildings and homes. Finally, with advancements to renewable energy, energy storage, and other distributed energy resources, consumers have more access to clean energy.

Architects, engineers, builders, and inspectors have played a crucial role in moving the building sector towards decarbonization. But more work remains for decarbonized buildings to be deployed nationwide.

While the current workforce has brought these building energy advancements to many consumers, major gaps persist. For instance, many local jurisdictions lack enough trained building officials and energy raters to handle the workload of new construction as states adopt newer versions of the International Energy Conservation Code (IECC). Limited availability of code training for builders in some jurisdictions has resulted in slower code adoption and less-than-optimal code compliance once a new code has been adopted. Further, women and people of color are noticeably underrepresented in the clean energy and building workforce.[1]

In order for the building energy sector to maintain its carbon reduction trajectory in the areas of building energy codes, technology, etc., while also increasing the pace of decarbonization in other important areas like energy production, equitable workforce development must be prioritized as a foundational part of the three-legged stool. To address gaps in the workforce, equity and environmental injustice must also be addressed.

[1] Source: E4theFuture. https://e4thefuture.org/wp-content/uploads/2020/11/National-Summary_EE-Jobs-in-America.pdf

Prioritizing communities that are often underrepresented will improve access to clean energy jobs and grow the workforce more rapidly. Additionally, by incorporating diverse perspectives into the workforce, innovative ideas can produce more effective solutions that meet the needs of more communities.[2]

States and communities must first collect data to understand where and why gaps exist for women and minorities in the clean energy workforce. From there, strategies must be implemented that support equitable job growth and leverage existing programs and pathways to employment in these communities. Equitable growth must also consider those already in the building energy sector. Workforce retraining opportunities allow for career flexibility and bolster access and opportunities in emerging industries. Equity and diversity should focus on all levels of the workforce to not only improve access to entry-level jobs but also to produce diverse industry leadership.

E2's Clean Jobs America 2021 Report states that there were over 3.35 million clean energy jobs in 2019, with the largest portion of those jobs in energy efficiency and renewable energy. While over 620,000 clean energy jobs were lost due to the pandemic in 2020, employment in clean energy industries has recovered quickly. Job growth from 2017-2020 in clean energy industries has increased at a faster rate than overall employment in the United States, and despite the employment losses in 2020, clean energy jobs have recovered at a slightly faster rate as well.

How have clean energy jobs helped support and improve the economy?

The clean energy job market has been growing steadily for several years. Jobs categorized as clean energy-related can be broad. For this best practice guidance, clean energy jobs refer to jobs relating to energy efficiency, renewable energy, grid and storage, clean vehicles/transportation, and sustainable fuels.

One of the reasons why there has been positive employment growth and resiliency for clean energy jobs is because they are lucrative for workers. In a joint report by NASEO, Energy Futures Initiatives, and BW Research Partnerships, researchers found that clean energy jobs paid 34 percent higher in median hourly wages than the national median hourly wage of $19.14 per hour. Wages across all clean energy related industries were also higher than national median wages, with premiums ranging from 27 percent to 105 percent above the national median for workers. As energy sources continue to shift to renewables and the market for building efficiency grows, higher concentrations of clean energy jobs are needed across the country.[3]

Looking ahead, projections for clean energy jobs are optimistic. Industries with clean energy jobs have bounced back from job losses in 2020. There is also the possibility of rapid growth in demand for clean energy jobs due to the Biden Administration's focus on infrastructure, clean energy, and decarbonization. This will likely provide states with resources and potential project funding opportunities for clean energy infrastructure. Many municipalities, utilities, and states in the Northeast and Mid-Atlantic have introduced and/or passed

[2] Source: Diversity Confirmed To Boost Innovation And Financial Results (Forbes). https://www.forbes.com/sites/forbesinsights/2020/01/15/diversity-confirmed-to-boost-innovation-and-financial-results/?sh=33466ad7c4a6

[3] For detailed energy efficiency job breakdowns by state and county, check out E4 The Future's annual Energy Efficiency Jobs in America Report (2020). https://e4thefuture.org/wp-content/uploads/2020/11/EE_Jobs_America_2020.pdf.

legislation and/or set decarbonization goals, and workforce development is often highlighted as a key strategy (See NEEP's blog: Policy Tracker: April 2021 – Workforce and Equity).

What is the role of equity in workforce development and why should it be prioritized?

To meet climate needs and decarbonization goals, huge opportunities exist for sustained growth in clean energy and related industries. While some states have set policy goals for building out their clean energy workforce,[4] equity must still be addressed more effectively.

Before discussing the role of equity in workforce development as it pertains to the clean energy workforce, it is important to define the term. **Equity** is *an approach based in fairness to ensuring everyone has access to the same opportunities and resources. In practice, it ensures everyone is given equal opportunity to thrive; this means that resources may be divided and shared unequally to make sure that each person can access an opportunity. Equity is therefore not the same thing as equality. Equity takes into account that people have different access to resources because of systems of oppression and privilege. Equity seeks to balance that disparity.*[5]

In order to build an equitable workforce, equity must be integrated holistically into all practices and leaders must be willing to deviate from the status quo. For instance, they must be willing to address inequity directly by creating more access and funding opportunities for marginalized communities specifically. **Marginalized communities** *are groups of people who face systemic disadvantages, exclusion, and barriers to opportunities, resources, and power based on their identities, including but not limited to black, indigenous, and people of color, immigrants, refugees, undocumented Americans, people with disabilities, women, anybody who identifies outside or beyond the gender binary or not as cisgender, anybody who is not heterosexual, poor and/or low-income communities.*[6]

What is Energy Burden?

As defined by the Department of Energy (DOE), energy burden is "the percentage of gross household income spent on energy costs." Energy burden disproportionately affects low-income households and marginalized communities.

The national average for energy burden for low-income households is 8.6 percent. This is three times higher than the ~three percent energy burden for non low-income households.

In the context of environmental justice, historically marginalized communities often contribute the least to climate change, yet they bear the brunt of its harmful impacts. Households in marginalized communities also face higher **energy burdens** and pay disproportionally higher monthly utilities, despite using less energy overall.[7] Many factors contribute to high energy burdens, such as aging and poor-quality housing, limited access to affordable clean energy programs and resources,

[4] Source: American Council for an Energy-Efficient Economy. https://www.aceee.org/sites/default/files/pdfs/cities_workforce_development_v2_0_2.pdf

[5] Source: The Avarna Group. https://theavarnagroup.com/wp-content/uploads/2016/01/Vocab-Sheet-v6.pdf

[6] Source: The Avarna Group. https://theavarnagroup.com/wp-content/uploads/2016/01/Vocab-Sheet-v6.pdf

[7] Source: American Council for an Energy-Efficient Economy. https://www.aceee.org/sites/default/files/pdfs/u2006.pdf

housing status (own or rent), limited capital to pay for repairs and maintenance, and other socioeconomic barriers.

By focusing on equitable workforce development in clean energy related industries, states and local jurisdictions can ensure that marginalized communities benefit from the local economic development and other benefits these jobs provide. A broader range of communities also benefits from improved awareness of and access to decarbonization solutions as the workforce grows more equitable.

To begin creating programs and training opportunities around equitable clean energy workforce development, states and local jurisdictions should start by gathering and reviewing online information about local Minority/Women Business Enterprises (M/WBE) in the building energy sector. In addition to collecting demographic data, having a detailed breakdown of M/WBEs can help benchmark how equitable the economic activity in the building energy sector and related industries have been. By analyzing this data, partnering with community organizations, and talking to communities about their needs, programs and training opportunities can be crafted to address equity gaps in clean energy related industries.

Below is a snapshot of M/WBEs in the building and energy sector for states in the Northeast and Mid-Atlantic region:

Regional Building and Energy W/MBE Snapshot[8]			
State	**WBE**	**MBE**	**Source**
Connecticut	724	1106	https://biznet.ct.gov/SDSearch/SDSearch.aspx
Delaware	263	246	https://business.delaware.gov/directory-of-certified-businesses/
District of Columbia	147		https://dslbd.secure.force.com/public/
Maine	107	46	https://www.maine.gov/mdot/civilrights/dbe/
Maryland	606	1221	https://mbe.mdot.maryland.gov/directory/

[8] Data in this table was gathered from public state databases that collect business data based on demographics. Building and energy industry businesses include Architectural Services, Engineering Services, Contractors/Subcontractors, Construction, HVAC Installers, Building Product Manufacturers, and Energy Companies. **Some businesses have double counted as they fall into multiple categories so figures presented are an approximation**.

Massachusetts	646	787	https://www.sdo.osd.state.ma.us/BusinessDirectory/Business-Directory.aspx
New Hampshire	201	108	https://www.nh.gov/dot/org/administration/ofc/documents/dbe-directory.pdf
New Jersey	207	451	https://panynj.diversitysoftware.com/
New York	483	1121	
Pennsylvania	543	283	http://www.dgs.internet.state.pa.us/suppliersearch
Rhode Island	388		http://odeo.ri.gov/offices/mbeco/mbe-wbe.php
Vermont	53	5	https://bgs.vermont.gov/facilities/forms/minority-women
West Virginia	N/A[9]	N/A	N/A

Best Practices for Building an Equitable Clean Energy Workforce

In the United States, the skilled trades and construction industry are experiencing labor shortages. The 2020 Construction Outlook Survey published by the Associated General Contractors of America (AGC) found that when asked about hiring, 81 percent of respondents indicated that they were "having a hard time filling some or all positions". When asked about the biggest concerns for 2020, 72 percent of respondents indicated that "worker shortages" were their biggest concern.[10] As the construction market and the need for skilled trades continue to shift, jobs in energy efficiency can help fill the gaps.

Energy efficiency and other clean energy industries are not new. Renewable energy and energy-efficient building solutions have been used and improved upon for decades. However, the investment from both a policy and market standpoint has increased as more states and communities aim to tackle climate change and decarbonize their buildings and homes.

To continue supporting a holistic market transformation to achieve building decarbonization, a variety of workforce training pathways are needed. Construction industry jobs relating to energy efficiency, renewable energy, storage, and grid modernization make up the largest share of the clean energy workforce.[11] States and jurisdictions are moving to more current building code editions developed by ASHRAE and the International Code

[9] No available data at the time of publication.
[10] The Associated General Contractors of America's 2020 Construction Outlook Survey Results represent 956 responses gathered from general contractors nationally.
[11] Source: E2. https://e2.org/wp-content/uploads/2021/04/E2-2021-Clean-Jobs-America-Report-04-19-2021.pdf

Council (ICC) and planning for future editions. They are also setting targets for when new buildings and homes should achieve zero energy. To support these efforts, construction jobs will need to evolve with codes and building science to incorporate more energy-efficient building techniques.

In addition to updated energy codes for new construction, states and jurisdictions like New York City, Washington state, and St. Louis[12] have implemented Building Performance Standards (BPS) to regulate energy consumption in existing buildings. A trained workforce is also needed to maximize the potential of retrofitting existing buildings by conducting thorough energy audits, creating retrofit solutions, and bringing older buildings up to current energy efficiency standards.

The best practices outlined in this section were gathered through research on equitable workforce development strategies, state and municipal workforce programs in the region, and strategies shared by stakeholders that NEEP works with on codes and building decarbonization. They do not represent everything states and communities can do to drive equitable workforce development. They should also not replace direct community engagement and inclusion of community perspectives on improving the workforce. However, they will help states, local jurisdictions, and program administrators ramp up workforce development opportunities focusing on equitable growth of clean energy jobs. Multiple strategies working synergistically will be needed to effectively address the increasing demand for a clean energy workforce and do so equitably.

The best practices to drive equitable workforce development discussed in this section are:

- Target Existing Educational Pathways
- Augment Workforce Retraining Pathways
- Engage Community and Local Workforce When Crafting Clean Energy Workforce Development Programs
- Leverage New and Existing Workforce Development Funding for Clean Energy Job Training
- Offer Grant Opportunities to Small Businesses for Energy Efficiency Training and Professional Accreditations

[12] Source: Smart Cities Dive. https://www.smartcitiesdive.com/news/10-examples-of-building-performance-standards-aceee/580311/

Target Existing Educational Pathways

Existing educational institutions can help solve the problem of an aging workforce and shortage of skilled trades by creating a pipeline towards clean energy careers. State/municipal agencies like departments of labor and program administrators should partner with educational institutions like community colleges, trade schools, technical high schools, and community workforce training organizations to support and augment events like clean energy jobs fairs, internship programs, and recognized apprenticeships. These institutions often offer degree and certificate programs/curriculum relating to construction and building science. They also often serve a diverse student body in many different communities. Unions can also be a strong ally in supporting career pathways from pre-apprenticeship through career growth.

Massachusetts Clean Energy Center: Work in Clean Energy

The Massachusetts Clean Energy Center (MassCEC) is a state economic development agency. It offers resources and funding to drive growth in the clean energy sector in the state. It provides internship opportunities at clean energy organizations and companies to college students considering careers in clean energy. It also operates a resume and job board. Finally, it partners with elementary and high schools to support STEM and clean energy related course work to help students begin exploring their interests and thinking about a career in clean energy.

Guidance should be offered on the importance of curricula that address topics like building electrification technology, energy-efficient building envelopes, commissioning/retro-commissioning, high-performance facilities management, etc. These topics can pique student interest and challenge them to think innovatively because the market is evolving and actively looking for more efficient and cost-effective solutions. Students that receive knowledge and skills in these areas will be more competitive candidates once they enter the workforce by offering additional value to their employers and sharing knowledge and skills with colleagues. They will be better prepared as industries become more sustainability-focused, move towards clean energy, and have the ability to move more easily between clean energy and ”legacy” trades.

Augment Workforce Retraining Pathways

Job retraining pathways should be created to prepare the workforce for jobs that adapt to building decarbonization goals and the energy efficiency market. Retraining and upskilling opportunities should be designed to support people currently in the workforce that are seeking career transitions, as well as those who are currently unemployed, underemployed, and seeking new skills. Retraining opportunities should be flexible and grant funding should be made available for existing workforce training programs. Grant funding can help community workforce training organizations adapt their training curriculum to industry changes and bring in additional resources to prepare the local workforce.

Engaging labor unions is also important as there may be considerable industry pushback due to fear of job losses in transitioning industries. Engagement can create a “win-win” situation for unions. By including more clean energy competencies in apprenticeship and other programs, the workforce gains more potential workers and union members gain both flexibility and the ability to pursue a wider variety of careers and career pathways. Labor unions can also provide knowledge and assistance on workforce retraining and funnel workers to opportunities in preparation for industry transitions.

Engage Community and Local Workforce When Crafting Clean Energy Workforce Development Programs

Municipalities should work with local community leaders and organizations to understand workforce demographics and needs. Aggregating employment data on equity and facilitating conversations at the local level can help create workforce development programs that serve communities more effectively and drive economic development. Facilitating conversations with the community can also build trust in the clean energy industry by communicating the co-benefits of working in the clean energy industry like improving the health and energy cost-savings of buildings and homes locally. Finally, local engagement can drive equity by providing more access to lucrative clean energy jobs that pay well and have benefits to communities that have systemically been excluded from these types of opportunities.

Pennsylvania is joining RGGI and identified workforce and environmental justice as priorities for investment.

The state will create an Energy Communities Trust Fund that will provide direct support to dislocated workers and communities experiencing impacts from the closure of existing power plants and the loss of jobs and investment.

A separate Environmental Justice Trust Fund will make investments in Environmental Justice communities across the state that are disproportionately at risk from climate impacts.

Both funds aim to address the disparate climate impacts for marginalized communities and create a workforce pipeline for clean energy jobs.

Equitable community engagement should consider how best to reach the community. For instance, scheduling meetings in multiple neighborhoods at locations that are accessible through public transportation is important. Also, scheduling meetings at a time that allows for the greatest number of people to attend maximizes participation. Other considerations include translation in multiple languages, providing on-site childcare for parents, and refreshments. Partnering with community organizations that are trusted in the community can also improve participation and facilitate constructive dialogue.

There also may be existing workforce training programs through community development corporations (CDCs) and other local organizations/groups focusing on affordable housing, environmental justice, economic development, etc. Municipal engagement with local organizations can improve equity in industries with clean energy jobs by learning about some of the barriers that exist for people and working with community organizations to overcome those barriers. Some of these barriers include lack of workforce training and education about clean energy, poor outreach and lack of awareness that these jobs exist, and limited essential resources like time and money for career development. Communities can also provide valuable insight into practical solutions that will have the most impact in overcoming these barriers.

Leverage New and Existing Workforce Development Funding for Clean Energy Job Training

Many states have passed legislation to support workforce development in clean energy related industries. These types of legislation often open new funding streams through state grants, green banks, utility programs, and energy efficiency funds.

In some cases, states should not use funds to reinvent the wheel, but instead, leverage existing workforce infrastructure, expand on current training and revamp programs that are being underutilized. This may include hiring new instructors, buying new training equipment, or

simply offering incentives like stipends and scholarships for people to enroll in workforce training programs that already exist.

However, it is important to note that using funds to create completely new programs or workforce pipelines may be necessary. Inequity in the workforce for historically marginalized groups like women and people of color is often times systemic. To address systemic issues like workforce diversity and pay disparities, investment in new programs to fix historic inequity is something that states may need to do in addition to supporting existing infrastructure.

States should offer flexible solutions like online learning modules, hands-on training, and other inclusive learning tools/strategies. Flexible training solutions provide opportunities to people with different learning needs. For instance, some people need hands-on (on-site training with tools), while others learn best in a classroom setting, or in short, digestible training that can be reviewed on-demand.

This is especially important when considering equity. Some people may be unable to take time off from work to attend an all-day training, especially those seeking to transition in their careers. The time commitment and cost for training are both barriers that can prevent people from seeking training opportunities for clean energy jobs.

On-the-job training opportunities help people learn the skills they need to be successful while working. These opportunities should be paid so to remove the barrier of entry that exists for many people. Stipends can also help remove the barrier of entry by covering some of the cost-of-living expenses that individuals would be unable to pay for while enrolled in a training program and unable to work due to time constraints.

Finally, funding should be used to identify ways to market clean energy jobs to a more diverse network of candidates and promote the importance of diverse leadership in the clean energy space. Career pathways in clean energy for future leaders should be better defined and promoted by developing programs geared to those who will advance to leadership positions.

A best practice is to partner with community organizations to conduct outreach for clean energy job opportunities and workforce training. Meeting communities where they are is important because it can help build trust by demonstrating a real investment in local economic development.

Offer Grant Opportunities to Small Businesses for Energy Efficiency Training and Professional Accreditations

Another way for states to use workforce development funding for clean energy jobs is to support small businesses in the building and energy sectors. Grant opportunities can be offered to help small businesses like construction/homebuilding companies, architecture firms, HVAC installers, etc. train their employees in energy efficiency. Grants can also support employees at small businesses to get professional accreditations in things like Leadership in Energy and Environmental Design (LEED), Home Energy Rating Score (HERS) Rater, Passive House Institute US (PHIUS), etc.

Small businesses with professionally accredited employees are more competitive and attractive to prospective clients. They can generate additional revenue by consulting on projects that require energy efficiency expertise and serve as Project Administrators on projects seeking LEED and Passive House certifications.

As the demand for energy efficiency, high-performance buildings, and technology increases, small businesses should be able to compete with larger firms for projects. By offering energy efficiency training grants to small businesses, states can support a more robust clean energy workforce and ensure that small businesses stay competitive.

Additional Resources

NEEP Blog: Making Lemonade out of Lemons: https://neep.org/blog/making-lemonade-out-lemons

IREC: Clean Energy Training Resource Center: https://irecusa.org/clean-energy-training/

U.S Department of Energy – Better Buildings Workforce Development: https://betterbuildingssolutioncenter.energy.gov/workforce

National Renewable Energy Laboratory – Building the Efficiency Workforce Report: https://www.nrel.gov/docs/fy20osti/75497.pdf

Electric & Gas Industries Association Foundation – Bridging the HVAC Employment Gap 2018 Industry Study: https://egiafoundation.org/report