Energy Sector Workforce Diversity, Access, Inclusion, and the Policy Case for Investment:

Recommendations for State Energy Office Action

Acknowledgments

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Disclaimer

About This Report

This report was prepared in September 2021 by Sandy Fazeli, Managing Director of Policy and Development of the National Association of State Energy Officials (NASEO). NASEO's Shemika Spencer, Cassie Powers, and David Terry provided valuable contributions and review, and Emma Tobin designed the report.

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Executive Summary

Job losses from the COVID-19 pandemic notwithstanding, the U.S. energy sector has been an engine for economic growth and job creation, boasting millions of workers, with opportunities for employment in nearly every county of the United States, and experiencing faster growth than the rest of the economy.

Yet, demographically speaking, the energy workforce is not representative of the communities and markets it serves. Its low levels of ethnic, racial, and gender diversity are a matter of concern not only for employers, who stand to lose revenue to more diverse competitors, but also to policymakers, for whom a qualified, diverse, and innovative workforce is crucial to meeting energy climate, and economic goals. Recent research suggests that the shortfalls are not only in the demographic *diversity* of the labor pool (including factors such as age, cultural background, physical ability, race/ethnicity, religion, gender, sexual orientation, professional background, skillsets, and other identifiers), but also in the ability of underrepresented groups to *access* energy occupations and, once employed in the energy field, to be *included* in workplace decisions, management structures, and opportunities for advancement.

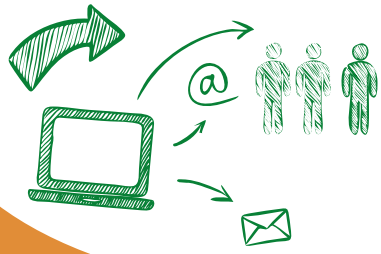
As the energy sector poises itself for rebound and growth thanks to continued technology innovations, market evolutions, and supportive state, local, and federal policy investments (including the potential for billions of dollars in new funding through the U.S. Senate-passed *Infrastructure Investment and Jobs Act*), State Energy Offices and their partners in federal government, the private sector, and academia have the opportunity to address these disparities through thoughtful program design, partnerships, and innovative policies.

While it is an important piece of the puzzle, the field of state energy and climate policy alone cannot dismantle economic and workforce disparities. Their causes – and solutions – lie not only in how energy systems and policies are designed and implemented, but also in our health, criminal justice, educational, and other systems related to human and community development. Nevertheless, state energy policies can and should be informed by the experiences and needs of those who have been historically underrepresented and marginalized. As policymaking bodies and conveners, State Energy Offices are well-positioned to develop such an understanding and apply learnings to the way energy, climate, and workforce development policies are designed and delivered. Grasping the need, the levels of disparity, and suitable solutions for target populations requires robust analysis and extensive stakeholder engagement to elevate community needs.

Through a multi-pronged approach that elevates the voices of historically underserved communities, draws on partnerships with minority-serving institutions and organizations, and acknowledges and addresses deeply-rooted resource disparities, state energy policy can be a tool to advance greater economic prosperity for all and, with it, mobilize the entire U.S. economy and population in the fight against climate change. In this light, as states and the nation look to rebuild, recover, and address the climate emergency, the energy sector can be a source not only of job creation, but also of long-term career advancement, entrepreneurship, educational attainment, and wealth building for both communities and individuals.

State Energy Workforce Policy and Program Strategies Highlighted in this Report

1. *Capacity-Building*



State Energy Offices can directly support workers and businesses developing relevant, marketable knowledge and skills. This may include "hard" (technical, business) skills, "soft" (leadership, presentation) skills, and job readiness skills (basic preparedness for entry-level positions), or other career advancement activities (technology- or job-specific training).

Program and Policy Strategies Include: educational programming (STEM education, competitions, research grants); internships and job placement programs; apprenticeships; training (classroom and on-the-job)

Capacity-Building Actions to Advance Workforce Diversity:

- Partnerships with Minority-Serving Institutions (MSIs), vocational and community colleges, and STEM-focused K-12 schools serving disadvantaged communities.
- Targeted workforce program outreach to and prioritization of underserved populations and communities.
- Wrap-around support for groups, such as caregivers, facing higher barriers to workforce re-entry due to the COVID-19 pandemic (flexible work hours, remote work and training options, childcare support, transit-accessible work and training options, and other flexibilities based on target community needs).

2. *Demand-Building*

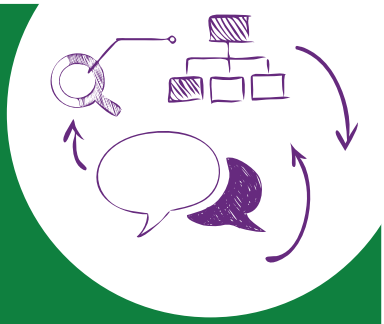
By directing and guiding public and private sector investments, state energy policies and programs can build demand for workers, technologies, knowledge, and skillsets.

Program and Policy Strategies Include: energy program design options, project labor and workforce agreements, public procurement, and other economic development levers such as engagement of private businesses and opportunity zones.

Demand-Building Actions to Advance Workforce Diversity:

- Promoting local and diverse hiring through energy incentive and financing programs and community benefits agreements.
- Reducing or waiving cost share or cost match requirements for diverse-owned businesses and Minority-Serving Institutions applying for state funds.
- Incorporating minority- and women-owned businesses in state spending and procurement.
- Incentivizing new businesses to locate operations and target hiring in economically disadvantaged areas, assuming sufficient community interest and engagement.

3. Informing and Planning



State Energy Offices can serve as a hub for information and planning to identify and communicate potential barriers, areas of opportunity, and impacts for the clean energy workforce.

Program and Policy Strategies Include: workforce studies and assessments, worker surveys and outreach, just transition planning, and awareness raising events.

Information-Sharing and Planning Strategies to Advance Workforce Diversity:

- Engaging MSIs and community-based organizations in policy and program design, incorporating deferential stakeholder engagement practices.
- Conducting worker surveys to understand levels and potential barriers to diversity, access, and inclusion.
- Encouraging and supporting coordination among MSIs interested in energy, climate, and STEM programming.
- Tracking and disclosing public spending in white-owned versus minority-owned businesses.

Introduction: *The State of Play for Minority Representation and Inclusion in the U.S. Energy Workforce*

Technological innovation, market changes, and policy evolutions have been seismic forces in the U.S. energy economy. The advent of diverse energy sources, the lower price of natural gas, and the deployment of distributed renewable and energy-efficient technologies have had deep impacts on the nation's energy mix and, with it, the systems, technologies, and professionals handling its generation, distribution, delivery, and use.

Such changes have contributed to an energy sector that is not only dynamic and evolving, but also growing, geographically disperse, and, by and large, accessible and beneficial for workers with a wide range of skillsets, ages, and levels of educational attainment.[1] Especially as the United States rebounds and rebuilds from the COVID-19 pandemic, energy jobs have been heralded as a fount of economic opportunity, financial stability, and mission-driven service in efforts to advance American competitiveness, national security, and the fight against climate change.

1 To illustrate, between 2015 and 2019, U.S. energy sectors experienced growth by approximately 915,000 jobs or 12.4 percent, more than double the 6.0 percent growth rate of the national economy as a whole in the same period. Energy employment opportunities exist in all but six counties and in every state across the nation, and many job opportunities do not require a four-year or advanced degree. The median hourly wage for all energy workers in the United States is $25.60, 34 percent higher than the national median hourly wage of $19.14. Even in the energy sectors offering lower median wages, such as energy storage, energy efficiency, solar, and wind, earnings are still higher than national wages by 27 percent or more depending on the sector. Energy sector occupations also offer above-average healthcare benefits. These summary data are drawn from a series of seminal reports co-produced by the Energy Futures Initiative, BW Research Partnership, and NASEO, including the past three annual editions of the U.S. Energy and Employment Report (2018, 2019, and 2020); Five-Year Trends: The USEER, 2016-2020 (2020); and Wages, Benefits, and Change: A Supplemental Report to the Annual U.S. Energy and Employment Report (2021). All are available for download free of charge at https://www.usenergyjobs.org/.

Yet, the wealth-building opportunity and financial stability afforded to energy workers is not distributed evenly across the population, affecting both prospective and existing energy sector professionals alike.

Minority Representation and Experiences in the U.S. Energy Workforce

For the U.S. economy as a whole, extensive research documents the vast disparities between whites and non-whites, and particularly Black or African Americans, in terms of income, economic opportunity, educational attainment, incarceration rates, and health outcomes -- inequalities with deep roots in policymaking benefiting white and white-passing individuals. Intersecting identities compound hardships, so that minority individuals with additional gender, sexual orientation, health, ability, and other differences tend to experience much worse economic outcomes and limitations than their majority-conforming counterparts.[i]

The energy industry is no exception to these dynamics. Recent research co-published by BW Research Partnership, the Historically Black Colleges and Universities Community Development Action Coalition's Clean Energy Initiative, and NASEO finds that trends of low representation, occupational segregation, and exclusion persist in the U.S. energy workforce. Lehmann et al.'s *Diversity in the U.S. Energy Workforce: Data Findings to Inform State Energy, Climate, and Workforce Development Policies and Programs*[ii] finds a number of key representational disparities in the U.S. energy workforce based on a survey conducted in late 2020 and early 2021, including the following:

- Women are vastly underrepresented in the energy workforce, composing 25 percent of energy workers versus 47 percent of the U.S. workforce as a whole.
- Black or African American workers, representing 8 percent of the energy workforce, and Latinx workers, at 16 percent, are also underrepresented.
- White energy workers are more likely to be in supervisory or managerial roles than racial or ethnic minorities, even when controlling for differences in educational attainment.
- White energy workers are more likely to receive higher wages and full healthcare coverage than racial and ethnic minorities, even when accounting for educational differences.

Recommended Practice:

One-size-fits-all and top-down workforce development and diversity policies may fall short of addressing the specific needs and challenges of underrepresented cohorts. Consider program design and development approaches that are informed directly by target communities.

The research also uncovers key barriers facing gender and ethnic and racial minorities in the U.S. workforce, such as lower rates of exposure to energy career opportunities and, once in the workforce, a poorer sense of belonging, fewer opportunities for advancement, and the presence of bias and prejudice in workplace cultures.

The table below summarizes how energy workers rank their top three greatest challenges to career advancement, by race and ethnicity. Notably, the chart suggests that different ethnic and racial cohorts experience disparity in the energy workforce in unique ways: for instance, nearly four in ten Black or African American energy worker survey respondents selected "prejudice or bias in the workplace" as a primary challenge to career advancement, whereas other minority groups ranked lack of technical training and expertise, and lack of job options in their area, as key barriers. This finding suggests that solutions to promote a diverse, skilled, and inclusive energy workforce need to be tailored to meet the unique needs and challenges of the underserved community or cohort.

Table 1: Greatest Challenges to Career Advancement by Race and Ethnicity

Asian	***Black or African American***	***White***	***Hispanic or Latinx***	***Other*** [2]
Getting the technical training as well as developing technical skills and expertise (41%)	Overcoming prejudice or bias in the workplace (38%)	Finding employment opportunities that are near where I live or am willing to live (42%)	Finding employment opportunities that are near where I live or am willing to live (37%)	Finding employment opportunities that are near where I live or am willing to live (48%)
Communicating effectively with employers and hiring managers (37%)	Getting comfortable and confident communicating with employers and those hiring (32%)	Getting hands-on training that develops energy-specific skills (42%)	Getting the academic degree and/ or certification needed (36%)	Getting the academic degree and/ or certification needed (39%)
Finding employment opportunities that are near where I live or am willing to live (37%)	Getting the academic degree and/ or certification needed (32%)	Getting the academic degree and/ or certification needed (39%)	Getting the free time needed to focus on my career goals (35%)	Getting hands-on training that develops energy-specific skills (36%)

Source: Lehmann, S. et al. *Diversity in the U.S. Energy Workforce: Data Findings to Inform State Energy, Climate, and Workforce Development Policies and Programs*. April 2021.

2 "Other includes American Indian and Alaska Native as well as Native Hawaiian and other Pacific Islander.

COVID-19 Impacts

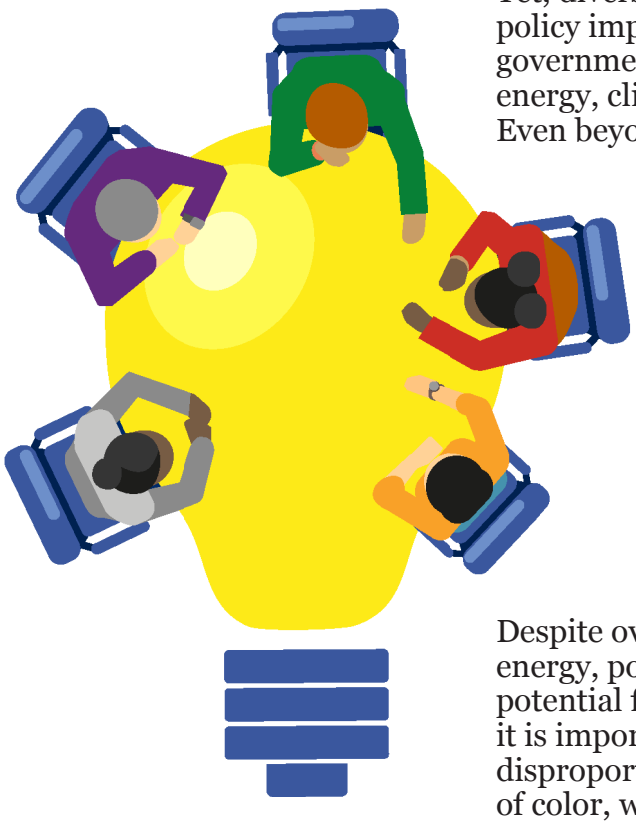
As a whole, the energy workforce has weathered the pandemic better than other segments of the economy. At the peak of job losses in April 2020, the nation saw a roughly 20 percent decline in employment; the energy industry, 12 percent.[iii] Yet, Latinx energy workers have been disproportionately impacted by job losses (14.2 percent compared to the national average of 12.7 percent), largely driven by job losses in the mining and extraction, repair and maintenance, and construction industries and the lack of remote work options available in occupations commonly held by Latinx workers in these sectors. Meanwhile, job losses for white (12.0 percent), black (9.7 percent), and female (9.6 percent) energy workers were lower than the economy as a whole.[iv] As of February 2021, the energy sector remained significantly below peak employment at the end of 2019, with hundreds of thousands of energy jobs, including 338,500 in clean energy fields, lost.[v]

Recommended Practice:
Consider the unique challenges faced by unemployed and underemployed workers due to the COVID-19 pandemic and integrate policy and program flexibilities (such as flexible work hours or remote work options) that can accommodate their re-entry into the workforce.

Based on trends in the U.S. labor market as a whole, the COVID-19 pandemic has eroded the ability of some segments of the U.S. population to easily access gainful employment or re-employment – despite the economy recording record job openings as of June 2021.[vi] Even with U.S. labor markets recovering, the rebound has been uneven, particularly for Black workers and Black and immigrant business owners.[vii] The pandemic has widened labor force participation gaps between male and female caregivers, with women (particularly women of color and single mothers) exiting the labor market at a higher rate than other groups since the start of the health crisis.[viii] These data points suggest that for energy and climate policymakers contemplating post-COVID economic recovery, special consideration to disadvantaged workers and their particular barriers to entry may be needed.

Value Proposition: *The Energy and Climate Policy Case for Workforce Diversity*

While state and federal governments have passed legislation and rules to prevent unfair employment practices, workforce diversity is often perceived as the responsibility of and an opportunity for employers. Certainly, there is an important business case for employers to diversify their workplace: on average, companies that lack racial, ethnic, and gender representation exhibit poorer financial performance[ix] and report lower innovation revenue[x] compared to their more diverse counterparts. Indeed, in response to growing awareness of the business need for workplace diversity, many companies, governments, non-profit organizations and academic employers have issued commitments, established targets, and updated Human Resources (HR) practices around diversity, equity, and inclusion.



Yet, diversity shortfalls also hold profound public policy implications for local, state, and federal governments, including for the achievement of energy, climate, and economic development goals. Even beyond their impacts on the development of individuals, families, and companies, poor diversity levels limit states' ability to raise revenue, foster an innovative business ecosystem, direct clean energy technologies and investments to areas of greatest need, and deliver on policy commitments to advance energy equity and tackle climate change.

Workforce Diversity and Underserved Markets

Despite overall growth in the deployment of clean energy, portions of the market (with significant potential for greenhouse gas emissions reductions, it is important to note) remain untapped. These disproportionately include people and communities of color, who experience lower rates of adoption of solar technologies (even when accounting for differences in homeownership and income)[xi], disparate availability and pricing of energy-efficient technologies such as LED lightbulbs[xii], and lower access to clean transportation options and infrastructure[xiii], to name a few incongruences.

To exacerbate matters, people of color are more likely to bear the costs of the uneven deployment of clean energy technologies and programs, whether in the form of higher energy[xiv] and transportation[xv] cost burdens, heightened energy insecurity[xvi], or increased medical expenses resulting from exposure to harmful air pollutants.[xvii] In turn, these costs reduce the ability of affected people to excel in academia and the workforce, perpetuating vicious feedback loops that limit economic potential and hamper the diffusion of clean energy technologies and their concomitant economic and health benefits.

Investments in workforce development and diversity offer a potential solution to break such cycles. Research from the Harvard Business Review finds that "when at least one member of a team has traits in common with the end user, the entire team better understands that user. A team with a member who shares a client's ethnicity is 152 percent likelier than another team to understand that client."[xviii] A more representative energy workforce, from the technicians installing technologies to the executives devising strategy and investments, can not only help businesses be more competitive and innovative, but also unlock opportunities for governments to better deliver on bold clean energy and climate goals that benefit more than wealthy or early adopters.
These implications highlight the need for action and investments – beyond internal HR adjustments – that use public policy levers such as policy and program design,

stakeholder engagement, procurement, and economic development investments to affect change. As discussed later in this report, State Energy Offices can help drive, inform, and catalyze policy actions in this arena in partnership and consultation with local communities and underrepresented groups.

Workforce Diversity, Access, and Inclusion in the Context of Energy Equity and Energy Justice

For the purpose of this report, NASEO offers the following definitions of concepts related to workforce diversity, access, and inclusion, but encourages State Energy Offices to engage community-based organizations and other stakeholders to adapt and develop definitions and targets that reflect local priorities and needs:

- ***Workforce Diversity:*** Similarities and differences among employees in age, cultural background, physical ability, race/ethnicity, religion, gender, sexual orientation, professional background, skillsets, and other identifying factors.[xix] Conventionally, worker diversity is presented as a comparison to a larger representative population – for instance, the workforce or population as a whole. In other circumstances, it may be presented in relation to a target market or specific local community.

Recommended Practice:
Develop commonly shared definitions, goals, and strategies for workforce diversity, access, and inclusion with community-based organizations, workers, and other local stakeholders.

- ***Workforce Access:*** The presence of institutional and structural barriers impacting employee attraction, selection, participation and retention, enabling opportunities for employment success and career growth.[xx]

- ***Workforce Inclusion:*** The elevation and prioritization of employee voices, perspectives, and well-being in workforce culture and decision-making.[xxi]

While workforce diversity, access, and inclusion are each distinct and require attention in their own right, they are also shaped by one another. In some settings, diversity may result from expanded access to training, benefits, and career growth; in others, it may follow from systemic, organizational, and cultural changes that create a more inclusive economic and work environment. Yet in others, a diverse and inclusive workforce can be a catalyst for greater access and inclusion, breaking down barriers, increasing mentorship opportunities for underrepresented cohorts, and elevating new voices and perspectives in decision-making processes. In all likelihood, many workplaces and workforces require attention directed at all three facets - diversity, access, and inclusion.

As demonstrated throughout the remainder of this report, there are a range of ways that State Energy Offices and other policymakers and program implementers can address energy sector workforce disparities, whether by prioritizing underrepresented populations for training and education programs, supporting job placement for workers

with disadvantages, or prioritizing public spending to benefit diverse-owned businesses and workers. When informed by meaningful stakeholder engagement, state energy workforce development and diversity goals and programs can support broader efforts in energy equity and energy justice by promoting economic participation in the energy sector while alleviating the disproportionate cost and health burdens borne by lower-income individuals and people of color.[3]

Programs and Policies in Action: *State and Territory Energy Offices' Roles in Workforce Development and Diversity*

State and Territory Energy Offices and the District of Columbia's Department of Energy and Environment, hereby referred to as "State Energy Offices," are one of the many sets of stakeholders that can investigate and contribute to the development of a diverse, accessible, and inclusive energy workforce in their communities, states, and regions. These agencies advance energy policies and programs, inform regulatory processes, advance energy system planning, and support energy technology research, demonstration, and deployment. In partnership with the private sector, State Energy Offices accelerate energy-related economic development and support state climate goals through energy solutions that address their residents' needs and enhance the physical and cyber energy security of the energy sector.

The State Energy Offices' work is generally under the direction of governors or state legislatures, and is funded by both state and federal appropriations, such as the U.S. State Energy Program. This positioning affords wide autonomy in the structure of State Energy Office programs and initiatives, and opens doors for innovative workforce partnerships, for instance with state and local workforce development agencies, academic institutions, community-based organizations, and the federal government.

States may structure energy workforce initiatives in different ways, depending on their priorities, budget, bandwidth, and the availability and capacity of aligned partners. NASEO's examination of State Energy Office workforce policies and programs uncovered three motivations behind states' efforts: workforce investments that build capacity among workers; energy project, program, and infrastructure investments that build demand for workers; and planning and information sharing that identifies workforce and skills gaps, mitigates impacts, and connects stakeholders.

3 The Initiative for Energy Justice has conducted extensive analysis on the concept of energy justice and the need to foreground the priorities and needs of communities of color, working-class communities, communities on the frontlines of climate change, and other burdened populations. More information is available at https://iejusa.org/.

Capacity Building

First, state energy workforce policies and programs may **build capacity** for people to access and thrive in energy occupations. Capacity-building initiatives may cover a wide range of efforts and audiences, from younger students to established professionals, but their general aim is to support the development of relevant, marketable knowledge and skills and to develop the talent pipeline for those in energy and adjacent fields such as Information Technology (IT), agriculture, water, land use, and others.

Recommended Practice:
Examine state energy education, training, and career advancement programs for opportunities to prioritize outreach and reduce barriers to participation for disadvantaged populations.

Examples of State Energy Offices' efforts to support capacity-building in their energy sectors may include programs supporting:

- ***Internships and Placements:*** State agencies may develop paid internships that expose young people to potential career paths in energy. Many State Energy Offices house interns in their agencies, to support the state policymaking, program development, and stakeholder engagement process. Some State Energy Offices may also be well-positioned to place interns externally with partner employers. For instance, the Massachusetts Clean Energy Internship Program offered by the Massachusetts Clean Energy Center (MCEC), a quasi-public economic development agency that works in close partnership with the Massachusetts Department of Energy Resources (the State Energy Office), has placed thousands of students and recent graduates in clean energy companies. For each round of intern placement, MCEC reserves spots for companies or students located in designated Gateway Cities."[xxii] This carve-out enables the program to drive workforce and economic development opportunities to less-developed regions of the state.

Recommended Practice:
Ensure State Energy Office-supported internship and job placement programs compensate workers for their time and contributions. For many students and entry-level workers, internships are critical to the development of their careers. Financial barriers often prevent low-income students from accessing internships, especially if they are unpaid, and perpetuate existing inequities by limiting access to those who can afford to work for limited or no pay.

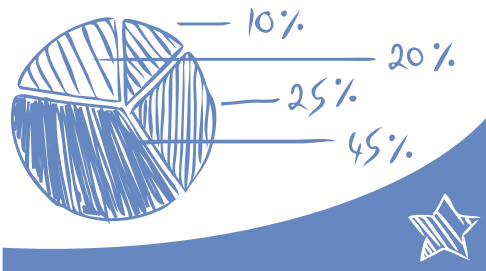
- ***Apprenticeships:*** Apprenticeship programs enable workers to learn a skilled craft or trade, combining on-the-job training with classroom technical instruction. While apprenticeships are often offered by unions, State Energy Offices and other partners can develop and

support these programs as well. For instance, the Hawaii State Energy Office last year announced the use of U.S. State Energy Program funds to coordinate training and apprenticeship opportunities in energy efficiency, renewable energy deployment, energy resilience, and clean transportation.[xxiii] The North Carolina Department of Environmental Quality's Energy Group also offers an apprenticeship program in partnership with North Carolina Agricultural and Technical (A&T) State University, which is discussed in further detail in the section "Partnerships with Minority-Serving Institutions and Community-Based Organizations."

- ***Training:*** State Energy Offices have also offered training programs to support professional and skills development for existing workers. Some of these training programs may be narrowly focused, for instance based on key gaps and needs observed in the existing workforce. For instance, Hawaii, Colorado, Nebraska, and Pennsylvania are among the many states that have offered energy code training and education for local building departments and other key stakeholders.

  In another example, the Solar Works DC program offered by the District of Columbia's Department of Energy and Environment, Department of Employer Services, and Grid Alternatives offers 12 weeks of training, including classroom and on-the-job instruction and no-cost solar upgrades for income-qualified homes.[xxiv]

  In states with even greater funding and programming capacity, workforce training opportunities may be broader and more multi-faceted; for instance, the New York State Energy Research and Development Authority (NYSERDA) offers a number of funding opportunities for training providers in high-efficiency heating and cooling, heat pumps, and other clean energy technologies. A notable aspect of NYSERDA's funding is its emphasis on disadvantaged communities and priority populations. Training providers serving these audiences may be eligible for higher scores, greater assistance, or lower cost share requirements, concessions which can help drive workforce investment to underserved or high-need areas and people. The text box on "NYSERDA's Efforts to Reach Underserved Populations" provides further detail and may inform other states' efforts.



Recommended Practice:
Consider how workforce programs can be designed to deliver clean energy technologies and benefits more effectively to communities who have been historically underrepresented in programs, for instance by:

- Developing place-based initiatives in disadvantaged, frontline, and environmental justice communities;
- Funding training providers that serve underrepresented populations, such as women, ethnic and racial minorities, veterans, formerly incarcerated individuals, and lower-income areas.
- Working with Minority-Serving Institutions and community-based organizations to reach new markets and people.

NYSERDA's Efforts to Reach Underserved Populations

In its workforce development funding opportunities, the New York State Energy Research and Development Authority (NYSERDA) uses special definitions and parameters to incentivize the delivery of training opportunities to underrepresented communities and people. NYSERDA uses the following definitions:

"Disadvantaged Communities" are communities that bear burdens of negative public-health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentrations of low- and moderate-income households. Members of Disadvantaged Communities include individuals from either of the following groups:

- Individuals residing in locations that meet *both* of the following criteria:
    1. Census block groups that are in the top quartile of HUD census tracks meeting the annual income threshold of 50% Area Median Income, and
    2. Location identified as a Potential Environmental Justice Area, as defined by the New York State Department of Environmental Conservation; or
- Individuals residing in a New York State Opportunity Zone.

For the most up-to-date definition, including an interactive map, see the "Disadvantaged Communities" page on the NYSERDA website.

"Priority Populations" include:

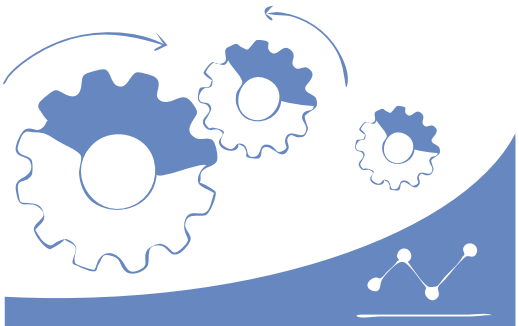
- Veterans;
- Native Americans;
- Individuals with disabilities;
- Low-income individuals, whose household's total income is below or at 60% of the State Medium Income, or whose household has been determined eligible for or is receiving assistance through the Home Energy Assistance Program, Temporary Assistance for Needy Families, Supplemental Nutritional Assistance Program, or other human service benefit programs;
- Incumbent or unemployed power plant workers;
- Previously incarcerated individuals; 16- to 24-year-olds who are enrolled in or have completed a comprehensive work preparedness training program such as those offered by Boards of Cooperative Education Services, technical high schools, Conservation Corps, Youthbuild, and AmeriCorps;
- Homeless individuals;
- Single parents.

Source: https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Workforce-Development/

Demand Building

Next, state energy policies and programs can **build demand** for workers, technologies, knowledge, and skillsets. In a March 2021 opinion piece for *The Hill*, workforce experts David Foster of the Energy Futures Initiative and Sade Nabahe of the MIT-Harvard Roosevelt Project underscore the importance of not only training, but also investments to ensure economic opportunity for workers:

> "*There's a big difference in America between having a good job and being trained for a good job. The latter often doesn't result in the former… The good news about the investments necessary to decarbonize the economy is that they provide our country with the tools necessary to re-employ many Americans. More importantly, they provide us with the opportunity to redesign the longer-term solutions to chronic underemployment, such as linking training to actual jobs.*" [xxv]



Recommended Practice:
Integrate state-supported training and education programs with efforts to build market demand in corresponding fields and with job placement opportunities for workers.

Especially as many states and the federal government contemplate clean energy investments to support a post-pandemic recovery, State Energy Offices are well-positioned to connect the dots that Foster and Nabahe describe. Public policy levers such as incentives, new investments, strategic partnerships (for instance with labor partners), and regulations can catalyze market changes that affect economic opportunities for businesses and workers. For instance, recent moves by California, the U.S. Department of the Interior, and U.S. Department of Defense to open the West Coast for offshore wind development are expected to support thousands of new jobs.[xxvi]

Strategies for State Energy Offices to build demand for the energy workforce include:

- ***Energy Program Design:*** State Energy Offices may consider integrating workforce requirements or parameters into their existing programs and initiatives. For instance, to ensure high-quality installation of clean energy products supported by their financing and loan programs, State Energy Offices may require credentials, licensing, and/or membership in the Air Conditioning Contractors of America, the North American Board of Certified Energy Practitioners, or other associations. In a local example, the City of Milwaukee's Energy Efficiency Retrofit Program required the program implementer, the Wisconsin Energy Conservation Corporation, to promote local hiring, provide opportunities for small and disadvantaged businesses, and engage community-based organizations.[xxvii] Similarly, State Energy Offices may also consider incentivizing diversity and inclusion in state-funded energy research, policy analysis, and planning projects. At the federal level, the U.S.

Department of Energy now requires applicants to submit a Diversity, Equity, and Inclusion Plan detailing the steps they will take to engage and support people from underrepresented groups. These funding opportunities also call out and encourage Minority-Serving Institutions, Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or entities located in an underserved community to apply.[xxviii] DOE's recent actions offer a model for State Energy Offices seeking to diversify their program partner pool in similar ways.

Recommended Practice: Consider using a wide array of energy program and economic development tools to incentivize the hiring of local, diverse workers and to build opportunities for minority- and women-owned businesses, innovators, and contractors.

- ***Project Labor Agreements and Community Benefits Agreements:*** For energy projects that receive state funding, State Energy Offices might be well-positioned to determine the applicability of project labor agreements, community workforce agreements, community benefits agreements, and other provisions to support the hire of local, low-income, or disadvantaged workers (versus the import of out-of-state workers), ensure high-quality work, and identify industry standard wages.[xxix] In another local government example, the County of Los Angeles, California uses a Project Labor Agreement and Construction Careers Policy that encourages construction employment and training opportunities to those who reside in economically disadvantaged areas, and also has targeted programs for women in construction careers.[xxx] For State Energy Offices interested in learning about strategies to promote community benefits through private sector energy project development, the U.S. Department of Energy's Office of Minority Business and Economic Development offers a toolkit with models and partnership strategies.[xxxi]

- ***Public Procurement:*** Many State Energy Offices also hold influence over purchasing and project decisions directly for state-owned facilities. Favoring energy efficiency, clean energy, and other types of "green" procurement can use the state's "power of the purse" to divert spending, business, and job opportunities to energy workers. In conjunction with strong minority business procurement goals and capacity-building efforts (such as minority contractor training, outreach, and coaching),[xxxii] such actions can help drive clean energy investments to businesses and communities who may otherwise have missed the opportunity to participate. For instance, in a December 2020 announcement, Governor Jay Inslee of Washington proposed new funding to increase equity in state contracting by tracking the number of minority- and women-owned businesses that participate in public spending.[xxxiii]

- ***Other Economic Development Tools:*** Some State Energy Offices, by virtue of their location within or proximity to state development and commerce agencies, may have the option of using additional economic development tools to drive employment and business opportunities for disadvantaged and underrepresented groups. For instance, economic development agencies may create incentives for companies and start-ups to locate operations and facilities in high-growth-potential areas, rather than in established, gentrified urban centers.[xxxiv] They may also be well-positioned to use the federal Opportunity Zone program to guide clean energy investments toward housing or other types of development in economically distressed areas.[xxxv]

Informing Sharing and Planning

Many State Energy Offices have unique insights into both sides of the energy workforce development equation, including the composition, size, and capacity of the existing workforce, employer needs, and planned investments and policies that may affect it. For this reason, State Energy Offices have also served as a hub for information and planning to identify and communicate potential barriers, areas of opportunity, and impacts, for instance by conducting:

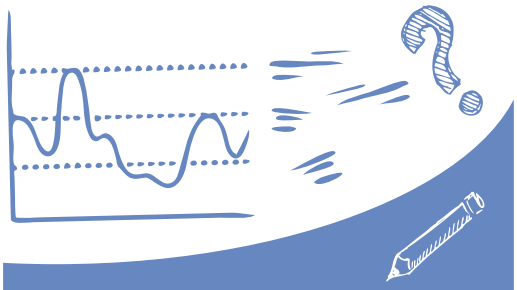
- ***Comprehensive Energy Policy Planning:*** Shifting consumer preferences, energy prices, and laws and regulations have also contributed both to job growth as well as losses in certain sectors of the energy economy. Many State Energy Offices have used stakeholder engagement and comprehensive statewide energy planning processes[xxxvi] to understand the opportunities and potential pitfalls, and communicate market changes to the public. For instance, under Governor Herbert, the Utah Governor's Office of Energy Development identified, in the development of *Utah's Energy Action Plan through 2020*, the need for education initiatives to support workforce development in filling energy and mineral jobs of the future.[xxxvii]

- ***Workforce Studies and Assessments:*** Energy sector workforce studies and assessments offer a snapshot of workforce demographics, hiring difficulties, projected growth, and opportunities for targeted investments, partnerships, and policies. When conducted longitudinally, they offer information about trends over time and the potential long-term impacts of policies. Dozens of states, including Florida, Minnesota, New York, Maine, Vermont, Rhode Island, Pennsylvania, California, have issued data and analyses of their state energy workforce in order to share information and identify opportunities and challenges. A number of states have also conducted deep-dives of specific segments of their energy workforce: as one example, the Weatherization Workforce Roadmap for Washington State details challenges facing low-income weatherization agency employers and subcontractors, and offers a roadmap with potential solutions.[xxxviii]

- ***Worker Surveys and Outreach:*** State Energy Offices can engage workers directly to gain a stronger grasp on their needs, demographics, and experiences in or around energy careers. Deep engagement through surveys

and stakeholder convenings can elevate disparities, disadvantages, and barriers to advancement, and inform states' development of targeted policies and programs. Conducting this outreach in partnership with minority-serving institutions and community-based organizations can help state agencies establish trusted inroads into underserved communities and ensure that engagement strategies are designed to match their preferences, needs, and priorities.

- ***Just Transition Planning:*** As mentioned earlier, policy and market shifts have contributed to shifts in the energy labor force, with fossil fuel-dependent economies particularly impacted by competition from lower-cost natural gas and other energy sources. The loss of stable, well-paying jobs and economic activity in coal communities is a particular focus of the Colorado Just Transition Action Plan, which aims to support coal communities and workers transition to family-sustaining jobs, a broader and more diverse tax base, and greater economic prosperity. Among its top recommendations is to leverage loan guarantees offered by the Colorado Energy Office through the Colorado Clean Energy Fund in order to support energy efficiency construction jobs in transition communities.[xxxix]



Recommended Practice:
Use analysis, planning, and outreach to develop a data- and stakeholder-driven understanding of key opportunities and challenges for disadvantaged workers in the energy sector.

- ***Awareness Raising Events:*** State Energy Offices can serve as a point of connection between employers and jobseekers in the energy sector by hosting events such as job fairs and career expos. For instance, the Utah Governor's Office of Energy Development has been involved in a variety of such events, including the Utah Power and Energy Career Expo and Utah STEM Fest, where it has hosted the Energy & Minerals Pavilion. States can amplify the impact of such events by working directly with minority-owned businesses to support the participation and involvement of diverse groups.

Key Partnership Opportunities: *Minority-Serving Institutions and Community-Based Organizations*

Many State Energy Offices enjoy collaborations with universities, colleges, training centers, and other institutions and organizations with trusted inroads into local communities. There is growing awareness that effective and impactful programs in energy and economic development require direct and sustained collaboration with communities with the greatest needs, vulnerabilities, and opportunities for growth and prosperity. In this regard, Minority-Serving Institutions (MSIs), vocational and technical colleges, and other community institutions represent some of the most important partners that can inform and co-develop workforce development and diversity strategies with state policymakers.

Minority-Serving Academic Institutions

MSIs are institutions of higher education that serve minority populations and include such designations as Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), Hispanic-Serving Institutions (HSIs), and Asian American and Pacific Islander Serving Institutions (AAPISIs). These institutions offer a wide variety of programming, including degrees, credentials, and coursework in STEM, business management, planning, and other areas that support energy fields. They are also often core assets in their communities, deeply involved in economic development and community engagement activities: even beyond student and faculty engagement, they can facilitate community initiatives such as town hall discussions, job fairs, workforce training and career development engagements, and awareness-raising around clean energy, climate, and other high-priority issues.

Recommended Practice:

Provide grants or other sources of financial support (for instance, endowed chairs or professorships) to MSIs to support their work developing talent pipelines for energy and STEM fields. Such moves can be especially important in counteracting low levels of diversity within the management and executive level of the energy industry, which may require higher levels of educational attainment, such as two- or four-year degrees.

An illuminating survey of 20 HBCUs conducted by the Historically Black Colleges and Universities Community Development Action Coalition (CDAC's) highlights the critical role played by HBCUs (and likely many other MSIs) in developing highly-talented and demographically diverse pipelines of students, educators, business leaders, and community members -- including in the energy sector. CDAC's research found strong STEM degree granting institutions but limited examples of energy-specific degrees. Institutions offering STEM programs, including the natural sciences, technology, engineer, mathematics, and informational technology. Additionally, CDAC's respondents indicated high levels of interest in energy-related programming, including in degree programs and non-degree certificates.

Many MSIs may be well-positioned to develop new programming in partnership with State Energy Offices; however, it is important to note that some institutions, particularly smaller or lower-tier schools, may need support to build capacity, funding, and expertise over time. Such support may come in various forms: for instance, ranging from decreased or waived cost share requirements of funds granted to MSIs, to more substantive funding for research capacity-building and program development, to endowments. For example, between 2010 and 2014, the California Energy Commission provided over $3 million in grants to Sacramento State, a Hispanic-Serving Institution, for the establishment and research of the California Smart Grid Center.[xl]

A notable State Energy Office-HBCU partnership is between the North Carolina Department of Environmental Quality (DEQ) and the Center for Energy Research and Technology at North Carolina Agricultural and Technical State University. The collaboration has developed over a span of several years, blossoming from regular communication and joint projects. Most recently, the duo announced an initiative, the Energy Fast-Track Certifications and Local Industry Partnerships, to bolster regional energy-efficient building construction and cost savings in low-income communities hardest hit during the pandemic. Key aspects of the program cater to community, student, and worker needs, including paid, summer energy-related apprenticeships in Guilford, Wake and Halifax. The apprenticeship experience is expected to inform future Energy Efficiency and Solar Apprenticeships across the state.[xli]

Some MSIs have benefited from peer exchange and coordination opportunities through their associations with convening bodies, such as the HBCU Community Development Action Coalition. CDAC Clean Energy Initiative champions and advances clean energy research, clean energy-related career development pathways, and economic development opportunities for communities and entrepreneurs, by leveraging the campuses, curricula, and talent of HBCUs. CDAC's Clean Energy Inititive offers a forum for HBCUs interested in STEM and clean energy to convene, learn about opportunities for coordination and engagement, and connect with potential partners such as State Energy Offices, federal agencies, and non-governmental organizations. Using CDAC as a model, policy makers can encourage MSIs in their state to work together toward commonly shared energy and economic development goals.[4]

Vocational and Technical Schools

Vocational and technical schools teach students skills for a specific trade or occupation, including in energy directly as well as in fields that are heavily linked to energy jobs, such as construction, mechanics, carpentry, agriculture, and welding, among others. These institutions do not typically serve specific racial and ethnic cohorts in the same fashion as MSIs. In comparison to four-year institutions, they are generally more affordable and have fewer barriers to entry such as prerequisite general education requirements. As such, a high-quality vocational education can boost career prospects for individuals for whom a two- or four-year education may not be possible or a good fit.

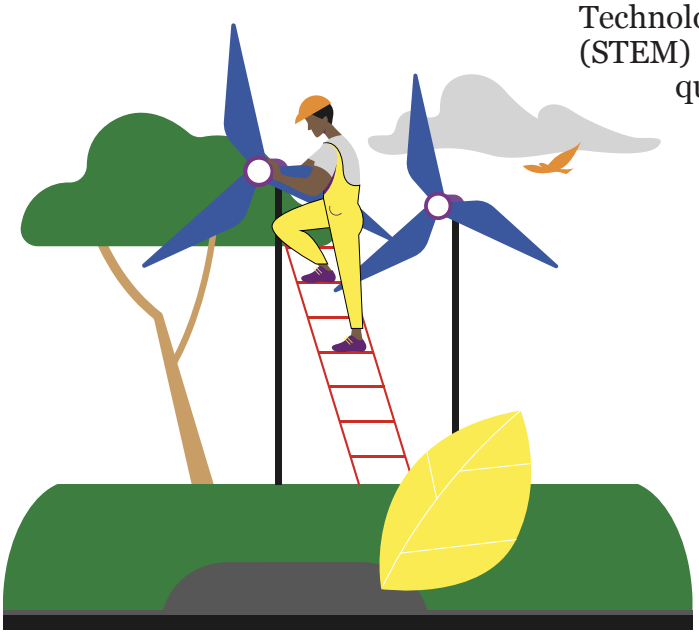
Several technical education programs exist for energy technologies. Last year, Roxbury Community College in Massachusetts unveiled a Center for Smart Building Technology, through which students can access Associate Degree and Certificate Programs in Smart Building Technology. The evolution of the Center for Smart Building Technology illustrates how vocational education can adapt to changing policy and market conditions, as the program is designed to align with the City of Boston's environmental and carbon neutrality goals. The Center's leaders have been deliberate about engaging lower-income and diverse students in the Boston area, where the racial wealth gap is particularly strong, and positioning clean energy careers as a potential pathway out of poverty.[xlii]

4 More information about the CDAC Clean Energy Initiative is available at www.hbcucleanenergy.org.

Another notable example is the California Energy Commission's partnership with California Community Colleges Advanced Transportation and Logistics on zero-emissions vehicle projects. This collaboration has enabled community college and high schools to purchase updated alternative fuel equipment, update curricula, and train faculty and students in disadvantaged communities.[xliii]

K-12 Schools and School Districts

Early-childhood education may not have immediate impacts on the workforce, but over the long term, programming to develop student inquiry and critical thinking in Science, Technology, Engineering, and Mathematics (STEM) can pay dividends in terms of a qualified and prepared energy workforce and robust energy business and innovation ecosystem. State Energy Offices can work with school districts, community colleges, and universities to support STEM education: for instance, the Utah Governor's Office of Energy Development has partnered with the Utah Science Teachers Association to provide energy and minerals curriculum materials for elementary, middle, and secondary students.[xliv] Many State Energy Offices across the country support initiatives such as the National Energy Education Development (NEED) Project, which offers curricula, teacher training, after-school programs, and other tools to support energy education.[xlv]



There are also a growing number of "magnet schools" across the country focusing on specific areas of interest, including STEM, as well as vocational programs in high schools that prepare students to work in a specific field after they graduate. These institutions offer yet another opportunity for State Energy Offices to develop partnerships and build diverse pipelines supporting the future energy workforce.

Community-Based Organizations

Beyond academia, a wealth of community-based organizations at the regional, state, and local levels represent the interests and priorities of local, disadvantaged, and frontline communities in state energy policymaking and programs. As with broader energy and climate policymaking, community-driven and deferential stakeholder engagement practices, as elaborated in a separate report that NASEO co-developed with Facilitating Power and the Minnesota Department of Commerce on *Designing Equity-Focused Stakeholder Engagement to Inform State Energy Office Programs and Policies*, will be critical in elevating and executing optimal, community-driven workforce development and diversity investments.

Final Considerations: *Takeaways and Recommended Practices for State Energy Offices*

Opportunities to diversify the U.S. energy workforce are present in private sector energy firms and corporations, as well as in government agencies and non-profit organizations supporting the development of energy policies and programs, across all levels of the organizational hierarchy. While any one State Energy Office may not hold influence across all of these channels, there are an array of options, from lighter-touch adjustments to more formal strategies and program models, that can help make the energy sector workforce more accessible and inclusive for underrepresented groups.

Following is a synthesis of actionable recommendations for State Energy Offices and their partners in academia, federal government, and the private sector to advance energy sector workforce diversity, access, and inclusion.

Engage Communities in Workforce Goal-Setting and Strategy Development

Many employers peg their individual workplace diversity quotas to local population or workforce demographics in their state or region. However, state policymakers may wish to be more expansive or, conversely, more targeted based on state goals, unique labor market challenges and opportunities, and community needs. For instance, a workforce that is effective in responding to energy burden challenges may need to become more diverse, and have deeper inroads into communities and households of color, than the state or local workforce as a whole. Conversely, efforts to promote a just transition for coal communities may focus on new job creation and skills development for incumbent workers, who may be less diverse demographically but underrepresented in other ways due to their professional background. Grasping the need, the levels of disparity, and suitable solutions for target populations requires robust analysis and extensive stakeholder engagement to elevate community needs.

- Engage local communities to develop commonly shared definitions, goals, and strategies for workforce diversity, access, and inclusion in energy and climate careers.
- Use stakeholder engagement strategies that elevate community voices and mitigate participation burdens (for instance, by providing compensation, on-site childcare, non-work-hour meeting times, virtual participation options, and other flexibilities).
- Use all available data and information from the target community to frame the need and policy proposition for workforce diversity, access, and inclusion investments, including potential impacts on workers and businesses and implications for state energy and climate goals.
- Explore program and policy mechanisms that may open access for historically underserved populations, such as increased funding or waived cost share requirements for lower-income or minority communities, procurement and contracting partnerships with small and minority-owned businesses, and support for minority-serving institutions and community-based organizations.

- Provide additional flexibilities to unemployed or underemployed workers struggling to re-enter the workforce as the economy re-opens from the COVID-19 pandemic, with special consideration of the need for targeted retraining programs, subsidized programs, instruction in languages other than English, incentives for companies to provide childcare or flexible scheduling, and others.

Support and Partner with Minority-Serving Institutions and Community-Based Organizations

MSIs are natural partners in any effort to increase economic opportunity for underrepresented and diverse communities. As community institutions, they provide important and trusted inroads for workforce training, engagement, and technology deployment. By the same token, they play a crucial role in educating students, workers, and future business leaders who can contribute and bring new perspectives and values to their states' energy workforce, business community, and innovation ecosystem.

- Develop communications channels with MSI leaders, faculty, on-campus career services professionals, and development staff to highlight changes in state energy policy that may impact career prospects for MSI graduates.

- Explore the possibility of providing financial support to build energy-related programming within MSIs, for instance through targeted training and education grants or, more broadly, capacity-building investments such as endowments.

- Invite MSIs to participate in and contribute to the development of statewide energy policy plans and in state research, technology commercialization, and policy analysis funding opportunities.

- Support MSIs' efforts to organize and communicate around clean energy and STEM programming, using the HBCU Community Development Action Coalition's Clean Energy Initiative as a potential model.

- Encourage private sector energy companies to fund, partner with, and support MSIs.

Make Creative Use of State Energy, Economic, and Workforce Development Levers

State agencies have a wide range of economic development and policy design tools to "lead by example" in workforce diversity, access, and inclusion. As employers, program and policy implementers, and advisors to governors and other state agencies, State Energy Offices are well-positioned to help states affect change from within.

- Identify suitable opportunities in energy program design, inclusive procurement, project agreements, and economic development engagements with businesses to incentivize local and diverse hiring, company commitments to diversity and inclusion, and greater spending on small- and diverse-owned businesses.

- Plug energy into existing state workforce development and career advancement structures by partnering with Departments of Labor, state and local training providers, and state- and federally-sponsored apprenticeship and workforce development programs.

- Ensure state-supported internship programs are paid, so participants are compensated for their time and expertise, and to expand access for lower-income individuals. Encourage private sector partners to provide paid internships as well.

- Support mentorship programs and opportunities, including through energy workforce associations,[5] within the state government enterprise, and among private sector partners. Encourage and incentivize participation by mentors and mentees of color and other diverse backgrounds.

5 While not a comprehensive list, mentorship opportunities are available through Women of Renewable Industries and Sustainable Energy (WRISE), American Associated of Blacks in Energy, American Indian Science and Engineering Society, Asian Americans in Energy, Troops to Energy Jobs, and many other organizations across the country with national, state, and local footprints.

Track Progress and Impact through Data and Engagement

Data and disclosure can be powerful tools to effect change in the long-term. State Energy Offices can track the impact of workforce diversity efforts to create accountability and identify opportunities for policy, program, and spending adjustments.

- Develop tools, such as public spending dashboards, to track public spending across state agencies, which can highlight opportunities for contracting and procurement with underrepresented contractors, businesses, and minority-serving institutions.
- Use employer-reported surveys and studies, such as the U.S. Energy and Employment Report,[xlvi] to access data on worker demographics, skills gaps, and hiring projections.
- Commission and report the findings of surveys and focus groups to collect input directly from incumbent, transitioning, and prospective workers about their demographics, experiences, and perceptions of diversity, equity, and inclusion in their field.
- Use data findings to adjust and improve policies, programs, and engagements with key stakeholders.

Conclusions

In comparison to white Americans, racial and ethnic minorities navigating U.S. economic, education, and workforce systems face extraordinary obstacles in accessing career- and wealth-building opportunities. McKinsey researchers describe the "combination of racial animus and early exposure to environments unfavorable for accumulating human capital," pinpointing a number of obstacles disproportionately affecting racial minorities, and particularly Black Americans: "poor school quality, differential treatment in the criminal-justice system, workplace discrimination, career selection, and a lack of role models who can guide professionals' career advancement," to name a few.[xlvii]

The field of state energy policy cannot dismantle these realities entirely, but it can be informed by the experiences of those who have been historically underrepresented and marginalized by existing systems. As policymaking bodies and conveners, State Energy Offices are well-positioned to develop such an understanding and apply learnings to the way energy, climate, and workforce development policies are designed and delivered through a multi-pronged approach that brings investments to historically underserved communities, draws on partnerships with minority-serving institutions and organizations, and acknowledges and addresses deeply-rooted resource disparities.

As states and the nation look to rebuild, recover, and address the climate emergency, the energy sector can be a source not only of job creation, but also of long-term career advancement, entrepreneurship, educational attainment, and wealth building for both communities and individuals.

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