WORKFORCE PARTNERSHIPS FOR AN INCLUSIVE CLEAN ENERGY WORKFORCE

STATE POLICY APPROACHES AND RECOMMENDATIONS

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istoric federal clean energy investments present an unprecedented opportunity to create quality, well-paying jobs and diversify the workforce. This brief illustrates how leading states are achieving these goals by prioritizing partnerships between industry, workforce, and education partners such as community colleges. States that embrace these collaborations and proactively align their workforce strategies with federal investments will be best positioned to address workforce shortages, disrupt patterns of occupational segregation, and create a strong, diverse, and multigenerational clean energy workforce.

THE CURRENT LANDSCAPE

STATES HAVE A UNIQUE OPPORTUNITY TO TAKE ACTION

Workforce demand is creating opportunities to invest in a new generation of workers for clean energy jobs

Together, the Inflation Reduction Act (IRA), the Bipartisan Infrastructure Law (BIL), and the CHIPS and Science Act programs will invest \$2 trillion into our the nation's infrastructure and are expected to generate, in total, an average of 2.9 million jobs per year over the time span of these laws.¹ Notably, roughly seventy percent of these jobs will be for workers without four-year degrees and are projected to pay a median hourly wage higher than that of the overall U.S. workforce.² Millions of these jobs will be in growing sectors like clean energy, clean manufacturing, and green infrastructure.³



At the same time, the current workforce in these sectors is aging and retiring, which threatens states' ability to meet the rising demand for these jobs. Without training and other workforce investments, nearly twenty occupations will face an anticipated cumulative labor shortage of nearly 1.1 million workers.⁴ Moreover, women and people of color are significantly underrepresented in the infrastructure occupations most likely to face shortages.⁵ This pressure incentivizes businesses to more intentionally tap into new populations of workers and pushes states to invest in skills training to build the necessary workforce to fill these jobs.

Disrupting persistent occupational segregation can diversify talent pipelines and strengthen local economies

Clean energy careers have been largely inaccessible to underrepresented workers, particularly women and people of color, due to a history of inequitable policies and practices.⁶ Occupational segregation refers to the overrepresentation or underrepresentation of demographic groups in certain occupations or fields. This issue persists in the clean energy sector.⁷ For example, Black and Latino workers are underrepresented in higher-paying infrastructure and energy jobs and more likely to be employed in lower-wage jobs that offer fewer benefits and lower job quality.⁸ These consequences are compounded for women of color.⁹

Disrupting this entrenched occupational segregation has significant social and economic benefits: more racially diverse workforces create better outcomes for individual businesses and the wider economy, such as increased innovation and financial returns.¹⁰ Addressing occupational segregation is key to making sure that everyone has a fair shot at succeeding in the clean energy economy, whereas failure to act would prevent millions of workers from accessing these opportunities.¹¹ States have a critical opportunity to grow the middle class and forge a new path forward by ensuring job growth in this sector does not perpetuate existing inequities.

This once-in-a-generation moment creates urgency for action

The current moment presents a singular opportunity to drive the clean energy transition, with urgency heightened by the growing climate crisis. As extreme weather events accelerate, even fossil-fuel-producing states are recognizing the opportunity and benefiting from the transition. Since 2010, job listings for clean energy occupations are more likely to be located in geographic areas with a high share of oil and gas employment, like Texas, *and* to be in occupations that pay above the national average.¹² Legislation like the IRA is further catalyzing this shift by providing tax credits for locating clean energy facilities in communities that have historically relied on fossil fuels for jobs and revenue.

This transition must also not leave behind the very communities most harmed by the climate crisis and least equipped to recover.¹³ In recognition of this, the Justice40 mandate directs forty percent of federal climate benefits to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution.¹⁴

While clean energy workforce policies are just beginning to take shape, a handful of states have already taken bold action. National Skills Coalition (NSC) interviewed dozens of officials and skills advocates from more than ten states and several national organizations to gain insight into how industry, education, and workforce partnerships can disrupt occupational segregation and create pathways to good-paying jobs. **Skills advocates and policymakers in other states can replicate these approaches to maximize the impact of federal funding, address local industry needs, and prepare a strong and diverse workforce.**

PARTNERSHIPS THAT UNITE INDUSTRY WITH EDUCATION AND WORKFORCE PROVIDERS CAN GALVANIZE CHANGE

Industry sector partnerships bring together local businesses in the same industry along with education and workforce providers to create talent pipelines of new workers in their industry. These partnerships, often facilitated or funded by state policy, typically operate at the local or regional level. Partnership activities include designing career pathways, ensuring training programs are aligned with local labor market needs, validating industryspecific credentials, and shaping hiring and worker advancement strategies to reach untapped talent.

Partnership activities include designing career pathways, ensuring training programs are aligned with local labor market needs, validating industry-specific credentials, and shaping hiring and worker advancement strategies to reach untapped talent.¹⁵ Community colleges are especially critical partners in the clean energy transition.¹⁶

Intentional and equity-focused partnerships achieve the following goals:

Shape a coordinated approach to workforce development. In addition to the partners listed above, strong industry sector partnerships include economic development and human service agencies, community-based organizations (CBOs), and/or labor organizations. By working across the landscape of stakeholders, these partnerships build capacity and align strategies for hiring and workforce advancement. They can help set standardized goals and approaches while maintaining flexibility on implementation approaches.¹⁷

Align training to local labor market demand.

Partnerships ensure that training programs are aligned with real jobs in the local community. They are attuned to specific local needs and employer interests that may not always be captured in labor market data. Partnerships also help coordinate across a clean energy sector that includes new, small companies that don't have a history of working with the education and workforce system. And in rural settings, partnerships that include community colleges are especially valuable because colleges are often engines for economic opportunity and equity, generating workforce demand themselves.¹⁸



Validate industry-specific credentials. Industry partnerships address the challenge of helping clean energy employers agree on standardized credentials and ensure that credentials reliably lead to jobs. This clarity is especially important for underrepresented workers, for whom formal credentials are especially important in helping demonstrate expertise.

Aggregate demand and broaden the talent pipeline.

Partnerships play a critical role in aggregating talent demand across multiple employers and providing clean energy companies who are looking to develop their talent pipelines with access to new, multi-generational and diverse talent pools. However, for these collaborations to succeed, employers must be actively engaged in shaping training and curriculum, so that workers feel confident the training will result in meaningful employment.

Expand access to quality pathways for people of color and women. Industry partnerships are a key strategy for advancing equity in the workplace by countering occupational segregation, racial homogeneity of hiring networks, and hiring practices with discriminatory impacts.¹⁹ Partnerships connect people of color to good jobs by raising awareness about career options, helping more people earn credentials, and increasing the number attaining a specific wage, among other outcomes.²⁰ Community colleges, which serve highly diverse student populations, are trusted institutions that help build essential partnerships, connect students to employers, prepare students for the workforce, and support local economic growth, particularly in smaller or more rural areas and for populations historically excluded from stable, higher-paying jobs.²¹

Coordinate the delivery of holistic supports.

Partnerships can also connect workers to non-educational resources that address barriers that could prevent training completion and success on the job.²² Partnerships do not need to provide these services in-house, but by aligning with other organizations that provide support in areas such as housing, childcare, transportation, and mental health, they can support workers' overall well-being.²³ Coordinating these services ensures that workers are not only trained for clean energy jobs but also equipped with the resources to thrive on the job and sustain their careers over the long term.

EFFECTIVE STATE POLICIES AND RECOMMENDATIONS FOR BUILDING EQUITABLE PATHWAYS FOR CLEAN ENERGY JOBS

NSC's research found that states are supporting effective regional partnerships that build equitable pathways using a variety of policy levers. Below, we outline examples of how successful states are taking action, and considerations for replicating their approaches in other states.

1. States are designating a person or organization to support regional partnerships with coordination and capacity

Many of the states that are leading in clean energy workforce development have funded a designated position or organization to support regional partnerships and their implementation of clean energy workforce strategies. The Washington State Board of Community and Technical Colleges (WSBCTC) has appointed a **Climate Solutions Program** Manager, while the Foundation for California Community Colleges (FCCC) has a **Senior Director, Climate Strategies**. And the **Illinois Green Economy Network** (IGEN) is led by an Executive Director.

While each state has designed these positions differently, they share a common responsibility to support clean energy workforce development via activities such as:

- Serving as a central clearinghouse for potential partners. Because many employers and training providers are stretched thin, having a person whose time is 100% dedicated to clean energy ensures that the work keeps moving forward.
- Coordinating activities across key stakeholders. For example, IGEN helps community colleges band together to pursue federal funding that individual institutions are too small to pursue by themselves. Other coordinated activities can include curriculum design and professional development for educators.
- Building a community of practice for institutions to learn from each other about what's working across the state so they can build on wins and not reinvent the wheel.
- Providing support and guidance on equitable career pathway development for colleges that want to build on their history of serving under-represented students (such as first-generation college students or people of color) as well as those seeking to build new partnerships.²⁴

Braiding funding across different sources. In Washington State, this has included state funds as well as federal grants from the National Science Foundation and the National Oceanic and Atmospheric Administration.

RECOMMENDATION: Use federal or state funds to establish a dedicated position for clean energy workforce development within a state higher education or energy agency, or a private nonprofit. This role should support the creation and growth of regional industry partnerships, be trusted by key stakeholder groups, have a clear mandate for pursuing inclusive workforce development, and manage a budget to provide targeted support, drive innovation, and offer financial incentives that align stakeholders around inclusive workforce goals.

STATE EXAMPLE: Strengthening Statewide Coordination and Capacity through the Illinois Green Economy Network

The Illinois Green Economy Network (IGEN) works across 39 Illinois community college districts to support the development of curriculum and infrastructure preparing students for renewable energy careers. The network fosters collaboration and peer learning across institutions, helps build relationships with workforce and industry partners, and provides capacity to go after federal funding opportunities institutions cannot pursue alone. IGEN provides funding to help colleges with sustainability projects, linking students to future-oriented energy jobs through initiatives like Rev Up EV, which trains automotive instructors across Illinois to address the skills gap in electric vehicle technology. IGEN's approach prioritizes flexibility, so that colleges can adapt to changing industry needs by adding green technology modules to existing programs and teaching transferable skills.

2. States are using economic development strategies to engage clean energy businesses in partnerships that create a more diverse workforce

Strong, local partnerships are essential to helping states weather the inevitable ups and downs of a growing industry such as clean energy where external factors related to cash flow, supply chains, and the global economy may cause hiccups in the timing of new jobs coming online. Blending strategies from the economic development field with those from the workforce and education arena can help states:

- Build relationships with employers. Many clean energy businesses are new and don't have a history of working with education or workforce partners. Industry sector partnerships can help these businesses to transition from familiar economic development thinking (in which "workforce availability" is a site selection factor) to actively participating in building a skilled workforce.
- Help employers make connections between their workforce needs and inclusive talent strategies. One stakeholder told us that when businesses in his state had been unable to take on new projects due to lack of workers, they had become more open to recruiting historically overlooked talent such as immigrants and formerly incarcerated people.
- Implement clean energy workforce policies that resonate with business stakeholders. Partnerships that incorporate an economic development perspective can build trust, bridge divides, and make the case for clean energy in ways that resonate locally, helping to create broader support and long-term commitment from stakeholders across the state.
- Support partners in developing community benefits agreements (CBAs) that prioritize local workforce development. Federally, the Department of Energy requires CBAs for recipients of BIL and IRA funding. Including local entities and stakeholders in the implementation process ensures upskilling and employment opportunities for communities directly affected by clean energy projects.²⁵ These are also

opportunities for programs and projects to set clear equity objectives and targets for the share of women and people of color working in each project.²⁶

RECOMMENDATION: Policymakers should invest in partnerships that include stakeholders who are well-versed in both economic and workforce development, and who can effectively integrate strategies from each field to build an inclusive clean energy workforce.

STATE EXAMPLE: Driving Economic Development through Strong Local Partnerships in Georgia

Businesses can play a critical role in providing support for adapting curriculum or building customized training programs in partnership with local community and technical colleges. At Georgia Power, the Workforce Development Program Manager plays a multifaceted role, engaging with state economic development leaders as well as other businesses and community partners.²⁷ A recent project related to electric vehicles (EVs) brought together a local technical college, the nonprofit Goodwill Industries, the consulting firm Accenture, and new EV companies to design and implement a workforce training program.²⁸ Strong training programs designed in coordination with workforce partners help employers fill job openings through a trusted pipeline of talent and help education leaders and workers mitigate risks by feeling more confident they are armed with transferable skills and portable credentials and that a good job will be available once they finish their training.

3. States are designing flexibility into clean energy workforce policies to allow partnerships to adapt and mitigate risks

Leading states have added flexibility to their education and workforce policies. This adaptability helps **get hesitant partnership members on board** by mitigating their concerns about when and how clean energy jobs will materialize in their communities.²⁹ States are doing this by:

Allowing community colleges and training providers that are part of state-funded partnerships to add modules to existing training

programs, rather than requiring educational institutions to launch an entirely new training program for a clean energy occupation. This may entail adding a module on heat-pump technology to a Heating, Ventilation, and Air Conditioning (HVAC) training program or adding a module on EV battery maintenance to an auto repair technician program. This approach allows training providers to adapt quickly to industry needs without the risk and expense of developing entirely new programs.

- Identifying transferable skills that work across multiple different occupations, and making sure that students are being trained in those skills. This strategy positions workers to adapt to dynamic labor market conditions that may have changed by the time they complete even a short-term training program. This strategy is especially critical when seeking to build participation from underrepresented populations who may be more vulnerable to periods of unemployment and economic uncertainty.³⁰
- **Encouraging regional partnerships** to also include public sector employers that have an urgent need for new workers. For example, connecting with vice presidents of facilities at community colleges, who may be receptive to creative training and recruitment strategies to solve their own workforce development needs.

RECOMMENDATION: Design clean energy workforce policies that explicitly spell out flexible ways in which partners can adapt to changing economic environments.

4. States are ensuring that partnerships include organizations that have longstanding and trusted community relationships to successfully put women and workers of color into clean energy careers

Industry sector partnerships are most successful in solving the challenges of occupational segregation when they include organizations that have deep connections community colleges sometimes fit this description, nonprofit CBOs can also be vital partners, leveraging their connections to combat factors that drive segregation,

such as barriers to education and training, lack of exposure to different career pathways, and inequitable recruiting techniques.³¹ They do this by:

- **Reaching diverse populations.** Many states are targeting investments to nonprofit organizations that are well-positioned to reach the populations they hope to serve. For example, the Minnesota **Department of Employment and Economic Development** is targeting many of their grants to nonprofits that have a track record of serving Black, Indigenous, and other people of color. Meanwhile, the Michigan Energy Workforce Development **Consortium** has formed partnerships with the Urban League of Southeast Michigan and Western Michigan to share information on job pathways in the energy sector with their participants.
- Promoting awareness of these jobs in diverse communities in culturally responsive and appropriate ways, including via the use of contextualized English for Speaker of Other Languages (ESOL) workforce classes or other localized strategies. For example, the Interstate Renewable Energy Council (IREC) developed Green Workforce Connect to ensure that training and job placement efforts are



culturally relevant and trusted by local populations. Additionally, Washington State is launching a **Tribal Stewards Program** that prioritizes training, relationships, and stewardship education with Tribal communities.

Providing retention services. Community-based organizations are also well-positioned to do retention services to help ensure that workers remain in the industry after training and placement. For example, states can fund these organizations to provide peer support, mentorship, and leadership for workers once they're placed in employment.³²

RECOMMENDATION: States should fund nonprofit CBOs to build capacity and work as partners alongside community colleges to build student and jobseeker relationships, deliver training, provide culturally responsive resources, and connect with employers.³³

STATE EXAMPLE: Building Place-Based Approaches in Washington through SBCTC's Tribal Stewards Program

The Washington State Board of Community and Technical Colleges (WSBCTC) is prioritizing place-based approaches through initiatives such as the Tribal Stewards Program, which aims to build a climate-ready workforce. Through this initiative, six community colleges will partner with five Tribes to build culturally responsive curriculum into training programs, train faculty to work with Tribal communities, and holistically support Tribal students for natural resource careers.³⁴ This program – launched through funds from the National Oceanic and Atmospheric Administration (NOAA) as part of the Climate-Ready Workforce for Coastal States, Tribes and Territories initiative – recognizes and emphasizes the close connection of Tribes as stewards of the land. In an interview with NSC, SBCTC Climate Solutions Program Manager Irene Shaver explained that the program will immerse students in place-based learning and create strong career pathways in partnership with over 40 Tribal and non-Tribal employers.

5. States are using data to direct investments toward inclusive workforce development and track the impact toward these goals

States can maximize the impact of their clean energy workforce dollars by:

- Targeting funding for priority populations to reduce inequities. Several states have explicitly targeted their clean energy workforce investments to reach priority populations of workers. The Maryland Energy Administration's statewide competitive Higher Education Clean Energy Grant Pilot Program gives extra points to applicants from Minority-Serving Institutions and to projects that promote environmental justice by benefitting overburdened communities.³⁵ And the Massachusetts Clean Energy Center's (MassCEC) 2025 Equity Workforce Planning and Capacity Grants prioritize minority and women-owned businesses in climate-critical fields, individuals from environmental justice or low-income communities, members of federally or state-recognized tribes, members of underrepresented communities in the clean energy workforce, and workers from the fossil fuel industry.³⁶
- Conducting robust data collection on the outcomes of clean energy workforce policies. States should adopt indicators – such as employment and wage progression, career advancement, and job quality – to accurately gauge the impact of clean energy workforce programs.³⁷ Partnerships should report this data in disaggregated form so that stakeholders can identify where under-represented workers and businesses are being most effectively served.
- Integrating equity-based incentives into new or existing workforce policies. Beyond just targeting funding to specific populations, states can promote inclusion via incentives that reward sector partnerships that have established explicit equity goals. For example, NYSERDA ties its funding to equity thresholds and outcomes through a unique costsharing model that adjusts its funding based on the populations served and the outcomes for those populations.

RECOMMENDATION: States should be intentional about designing funding programs to incentivize equity in workforce development and should require rigorous data collection to measure the impact of their investments.

STATE EXAMPLE: Driving Equity & Outcomes through NYSERDA's Workforce and Training Programs

In New York, the New York State Energy **Research and Development Authority's** (NYSERDA) workforce funding model prioritizes equity and strengthens job placements through robust industry partnerships. Supported projects must demonstrate a clear industry collaboration to ensure that training initiatives - whether through community colleges, labor unions, technical high schools, CTE programs, or CBOs - align with real employment opportunities. To drive equity, funding prioritizes programs that serve disadvantaged populations, including low-income communities, those at risk of environmental burdens, communities of color, and former fossil fuel workers.³⁸ This ensures an inclusive workforce pipeline that supports individuals facing barriers to employment. The funding model further incentivizes providers by increasing the reimbursement rate depending on the percentage of trainees who qualify as disadvantaged – from 30% of costs covered if 50% of trainees qualify, up to 90% of costs if 100% of trainees gualify.³⁹ Proposals must include key components such as industry input for curriculum, internship placements, or direct job placements for graduates. Additionally, programs must place at least 80% of graduates in jobs, internships, or further training, or face a prorated reduction in funding.

6. States are prioritizing investments in holistic supports policies to ensure that clean energy workforce initiatives can successfully serve workers of all backgrounds

The success of education-industry partnerships also relies on investments in holistic student support services which address basic needs like food, housing, transportation, digital technology, and childcare. Holistic supports can help:

- Address barriers that prevent workers from completing their training. One study of rural energy workers found that major structural barriers included access to childcare, which disproportionately impacts women.⁴⁰ Additional barriers included transportation access and the digital divide, both of which can be magnified in rural areas.⁴¹
- Improve training outcomes. Programs that provide wraparound services have significant impacts for workers and learners.⁴² In one case, attaching child care subsidies to apprenticeship training substantially increased the likelihood that registered apprentices of all backgrounds completed their training. In particular, completion rates for women and people of color increased by 21%.⁴³
- Retain workers in jobs once they're employed.⁴⁴ Essential services like transportation vouchers or childcare are integral for many workers in succeeding in new roles. Policies that gradually reduce or even continue essential supports during the critical transition period after job placement help ensure stability as workers establish themselves in their new positions, reducing the risk of job loss caused by the abrupt removal of supportive services.

RECOMMENDATION: Ensure that clean energy workforce policies supporting industry partnerships also explicitly include holistic supports such as childcare, transportation, and digital skills, to ensure workers' persistence and success in training programs and on the job.



ENDNOTES

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- 32 For example, California's High Road Training Partnership program has contracted with the Los Angeles Black Worker Center to provide such services as part of a larger body of work. "Workforce Warriors: Los Angeles Black Worker Center's Bold Battle for Equity," (Los Angeles, CA: UCLA Center for the Advancement of Racial Equity at Work," 2024.) https://labor.ucla.edu/wp-content/uploads/2024/07/ ucla_bwc_workforcewarriors_report_final.pdf
- 33 Too often, community colleges and other organizations do this important work without compensation. This increases the burden on already overstretched and underfunded organizations, often perpetuating inequities, particularly for organizations that are led by people of color. The importance of strengthening workforce development service providers' capacity to address challenges of inclusion and job quality in skills development is also emphasized in the recently released "Strategy for a 21st Century Workforce" (Washington, DC: US Department of Energy, Energy Workforce Advisory Board, 2024),https://www.energy.gov/ policy/21st-century-energy-workforce-advisory-board-ewab.
- 34 Learn more about the initiative: https://www.sbctc.edu/ blogs/news-releases/2024/noaa-tribal-stewards
- 35 Minority-Serving Institution status is defined by the U.S. Department of Education, while "overburdened communities" are defined by Maryland's House Bill 550. More information can be found in the Funding Opportunity Announcement for the Higher Education Clean Energy FY 2025 Grant Pilot Program: https://energy.maryland.gov/SiteAssets/ Pages/HigherEducationCleanEnergy/FY25Higher%20 Education%20Clean%20Energy%20Grant%20Pilot%20 Program%20F0A%20rev.3.pdf
- 36 Learn more about the criteria for the Massachusetts Clean Energy Center Equity Workforce Planning and Capacity Grants here: https://www.masscec.com/sites/default/ files/documents/FY25%20Equity%20Workforce%20 Planning%20and%20Capacity%20Grants%20RFP. pdf. An additional state example is the New York State Energy Research and Development Authority's (NYSERDA) Workforce Development and Training Programs, such as the Climate Justice Fellowship: https://www.nyserda.ny.gov/ All-Programs/Climate-Justice-Fellowship

- 37 At present, these data collection and reporting practices are uneven at best. Shayne Spaulding et al., "Equitable Access to Quality Climate Infrastructure Jobs: A Framework for Collaborative Action."
- 38 Specifically, New York's Climate Act mandates that no less than 35%, with a goal of at least 40%, of the state's climate action benefits will go toward disadvantaged communities: https://climate.ny.gov/Our-Impact/ Ensuring-Equity-Inclusion
- 39 Learn more: https://www.nyserda.ny.gov/-/media/Project/ Nyserda/Files/Publications/Fact-Sheets/workforce-factsheet.pdf
- 40 Shannon Sanchez Youngman, Gabriel R. Sanchez, Yoselin Cordova, Melanie Dominguez, and Gabriel E. Martinez., "Southeastern New Mexico Oil & Gas Workforce Study" (Albuquerque, NM: University of New Mexico Center for Social Policy, 2024). https://files.constantcontact.com/ b6dfe469001/7eec220a-7cab-47d8-8370-62e981dc403a. pdf?rdr=true
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