How to Achieve Economic Justice in Illinois' Clean Energy Transition

Report done in Partnership by Inclusive Economics,
Illinois Economic Policy Institute and the Sierra Club

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Foreword

Over the last decade, Sierra Club has developed an expert level ability to shut down coal plants, but has been seeking ways to better support the economically vulnerable and underserved communities bearing an unequal burden from these facilities. In my work as Labor Coordinator in both the Healthy Communities Campaign and Labor program I have developed the term "*Racial and Economic Just Transition*" to describe the orientation of focusing on repairing the historical injustice against Black communities and communities of color through progressive labor conscious work.

We believe the following report, "**How to Achieve Economic Justice in Illinois' Clean Energy Transition**" is a blueprint for building *Racial and Economic Just Transition* at the state level. It is my hope that this report will help you integrate racial and economic justice into your own work. It is the product of years of work alongside the IL Chapter to detail "pathways to build on the 2016 Future Energy Jobs Act (FEJA) and to further work toward equitable job access and economic opportunities in the Illinois clean energy sector".

Commissioned by Sierra Club's Healthy Communities Campaign, this report was written by Betony Jones and the teams at Inclusive Economics and Illinois Economic Policy Institute with curation by Christine Nannicelli, Rebecca Judd of the IL Chapter. Additional contributions were made by Sharonda Williams-Tack of the Healthy Communities Campaign, and myself. The content of the report, while created by Inclusive Economics and ILEPI, was guided by input from many IL stakeholders who invested significant hours of intense work with Rebecca and Christine who were an integral part of creating the final product that became the Future Energy Jobs Act. For more context on what it takes to build incredible collaborative work like this, reach out to Kady McFadden and Jack Darin of the Sierra Club IL Chapter who are tremendous leaders in this work.

On a personal note, I want to thank Pedro Cruz and Sharonda Williams-Tack of Healthy Communities. A big thanks to Leslie Fields, National Director, Policy Advocacy & Legal and Derrick Figures, Sierra Club Labor Director for supporting a vision to ensure that the "'How to Achieve Economic Justice in Illinois' Clean Energy Transition" report gets it's just due. Special thanks to Dean Hubbard who has pioneered a more progressive vision for labor work at the world's largest and oldest environmental organization.

For over five years, I've had the pleasure of working alongside the best Sierra Club has had to offer as a member of the mighty Progressive Workers Union (PWU). While it is bittersweet that this will be my final word as I am leaving the Sierra Club, I'm more than excited for those who will continue to build on the work we have championed pushing the needle forward on racial, climate and economic justice.

Larry Williams Jr.
Labor Coordinator
Healthy Communities Campaign
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Executive Summary

This report details pathways to build on the 2016 Future Energy Jobs Act (FEJA) and to further work toward equitable job access and economic opportunities in Illinois' clean energy sector. Additionally, this report offers ideas for how Illinois can prepare for the necessary and inevitable shift away from fossil fuels in the electric sector and ensure that coal workers and communities are supported in this transition.

Equitable and accessible clean energy implementation requires broad community engagement to account for the diverse experiences and needs of workers across Illinois. Across the state, communities have different opportunities and face different barriers to employment. This report outlines important considerations in developing policy that fosters career pathways to high quality jobs for workers in low-income communities and communities of color. The best practices detailed here offer *policy* options to achieve access to high quality jobs and a just transition to clean energy across Illinois.

The strongest action possible to ensure good job outcomes in the clean energy sector is to establish standards for contractors, non-profit organizations, labor unions, and other entities that receive public funding to implement clean energy projects. Clean energy investments generate demand for workers, and requirements on those how investments are made can ensure broad-based economic prosperity. Illinois has sought to leverage public and ratepayer resources to provide funding, incentives, and subsidies to organizations and companies supporting the energy transition. These entities may conduct job training, implement energy efficiency programs, or build renewable power systems. Rules governing these programs and projects will help determine who will most benefit from the energy transition. Building upon FEJA, the energy transition in Illinois can continue to support both a cleaner environment and a more equitable economy. In other words, well-designed policy can grow the *demand* for a diverse, well-trained clean energy workforce.

While *demand* strategies are necessary, they must be matched by *supply* strategies to train the workforce needed to meet growing labor demands. Most of the work to transition to clean energy is in the construction sector. Thus, improving diversity in the clean energy economy requires both training to bring people of color and women into the construction trades *and* changing hiring and contracting practices so that these new workers have access to jobs with upward career trajectories.

Building the clean energy workforce requires tapping into, expanding, and improving existing training infrastructure like apprenticeship readiness, community college offerings, and community-based training programs that provide links to broad occupational training, like professional schools and apprenticeship training, and employment. Single-skill training, like solar installer training, can provide a disservice to the very workers such programs seek to help. Such programs flood labor market with minimally trained workers, which can drive down wages. Single-skill training also exposes workers to increased market volatility. For example, knowing how to install a solar panel without broader occupational training as an electrician might allow an individual to get work experience when solar business is booming, but broader occupational training gives them a set of skills to deploy in myriad ways as the construction market ebbs and flows.

Good outcomes for workers depend on matching strategies to supply skilled workers (i.e. training programs for workers) to investments, projects, and policies that generate demand for those workers (i.e. clean energy construction and maintenance work opportunities). If the supply of skilled workers exceeds demand, the labor market is flooded, wages are driven down, and benefits for workers decline. If demand exceeds supply, labor costs increase and projects may experience delays. Optimal outcomes depend on continuously calibrating training offerings to market demand for trained workers. The apprenticeship training system, through which participants receive on-the-job training and staged pay increases corresponding to skill acquisition before graduating as journey-level workers, is an existing model calibrated to account for worker demand. This *demand*-driven model means that there are only as many openings for new apprentices as there are opportunities to employ them.

While joint labor-management apprenticeship programs are the most effective institutions in this sector of the economy, they may not be the best choice for all workers.. Nevertheless, building career ladders requires all types of training programs to formally partner with other rungs on the career ladder—including community colleges and universities, apprenticeship programs, and employers— so that workers are not left unemployed, underemployed, or underpaid after investing their time in training.

Improvements to existing training pathways are needed to ensure that low-wage workers, workers of color, women, and other groups with barriers to employment have access to career-track training opportunities and the resources needed to succeed. The way to create more clean energy job opportunities is to secure more clean energy investments with workforce standards through policy that *pull* trained workers into the jobs. Typically, this is done through a prevailing wage or skill standard. Public and philanthropic money can be needed to prepare potential workers with the knowledge and skills to gain acceptance to and succeed in college, apprenticeship, or employment.

These entry-level training programs are best run by community-based organizations with deep ties to certain populations and with the ability to harness support resources trainees need to succeed. In order to translate to other rungs on the career ladder, they work best when, in addition to customized offerings, they offer a curriculum that is standardized and recognized by others in the workforce ecosystem. For example, the Multi-Craft Core Curriculum (MC_3) developed by the National Building Trades is a standard 10-week program with core courses and electives designed to introduce workers to the skills needed for a career in construction, include wind, solar, and other renewable energy development.

It is also important to use public money to establish and support formal partnerships between community-based training organizations and agencies and other employers, joint labor-management apprenticeship programs, and community colleges and universities, in order to streamline the placement of targeted populations into these opportunities. These "high-road" training partnerships are the most effective way to move workers up a career ladder from community-based or pre-apprenticeship training into broad occupational training and eventual job placement.

Many of the resources needed to build pathways to careers with family-sustaining wages and benefits in the clean energy sector already exist, but they are separated across different community-based organizations, labor unions, business groups, educational institutions, and

government agencies. Exploring alignment between these various efforts—and continuing to invest in both demand-side and supply-side initiatives—will be critical to achieve good workforce outcomes and economic opportunity as Illinois moves toward a low-carbon economy.

While FEJA makes groundbreaking progress in advancing clean energy and energy efficiency in Illinois, the state still has one of the most carbon intensive electric sectors in the nation due to its remaining coal plants. Illinois' coal plants in operation are older than nationwide coal plant retirement age of 52 years. In Illinois, the average ages of remaining coal units, owned and operated by NRG Energy and Vistra Energy, are 54 and 52 years, respectively. 24 coal units in Illinois have retired at the average of 57 years, while 580 coal units nationwide have been retired have an average age of 52 years.

Many power companies are adapting to the challenging economics of aging coal fleets and changes in energy markets. Their responses involve moving struggling assets into subsidiaries to insulate shareholders from risk, shedding pension obligations through bankruptcy filings, pursuing ratepayer subsidies in state and regional markets, and diversifying power generation portfolios. In contrast, many communities where these companies operate are not adapting to these changes or preparing proactively for the loss of coal mining and power generation that they have historically relied on. This report brings attention to the critical need of supporting impacted workers and the communities in which the coal industry is still active, and policy ideas that Illinois should be considering to ensure economic justice in the energy transition.

Discussions about shifting the entire economy away from fossil-fuel generation to 100% clean energy require critical attention and intentional policy making to the kind of economy Illinois wants to see. Without clear policy metrics and guidelines, the economic benefits of the energy transition are more likely to accrue to investors than working people and frontline and low-income communities. This report outlines key recommendations to build equity and economic opportunity in Illinois' clean energy economy across five sections: (A) Increasing Access and Diversity in the Clean Energy Workforce; (B) Improving Job Quality; (C) Expanding Entrepreneurship; (D) Funding Equity Initiatives; and (E) Building a Just Transition from Fossil Fuels.

A. **Increasing Access and Diversity in the Clean Energy Workforce** necessitates building pathways into the skilled trades and clean energy employment through training programs that support people of color, women, low-wage and unemployed workers, workers dislocated from fossil fuel sector employment, and others with barriers to entry. These recommendations focus on building partnerships—not programs—to create a clear ladder into a clean energy career from community-based or pre-apprenticeship training to apprenticeship and journey-level work, or other employment.

NUMBER	RECOMMENDATION	WORKFORCE STRATEGY
1	Require training programs to have formal partnerships or direct entry or first source hiring agreements in place with employers and building trades unions to strengthen career	DEMAND

	pathways for program graduates.	
2	Require a standardized curriculum, such as the MC_3, in training programs to enhance connections with other facets of the workforce development infrastructure.	SUPPLY
3	Build partnerships to provide wrap-around services, stipends, and intermediary employment for training program graduates.	SUPPLY
4	Create a Workforce Hub to coordinate, administer, and track outcomes of workforce initiatives.	DATA TRANSPARENCY
5	Require 35% of all workers on clean energy projects receiving public or ratepayer-funded incentives or funding to be people of color or residents of economically-disadvantaged zip codes.	DEMAND
6	Build on the success of existing programs to provide support and mentorship to groups under-represented in the skilled trades.	SUPPLY
7	Implement apprenticeship training for skilled manufacturing as needed.	SUPPLY

B. **Improving Job Quality** is key to ensuring that the growing clean energy economy in Illinois can be a vehicle for expanding economic opportunities and building wealth in low-income communities and communities of color that have historically borne a disproportionate burden of fossil fuel pollution. These recommendations work to ensure that clean energy employment offers family supporting wages and benefits and that new energy infrastructure creates community benefits.

NUMBER	RECOMMENDATION	WORKFORCE STRATEGY
8	Include projects receiving RECs and other clean energy-related public or ratepayer-funded incentives in the definition of "public works" in Illinois code to ensure that prevailing wage laws and reporting requirements apply.	DEMAND
9	Prioritize clean energy investments in municipal, university, school, and hospital (MUSH) sector buildings.	DEMAND
10	Prioritize public and ratepayer-funded incentives for clean energy projects that have negotiated joint labor-management agreements such as PLAs, CWAs, or CBAs.	DEMAND
11	Apply labor peace agreements to clean energy component	DEMAND

	manufacturing facilities.	

C. **Expanding Entrepreneurship** to foster opportunities for clean energy businesses and contractors owned and operated by people of color and women requires changes to the process for procurement, bidding, and contracting projects.

NUMBER	RECOMMENDATION	WORKFORCE STRATEGY
12	Establish 35% participation requirements for M/W/VBEs on clean energy projects that receive public or ratepayer-funded incentives. Evaluate progress toward goal to increase targets every five years by 5% to 50% in 2035.	DEMAND
13	Provide technical and financial assistance to disadvantaged businesses through a Contractor Incubator. This could be offered through the Workforce Hub.	SUPPLY
14	Utilize best-value contracting to prioritize equity goals in clean energy-related projects.	DEMAND

D. **Funding Workforce Equity Initiatives** is crucial to continue training and creating good jobs for workers employed in decarbonizing energy, transportation, and building infrastructure.

NUMBER	RECOMMENDATION	WORKFORCE STRATEGY
15	Direct Workforce Opportunity and Investment Act funding for apprenticeable occupations to programs conducted in coordination with registered apprenticeships or employers.	SUPPLY
16	Build job training funding for community-based or pre-apprenticeship programming into all state capital bills or infrastructure investments.	SUPPLY
17	Adopt a pollution fee on fossil fuel power plants and extraction.	DEMAND
18	Expand and bundle affordable residential energy efficiency and community solar programs to create programs with economies of scale that maximize good job gains.	DEMAND

E. **Building a Just Transition from Fossil Fuels** means protecting workers and communities affected by the closure of fossil fuel extraction, production, transmission, and distribution facilities and investing in an equitable and sustainable future for Illinois.

NUMBER	RECOMMENDATION	WORKFORCE STRATEGY
19	Facilitate advanced planning for facility closure with grants for development of just transition plans with affected unions, local governments, business, and community-based organizations.	DEMAND/SUPPLY
20	Create a just transition fund to mitigate losses in local tax revenue and offer tax incentives for workforce development, site clean-up and reuse, and new business growth in communities affected by plant or mine closure.	DEMAND/SUPPLY

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Introduction

This report details pathways to build on the 2016 Future Energy Jobs Act (FEJA) and to further work toward equitable job access and economic opportunities in the Illinois clean energy sector. Equitable and effective FEJA implementation requires broad community engagement to account for the diverse experiences and needs of workers across Illinois. Across the state, communities have different opportunities and face different barriers to employment. This report outlines important considerations in developing policy that fosters career pathways to high quality jobs accessible to workers in low-income communities and communities of color. The best practices detailed here offer policy options to achieve access to high quality jobs and a just transition to clean energy across Illinois. While FEJA is a state policy, aspects of implementation have been delegated to local contractors, non-profit organizations, and labor unions.

The strongest action possible to ensure good job outcomes in the clean energy sector is to establish standards for contractors and other entities that receive public funding to implement clean energy projects. Clean energy investment to date in Illinois has sought to leverage public and ratepayer resources to provide funding, incentives, and subsidies to organizations and companies supporting the energy transition. These entities may be conducting job training, implementing energy efficiency programs, or building renewable

power systems. Rules governing these programs and projects can ensure broad-based economic prosperity during the energy transition. By building upon the Future Energy Jobs Act, the energy transition in Illinois can continue to support a cleaner environment and a more equitable economy.

This report focuses on strategies to build partnerships to achieve good workforce and outcomes. Partnerships will not be easy. Effective partnerships require flexibility from all partners and an understanding of the ways that different kinds of organizations operate. Many of the resources needed to build a pathway to careers with family-sustaining wages and benefits in the clean energy sector already exist, but are separated across different community-based organizations, labor unions, business groups, educational institutions, and government agencies. Improving diversity in the clean energy economy requires building bridges between already existing initiatives, directing the resources and knowledge of community-based training, pre-apprenticeship, and apprenticeship training to bring people of color and women into the trades and clean energy employment, and changing hiring and contracting practices so that these new workers have access to good jobs. Fragmentation of the workforce development system with myriad program offerings can hurt the very workers they seek to help. Therefore, building the diverse clean energy workforce of tomorrow does not require a brand new system, but it does require improving and better integrating existing mechanisms to ensure that opportunities are targeted to low-wage workers, workers of color, women, veterans, and other groups with barriers to employment.

Community-based organizations are central to building a just transition to clean energy based on environmental, economic, and racial justice. These organizations often have deep ties to a particular community or a particular population. In partnership with other stakeholders, community-based organizations can recruit and train members from their community and groups with barriers to employment such as women, immigrants, formerly incarcerated, and low-income workers and workers of color. In addition to efforts to increase workforce diversity for both blue- and white-collar employment, partnerships with community-based organizations can help to grow the number of clean energy companies owned and operated by members of economically-disadvantaged communities, environmental justice communities, and communities of color. Community-based organizations that represent frontline communities are best able to identify economic and environmental transition needs and opportunities uniquely suited for their community.

Unions are also part of communities and should reflect the communities where they work. They exist to support their members and are member-led and member-driven. Together, workers can advocate for fair compensation, healthcare and retirement benefits, workplace standards, and other elements of economic justice with their employers and in their communities. Across the country, unions are standing up to say that racial justice is an integral part of the struggle for economic justice. Within the construction trades, there is still work to be done to reverse the legacy of exclusionary hiring preferences historically practiced by contractors. Increasing racial, ethnic, and gender diversity have been a focus of organizing within and outside of Illinois. To be partners with community-based organizations means that the Building Trades may have to be flexible, such as allowing skilled construction workers recruited by community-based organizations to receive credit to advance in apprenticeship programs and assigning work to members that have been out of work the longest rather than by seniority. These potential procedural changes within unions move in tandem with the policy

recommendations in this report that are designed to overcome historic discrimination and build on the work unions are already doing in Illinois to recruit and retain people of color in partnership with community organizations, faith groups, and schools.

The clean energy industry encompasses new and established businesses engaged in renewable energy installation, energy efficiency implementation, clean energy component fabrication, and clean transportation as well as a range of other activities. Clean energy companies also benefit from these recommendations aimed to recruit a more diverse workforce. They are able to access new and talented workers and contribute to economic opportunities for households across Illinois, growing the market for their products by contributing to jobs that sustain and grow the middle class. These policies also support companies based in Illinois that are committed to building partnerships with community-based and labor organizations to meet hiring and contracting targets. The recommendations in this report are intended to reward, not penalize, employers who are responsive to community needs, their employees, and the goals of racial and economic justice.

Government agencies and public educational institutions are important partners in implementing job training programs under FEJA. Integrating training with schools and community colleges enables workers to get a degree while completing job training. Public agencies have the skills and resources needed to support new clean energy companies owned and operated by members of economically-disadvantaged communities, environmental justice communities, communities of color, and women. In addition, municipal, university, school, and hospital (MUSH) sector buildings have been historic leaders in renewable energy and energy efficiency adoption. Targeting these public entities as well as public housing for clean energy upgrades can create training opportunities and good jobs, save the public money through lower energy bills, and provide a center for education and outreach on ways that communities can access clean energy employment opportunities.

FEJA sets Illinois on a pathway to decarbonize not only electrical generation, but also buildings, transportation, and industry across the state. Discussions about shifting the entire economy away from carbon-intensive production also require attention to the kind of economy Illinois wants to build. Without clear policy metrics and guidelines, the economic benefits of the energy transition are more likely to accrue only to investors instead of working people, low-income communities, *and* investors. This report outlines the policies and standards most important to improved job quality, job access, and just transition. It also includes a detailed glossary of definitions so that all stakeholders can coalesce around a common language. The report is divided into five sections: (A) Increasing Access and Diversity in the Clean Energy Workforce; (B) Improving Job Quality; (C) Expanding Entrepreneurship; (D) Funding Equity Initiatives; and (E) Building a Just Transition from Fossil Fuels.

A. Increasing Access and Diversity in the Clean Energy Workforce

Access to good jobs requires access to good training. The pathway to good jobs begins with ensuring that workers have the skills they need in the most in-demand fields for clean energy implementation: construction, manufacturing, and software. In 2017, the greatest share of clean energy jobs in Illinois were in the construction sector, with the majority of positions in

energy efficiency.[1] In the construction sector, quality pre-apprenticeship programs and apprenticeships provide an established pathway to a high-road career in clean energy. On the other hand, technology-specific training, like solar installation or wind technicians, do not put workers on a high-road career path; such training may, in fact, expose workers to excessive market volatility that broad occupational training, like apprenticeship, helps mitigate.

What is the "high road"?

On the high road, firms compete on the quality of their product and service and invest in the educational and skill development of workers. High-road firms value their employees and provide family-sustaining compensation packages.[2]

Unions play an important role in providing training, investing in skill development, and empowering workers.[3] There are 52 member unions in the Illinois State Federation of Labor that represent 900,000 members.[4] In the Building Trades alone, there are 15 different unions, many of which may be in involved in different aspects of clean energy projects including Electrical Workers, Ironworkers, Operating Engineers, Plumbers and Pipefitters, Insulators, Carpenters, and Laborers.[5] On a complex construction site, many different crafts are involved.

Many of these unions help maintain, repair, and operate equipment in the fossil energy sector (i.e. power plants, refineries, etc.) where unions have defined jurisdictions that have been privately negotiated. On clean energy projects, unions are still navigating these jurisdictional divisions,[6] which means that unions may put their advocacy and organizing efforts into getting a "bigger slice of the pie" rather than advocating for the clean energy industry as a

[1] Clean Energy Trust and E2, "Illinois Executive Summary" (2018 Clean Jobs Midwest, 2018), https://www.cleanjobsmidwest.com/wp-content/uploads/2018/08/CJM-Executive-Summary-IL_2018.08.08.pdf.

[2] California Workforce Development Board, "High-Road Training Partnerships," 2018, https://cwdb.ca.gov/initiatives/high-road-training-partnerships/.

[3] Matthew Walters and Lawrence Mishel, "How Unions Help All Workers" (Economic Policy Institute, August 26, 2003), https://www.epi.org/publication/briefingpapers_bp143/.

[4] "Illinois AFL-CIO," 2018, http://www.ilafl-cio.org/.

[5] Typically, Electrical Workers deal with all things electrical; Ironworkers install structural steel; Operating Engineers work heavy machinery; Sheet Metal workers work with metal; Plumbers and Pipefitters work with pipes; Insulators work with insulation; Carpenters work with wood; and Laborers work across the construction sector providing a wide range of services from moving materials and supplies to basic construction.

[6] In Illinois, jurisdictional disputes between unions in clean energy are on-going, where other states have established agreements. In California for instance, the Building Trades negotiated a five-trade agreement on solar plant construction that clearly delineates work between the International Brotherhood of Electrical Workers (IBEW), Ironworkers, Carpenters, Laborers, and Operating Engineers.

whole. When jurisdictional disputes are settled and work is divvyed up among multiple trades, it is easier for the Building Trades as a whole to work together to "grow the pie."

The Building Trades offer important experience in administering joint labor-management **apprenticeship programs** that provide paid, on-the-job training and work experience as well as classroom instruction to prepare participants for a career in a particular trade. Each of the fastest-growing trades in Illinois' construction industry requires at least three years of apprenticeship training.[7] This broad occupational training provides the best path to a stable and well-compensated career. A worker trained as an electrician, rather than a solar installer, will likely have more job opportunities in clean energy and beyond, just like an operating engineer who handles heavy construction equipment has more employment opportunities than a worker trained only as a wind technician.[8]

There are many kinds of apprenticeships that can be employer, community college, or jointly-sponsored. Joint labor-management apprenticeships are funded in partnership between both a local union and the employers with whom it has a collective bargaining agreement.[9] Not all apprenticeship programs are created equal. State- or federally-registered apprenticeship programs are regulated to ensure that apprentices complete minimum training requirements to master the occupational skills needed in a given trade. There are also standards requiring that apprenticeship programs graduate a certain percentage of their students. Apprenticeship programs that start but fail to graduate people have a hard time meeting the state or federal criteria. The registered apprenticeships system is thus built to protect trainees. Embedded in the structure is the principle that training is oriented toward the attainment of a viable career. While there are non-union registered apprenticeships, they are less prevalent because these they fail meet these standards more often. In fact, in FY 2015, 98% of all construction apprentices in Illinois were enrolled in joint programs with union contractors.[10] Research has

[7] Importantly, over three to five years of paid, on-the job-training, apprentices will see a wage progression tied to skill acquisition and an industry-recognized credential when apprentices "journey out." See: Robert Bruno and Frank Manzo, "The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects" (Illinois Economic Policy Institute, 2016).

[8] Nikki Luke et al., "Diversity in California's Clean Energy Workforce: Access to Jobs for Disadvantaged Workers in Renewable Energy Construction" (University of California, Berkeley: Center for Labor Research and Education Donald Vial Center on Employment in the Green Economy, 2017), http://laborcenter.berkeley.edu/diversity-in-californias-clean-energy-workforce/; Jaimie Worker, Sebrina Owens-Wilson, and Ben Beach, "Good Jobs in a Clean Energy Economy Through the Clean Power Plan" (The Clean Power Plan for All Collaborative, 2016), https://d3n8a8pro7vhmx.cloudfront.net/greenforall/pages/7020/attachments/original/1469574437/TOOLKIT_5_-_Good-Jobs-in-a-Clean-Energy-Economy.pdf.

[9] Worker, Owens-Wilson, and Beach, "Good Jobs in a Clean Energy Economy Through the Clean Power Plan."

[10] These programs are an important source of human capital investment and comprise 99% of all privately-funded apprenticeship expenditures in the state. The average program expenditures per apprentice are $12,715 in joint labor-management programs and only $6,585 in non-union programs. Registered apprenticeship programs produce substantial economic

also shown that joint labor-management programs have higher enrollments and lower attrition rates of women and people of color than other programs.[11]

Apprenticeship is a **demand-driven** training model. Joint-apprenticeship training committees estimate how much work is coming up and how many new apprentices need to be recruited to fill the positions. This demand-driven model helps ensure that individuals who invest time in their skill development and training and employers who support them will see a return on their investment. Only joint labor-management apprenticeship programs build pipelines into careers by aligning training with current and future industry needs so that graduates will be able to find gainful, continued employment in their fields.

Workforce readiness programs that focus on the *supply-side* of the labor market can flood the market with new trainees ready to work when jobs for them do not exist. Excessive supply of trained workers relative to demand can drive down wages and actually hurt both incumbent workers and trainees. Instead, the way to ensure there will be more jobs and more openings for new apprentices is to grow the market and expand market share for the skilled construction trades. Public monies to support job growth can more effectively be spent on creating *demand* for workers through infrastructure and clean energy investments with standards to *pull* trained workers into those jobs.

However, it is not easy to get into an apprenticeship program. Applicants must have high math and reading levels, some unions require a G.E.D. or high school diploma, and others require a certain level of physical fitness. In addition, apprentices must be able to be at construction worksites early in the morning, which can put a strain on families without a car or access to childcare. These barriers prevent many applicants from successfully entering or completing an apprenticeship program. But when these barriers can be addressed, apprenticeship training is a sound pathway to good employment. Apprentices earn income while they learn and gain experience. For each year of training they complete, they earn more.

An additional barrier is a relative lack of access for black, Asian, Indigenous, Latina/o, and women applicants. Recent studies of racial and gender diversity in the construction sector in California and New York emphasize the importance of apprenticeship readiness programs to recruit, prepare, and retain workers who face high barriers to labor market participation and are under-represented in the industry.[12] Fuchs, Warren, and Bayer describe that "entry into the

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benefits every year, generating an economic return on investment of $3 for every dollar spent on worker training.

[11] Worker, Owens-Wilson, and Beach, "Good Jobs in a Clean Energy Economy Through the Clean Power Plan," 29n8; Robert W. Glover and Chan Bilginsoy, "Registered Apprenticeship Training in the US Construction Industry," *Education & Training* 47, no. 4/5 (2005): 337–49.

[12] Ester R. Fuchs, Dorian Warren, and Kimberly Bayer, "Expanding Opportunity For Middle Class Jobs in New York City: Minority Youth Employment in the Building and Construction Trades, Case Study: Edward J. Malloy Construction Skills Pre-Apprenticeship Program," *Columbia University School of International and Public Affairs Case Study Series in Global Public Policy* 1, no. 2 (March 2014), http://www.constructionskills.org/ColumbiaSIPA03-14.pdf; Luke et al., "Diversity in California's Clean Energy Workforce"; Lawrence Mishel, "Diversity in the New York City Union and Nonunion Construction Sectors" (Economic Policy Institute, March 2, 2017), https://www.epi.org/files/pdf/119517.pdf; see also Maureen Conway, Allison Gerber, and Matt Helmer, "Construction Pre-Apprenticeship Programs: Interviews with Field Leaders"

unionized construction trade is challenging for those with little knowledge of or personal connections to the industry" due to historical reliance on "informal social networks for both recruitment and training [that] consistently resulted in low minority representation in the construction workforce."[13] Targeted programming to address these barriers and help workers apply to apprenticeship programs can unravel the legacies of discrimination and the under-representation of people of color, at-risk youth, formerly incarcerated individuals, and women in the high-road construction sector.

There are many different kinds of training programs that can help recruit, train, and place applicants into apprenticeships. **Community-based training programs** are often run by organizations with deep ties in a particular community or with a particular population. Community-based training programs are especially important in recruiting and training under-represented or disadvantaged groups, such as workers of color, immigrants, women, formerly incarcerated, and low-income workers. Community-based training programs are highly variable in their offerings, and while flexibility is important to serve the specific needs of a community or population, program outcomes are also highly variable. The historic lack of oversight or standardization of community-based training programs has had important consequences for participants. The challenge is to maintain the flexibility and different kinds of community-based organizations, while also standardizing the structure and curriculum to help move participants up the training ladder and into jobs or apprenticeship programs.

Many community-based training programs around the country are becoming more standardized to prepare participants for specific careers, including careers in the skilled trades through **pre-apprenticeship** or **apprenticeship readiness programs.** While the term "pre-apprenticeship" may seem over prescriptive, not all graduates of pre-apprenticeship programs go into apprenticeships. Some participants discover they do not enjoy the work and others find employment following their training, while many apply to and enter apprenticeships. The common feature among these programs is that they emphasize the importance of partnerships between employers, labor unions, and community-based organizations to recruit and prepare participants to enter an apprenticeship program, community college, or employment. Some community-based training programs in Illinois are organized as pre-apprenticeship programs that have formal partnerships with employers or unions, but many are not, including many under FEJA's Workforce Development Program. Other states such as California have slowly transitioned nearly all of their community-based training programs that receive public funding and focus on clean energy to formally-recognized pre-apprenticeship (i.e. apprenticeship readiness) programs. These diverse pre-apprenticeship programs align better with the state's workforce development infrastructure and better serve participants seeking long-term upward mobility. Rising Sun is one such program.[14]

(Workforce Strategies Initiative of the Aspen Institute., 2010), http://www.aspenwsi.org/wordpress/wp-content/uploads/10-014.pdf.

[13] Fuchs, Warren, and Bayer, "Expanding Opportunity For Middle Class Jobs in New York City: Minority Youth Employment in the Building and Construction Trades, Case Study: Edward J. Malloy Construction Skills Pre-Apprenticeship Program," 12–13.

[14] "Opportunity Build," Rising Sun Center for Opportunity, 2019, https://risingsunopp.org/programs/opportunity-build/.

Importantly, pre-apprenticeship programs are also designed to address the needs of the population or community they serve while also responding to local labor market demand so that participants can secure a path to upward mobility upon graduation.[15] The specific offerings of training programs should be customized "to meet the needs of differing populations being trained, the various employers and sponsors they serve, and specific opportunities within the local labor market"[16] but standardizing and coordinating certain aspects of the training are necessary to make the programs most effective.

Best Practice: Rising Sun Center for Opportunity in Oakland, California

Rising Sun provides a 12-month training program for disadvantaged workers in the Bay Area to gain the broad occupational skills needed to succeed in either a construction or solar energy career or union apprenticeship program. The program begins with a short training course that introduces participants to safety practices, tools, basic construction skills, and residential solar installation. Trainers also provide resume, interview, and job search assistance. At the end of the training portion, graduates can choose whether to apply for jobs in construction or the solar industry or complete an application to join a union apprenticeship program.

The broad occupational curriculum of the Rising Sun training program offers graduates flexibility and ensures that they are competitive for a variety of positions. Partnerships are central to Rising Sun's success and enable them to place program graduates directly into employment. Rising Sun partners with unions and employers including the East Bay Municipal Utility District, City of Berkeley, contractors, and solar installers. They also help graduates who may be on an apprenticeship waitlist find intermediate employment until a position becomes available. Wrap around services and mentorship continues for one year and helps connect program graduates to necessary resources (i.e. transportation, housing, construction tools, counseling) for them to stay employed.

[15] Matt Helmer, Amy Blair, and Allison Gerber, "A Solid Foundation: Key Capacities of Construction Pre-Apprenticeship Programs." (Aspen Institute, 2012).

[16] U.S. Department of Labor, Employment and Training Administration, "Pre-Apprenticeship," 2004, https://www.doleta.gov/OA/preapprentice.cfm.

First source, direct entry, or other formal articulation agreements with Building Trades unions and employers specify that pre-apprenticeship graduates will be accepted or receive priority status for apprenticeship placement or jobs.[17] **First source hiring** agreements put graduates of pre-apprenticeship programs at the front of the line for a registered apprenticeship program, meaning that when apprenticeship opportunities open, the first source of applicants will be graduates of designated pre-apprenticeship programs. **Direct entry** agreements are less common, placing graduates of pre-apprenticeship programs directly into apprenticeships when openings arise. Direct entry/first source hiring may cut down on the wait time between finishing a pre-apprenticeship program and enrolling in apprenticeship. Apprenticeship programs can also provide other application benefits to partner training programs that may include an interview guarantee, granting points in the application for completion of a pre-apprenticeship program, or moving graduates of pre-apprenticeship programs ahead in a waitlist.[18]

<u>Recommendation 1:</u> Require training programs to have formal partnerships or direct entry or first source hiring agreements in place with employers and building trades unions to strengthen career pathways for program graduates.

Such agreements help apprenticeship programs more easily find qualified, pre-screened applicants who've already been exposed to construction work. It is important to note that placement into employment or a registered apprenticeship from a pre-apprenticeship or community-based training program does not happen overnight.[19] Innovative programs elsewhere in the country, such as Rising Sun, have devised multiple pathways to support program graduates in the interim time between graduation and starting an apprenticeship,

[17] Megan Scott and Carol Zabin, "Training for the Future II Los Angeles's Utility Pre-Craft Trainee Program: Progress to Date" (Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment University of California, Berkeley, 2016), http://laborcenter.berkeley.edu/pdf/2016/Training-for-the-Future-2.pdf; California Workforce Development Board, "Overview of Prop 39 Pre-Apprenticeship Training Pilots," 2017, https://cwdb.ca.gov/wp-content/uploads/sites/43/2017/03/Prop39TrainingReport020917Final_Digital_85x11.pdf.

[18] Melinda Nichols and Nomi Sofer, "Getting Started with Pre-Apprenticeship: Partners" (Jobs for the Future, n.d.), 3; ApprenticeshipUSA, "Advancing Apprenticeship as A Workforce Strategy: An Assessment and Planning Tool for the Public Workforce System" (Department of Labor, n.d.).

[19] New apprentices are accepted into joint-apprenticeship training programs based on projected local construction demand and these recruiting schedules vary by trade. In California, the time from pre-apprenticeship graduation to placement in a registered apprenticeship averages between three and six months. Unions have developed numerous systems to employ pre-apprenticeship program graduates before they can be formally indentured into an apprenticeship program. Sometimes, pre-apprentices can be hired into interim "helper" positions that allow pre-apprenticeship program graduates to work in a trade until they can be hired as an apprentice. See California Workforce Development Board, "Overview of Prop 39 Pre-Apprenticeship Training Pilots."

including through short-term employment as helpers on clean energy projects,[20] through employment completing energy audits, weatherization, and other green occupations without the same skill requirements as the skilled trades,[21] or by bolstering demand for skilled workers by linking specific pre-apprenticeship programs to **project labor agreements (PLAs)** or **community workforce agreements (CWAs)**.[22] Effective training programs can also create a central clearinghouse for placement of job training participants and help contractors find and hire qualified candidates.

[20] California Workforce Development Board; Emerald Cities Collaborative, "Anchors in Resilient Communities," 2018, http://emeraldcities.org/about/national-initiatives/anchors-for-resilient-communities; Luke et al., "Diversity in California's Clean Energy Workforce."

[21] Scott and Zabin, "Training for the Future II Los Angeles's Utility Pre-Craft Trainee Program: Progress to Date."

[22] Sam Felsing, "Why Can't All Development in Oakland Be Like Brooklyn Basin?," The Oakland Conduit, February 9, 2018, https://www.oaklandconduit.com/why_can_t_all_development_in_oakland_be_like_brooklyn_basin.

Importantly, unions and employers may be more willing to support direct entry or first source agreements if they know that training program graduates have the skills needed to succeed. A standardized curriculum can help provide this assurance.[23] The **multi-craft core curriculum (MC3)** is a comprehensive pre-apprenticeship training curriculum that has received support from industry, government, and labor partners.[24] Across the country, community-based organizations, high schools, and community colleges utilize the MC3.[25] Expanding pre-apprenticeship programs in public high schools such as those piloted at the Benito Juarez Community Academy and Prosser Career Academy as part of the Solar Craft Apprenticeship Program and under way at Dunbar Vocational High School[26] to teach the MC3 is one important pathway to apprenticeship for young people. There are further opportunities to build on existing partnerships with the community college system in Illinois to incentivize apprenticeship by awarding college credits for classroom hours earned during apprenticeships and developing degree completion programs for eligible apprentices.[27] Such initiatives also help to expand the location of training facilities and make pre-apprenticeship programs more accessible.

Recommendation 2:
Require a standardized curriculum, such as the MC3, in training programs.

[23] PLAs and CWAs can also require that a certain percentage of workers are required to have completed an MC3 training program, forming one element of a targeted hire requirement.

[24] North American Building Trades Unions, "The Building Trades' Multi-Craft Core Curriculum: A Guide for Students and Parents," 2017, https://nabtu.org/wp-content/uploads/2017/08/MC3-in-Our-Schools-A-Guide-for-Students-and-Parents.pdf.

[25] Tommy Burress, Tom Gannon, and Ragini Kapadia, "Community-Based Organizations and Union Apprenticeship Programs: Creating Pathways to Careers in the Unionized Construction Trades for Minorities and Lower-Skilled Workers" (Green Ways: A Jobs for the Future initiative, April 2011), https://jfforg-prod-prime.s3.amazonaws.com/media/documents/CommBasedOrg-UnionApprentProg_040212.pdf; North American Building Trades Unions, "Why Should We Teach MC3 in Our Schools?," 2017, https://nabtu.org/wp-content/uploads/2017/03/Why-We-Should-Adopt-the-MC3-in-Our-School-2-22-17.pdf; North American Building Trades Unions, "What Is a Building Trades Apprenticeship Readiness Program?," (2018), https://nabtu.org/wp-content/uploads/2018/02/ARP-MC3-Program-Overview.pdf.

[26] Bruno and Manzo, "The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects"; Illinois Solar Energy Association, "Future Energy Jobs Act Workforce Development Programs," 2018, https://illinoissolar.org/FEJA-Workforce-Development-Programs.

[27] Bruno and Manzo, "The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects"; Illinois Solar Energy Association, "Future Energy Jobs Act Workforce Development Programs."

Recommendation 3: Build partnerships to provide wrap-around services, stipends, and intermediary employment for training program graduates.

In addition to the curriculum, quality training programs provide a range of individualized support services during and after program completion to foster skills that workers need to enter and succeed in clean energy careers. Training programs can provide soft skill, professional development, and math tutoring to help applicants meet common criteria.[28] Partnerships with other community-based organizations may help to address needs for affordable housing, childcare, or transportation.[29] Stipends for the duration of pre-apprenticeship or community-based training also enable participation of low-wage, unemployed, or underemployed workers. Considerations for funding training are discussed in Section D: Funding Equity Initiatives. Partnerships are so instrumental to the success of job training programs that a common refrain in workforce development is "Build Partnerships not Programs." A variety of successful partnerships between community-based training programs, schools, and unions already exist in Illinois.[30]

Best Practice: Partnerships Led by Community-Based Organizations

The Lawndale Christian Legal Center integrates transitional housing services and job training programs for young people leaving the justice system in the Lawndale neighborhood of Chicago. The program provides housing so that participants can focus on transitioning into employment. Customized case management is provided along with a range of support services including life skills training, financial literacy, mental health counseling, and job training with the International Union of Operating Engineers Local 150. Participants who successfully complete the program have the option to join the IUOE apprenticeship. In turn, IUOE Local 150 has taken steps to ensure that new members have the opportunities needed for success, including assigning work in the union hall based on the amount of time that workers have spent out of work. This differs from most unions that assign work based on seniority. Other examples of effective partnerships between community-based training programs and unions in Illinois include the Southtown Construction Training Program in Springfield that has a contract with the Urban League to train workers, including those leaving the justice system, for a career in the construction trades through on-the-job training. The 24-week program works to connect participants to contractors or union apprenticeships upon graduation. This program is also partnering with IBEW on their FEJA sponsored solar training program.

[28] North America's Building Trades Unions, "Requirements Matrix," North America's Building Trades Unions, March 2017, https://nabtu.org/wp-content/uploads/2017/03/Requirements-Matrix.pdf.

[29] These needs may include specific career and industry awareness workshops, professional development courses, English for speakers of other languages, Adult Basic Education, financial literacy seminars, math tutoring, driver's license application, renewal, or reinstatement, physical fitness training, provision of safety equipment, support finding affordable housing, and/or childcare.

[30] Gabe House, "Building for a Better Future," *Springfield Business Journal*, June 26, 2015, undefined; "Photos: Enos Park Renovations," *The State Journal-Register*, September 29, 2015, https://www.sj-r.com/photogallery/LS/20150929/NEWS/924009999/PH/1; Lawndale Christian Legal Center, "Lawndale Christian MAC House," 2014, http://lclc.net/programs/machouse/; Lawndale Christian Legal Center, *Building Skills. Building Futures.* 2015, https://www.youtube.com/watch?v=ME5a_hJOHKk.

To build training programs that successfully diversify the clean energy workforce requires not only the right policy measures, but infrastructure to coordinate and track the network of frontline organizations providing direct and sustained support for members of economically disadvantaged communities, environmental justice communities, communities of color, and displaced fossil fuel workers. Currently, FEJA outlines a $10 million allocation in 2017, 2021, and 2025 for a total investment of $30 million to three different training programs, the Solar Training Pipeline, the Multi-Cultural Jobs Program, and the Solar Craft Apprenticeship Program.[31] These three programs are administered in partnership with 26 different community-based organizations, high schools, community colleges, and unions.[32]

Recommendation 4: Create a Workforce Hub to coordinate, administer, and track outcomes of demand-driven workforce initiatives.

So far, participants have reported different levels of satisfaction across the different programs with some concerned about the lack of job or apprenticeship opportunities upon graduation. Creating a public Workforce Hub could provide centralized program administration to streamline these programs and ensure good employment outcomes for all participants. The Hub could coordinate both supply-side and demand-side activities already underway by community-based organizations, unions, schools, utilities, state and local governments, and community colleges to maximize community benefits from clean energy investment. In other states, initiatives to expand clean energy job training and job access are coordinated through state workforce development agencies whose existence is federally-mandated under the Workforce Innovation and Opportunity Act (WIOA).[33] A Workforce Hub in Illinois could similarly be a model program to extend the on-going work of the Illinois Workforce Innovation Board (IWIB) to align workforce, education, and economic development programming.[34] Importantly, the Hub could also track applicants who enter training to understand who finishes the programs and who does not, what services participants need, what kind of jobs graduates get, and how participants perform in clean energy jobs or union apprenticeships. Data collection is the bedrock of demand-driven training programs and can help to improve iterative training program offerings by identifying challenges in the existing program framework and building on successes.

"Targeted hire" policies are used to increase the share of currently under-represented populations in the clean energy sector. Such policies increase job opportunities for specific

[31] See sec. 16-108.12. Utility job training program in Illinois General Assembly, "Public Act 099-0906" (2017), 358, http://www.ilga.gov/legislation/publicacts/99/PDF/099-0906.pdf.

[32] Illinois Solar Energy Association, "Future Energy Jobs Act Workforce Development Programs."

[33] California Workforce Development Board, "Overview of Prop 39 Pre-Apprenticeship Training Pilots"; California Workforce Development Board, "Skills Attainment for Upward Mobility; Aligned Services for Shared Prosperity: California's Unified Strategic Workforce Development Plan Under the Workforce Innovation and Opportunity Act (WIOA) for Program Years 2016-2019," 2017, https://cwdb.ca.gov/wp-content/uploads/sites/43/2017/12/Unified-State-Plan-plain-text.pdf.

[34] Illinois Workforce Innovation Board, "2018-2020 Strategic Plan," 2017, i, https://www.illinoisworknet.com/DownloadPrint/IWIB%20Strategic%20Plan%20-%20FINAL.pdf.

populations of workers, most often people of color, women, low-income or underemployed workers, individuals involved in the justice system, or other workers with significant barriers to employment.[35] Targeted hire "creates institutional mechanisms to increase the availability and accessibility of opportunities for these workers."[36] On major public works projects across the country, city governments including Boston, Cleveland, Minneapolis, Washington D.C. and others have set goals or requirements that developers must hire a certain percentage of people or color, women, public housing residents, veterans, or workers facing barriers to employment often as part of community workforce agreements.[37] These targeted hire requirements often go hand-in-hand with local hire requirements.[38]

Best Practice: Chicago Federation of Labor Workforce & Community Initiative

In partnership with United Way and Access United, the Chicago Federation of Labor has developed a workforce hub with over 30 community-based training organization, labor unions, and business partners to coordinate workforce development activities in the Chicago area. The initiative seeks to better serve job seekers; align training with industry demand; connect students to emerging opportunities, including in renewable energy; assist disadvantaged workers including women, minorities, dislocated workers, and returning citizens to develop the skills to participate meaningfully in the workforce; and provide a clearing house for the preparation and placement of job-ready candidates into family-supporting jobs across a range of industries. See http://cflinitiative.org for more information.

Chicago, New York, Los Angeles, San Francisco, Cleveland, Richmond, Milwaukee, and Oakland have set high local hire requirements for city residents on major publicly-funded construction projects to ensure that the economic benefits of city investments return to residents.[39] These targets are developed in response to the unique demographics and labor

[35] Saba Waheed and Lucero Herrera, "Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry" (UCLA Labor Center, 2014), http://www.labor.ucla.edu/publication/exploring-targeted-hire/.

[36] Waheed and Herrera, 12.

[37] Partnership For Working Families, "Policy & Tools: Community Workforce Agreement Examples," 2015, http://www.forworkingfamilies.org/page/policy-tools-community-workforce-agreement-examples; Maria Figueroa, Jeff Grabelsky, and Ryan Lamare, "Community Workforce Provisions in Project Labor Agreements: A Tool for Building Middle-Class Careers," *Ithaca, NY: Cornell University ILR School*, 2011, https://www.ilr.cornell.edu/sites/ilr.cornell.edu/files/PLA-REPORT-10-6-2011_FINAL.pdf; Georgia STAND-UP, "Atlanta Beltline," A Think & Act Tank for Working Communities, accessed January 21, 2019, https://georgiastandup.org/atlanta-beltline/; Erin Johansson and Benjamin Woods, "Building Career Opportunities for Women and People of Color: Breakthroughs in Construction" (Jobs with Justice Education Fund and North America's Building Trades Unions Tradeswomen Committee, November 2016), http://www.jwj.org/wp-content/uploads/2016/12/JWJEDU_NABTU_Report_2016_OnlineVersion_small.pdf; Waheed and Herrera, "Exploring Targeted Hire: An Assessment of Best Practices in the Construction Industry."

[38] Georgia STAND-UP, "Atlanta Beltline."

[39] Department of Procurement Services, "Percentages of City and Project Area Residents Worker Hours under 2-92-330," City of Chicago Rules, August 9, 2013,

market conditions of different cities and projects. Local hire is not necessarily the best way to achieve diversity in the construction sector workforce, particularly in clean energy, where jobs may be dispersed across large regions. Instead, to undo the legacy of exclusionary hiring preferences practiced historically by contractors, increasing racial, ethnic, and gender diversity has been a larger focus than local hire within and outside of the Building Trades.

In 2015, workers identifying as people of color and/or women accounted for 31% of active registered apprentices in Illinois' joint labor-management programs. [40] By contrast, non-joint programs reported only 28% of women and/or people of color enrolled in their programs.[41] Given that nationwide only 2-3% of blue-collar construction workers are women, the majority of these apprentices in Illinois are likely men of color.[42] A 35% targeted hire requirement for people of color on clean energy projects is an achievable "reach" goal when looking at statewide averages. It is important to note, however, that these targets may be harder to meet outside of metro-areas in Illinois. To ensure that these targets are attainable and that contractors take them seriously, requirements must be fine-tuned to the needs and demographics of different geographies.

There exist several models to establish geographically-specific targets to increase diversity in public construction. For instance, Executive Order 11246 stipulates that federal contractors and contractors who receive federal assistance for construction projects must adhere to specified non-discrimination policies. These measures include participation goals of 6.9% for female workers nationwide and geographically-specific goals for workers of color. While these federal standards are available and calculated to represent the demographic and geographic diversity of Illinois, the goals are based on the 1970 Census and are out-of-date with the current racial and ethnic composition of some regions.[43] The targets for Illinois range from

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https://www.cityofchicago.org/content/dam/city/depts/dol/rulesandregs/PercentagesCityandProjectAreaResidentsWorkerHours.pdf; Fuchs, Warren, and Bayer, "Expanding Opportunity For Middle Class Jobs in New York City: Minority Youth Employment in the Building and Construction Trades, Case Study: Edward J. Malloy Construction Skills Pre-Apprenticeship Program"; "Memorandum of Understanding," Partnership for Working Families, 2009, http://www.forworkingfamilies.org/sites/pwf/files/documents/BCTC_NYC_MOU.pdf; Partnership For Working Families, "Policy & Tools: Community Workforce Agreement Examples"; "Register for Local Construction Employment Referral Program (LCERP)," City of Oakland, accessed January 21, 2019, https://www.oaklandca.gov/services/local-employment-program; San Francisco Office of Economic and Workforce Development, "First Source Hiring Program Overview," City and County of San Francisco, accessed January 21, 2019, https://oewd.org/first-source; San Francisco Office of Economic and Workforce Development, "Local Hire," City and County of San Francisco, accessed January 21, 2019, https://oewd.org/local-hire.

[40] Bruno and Manzo, "The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects," 8–9.

[41] Bruno and Manzo, 8–9.

[42] Bruno and Manzo, "The Impact of Apprenticeship Programs in Illinois: An Analysis of Economic and Social Effects."

[43] "Technical Assistance Guide for Federal Construction Contractors: Participation Goals for Minorities and Females," U.S. Department of Labor, n.d., https://www.dol.gov/ofccp/taguides/tac_fedcontractors_jrf_qa_508c.pdf [see page 17 for

2.5%in Bloomington to 20.9%in East Chicago. Further, federal standards require that contractors "engage in outreach and other good faith efforts to broaden the pool of qualified candidates to include minorities and women," meaning that if contractors fail to meet the participation goals, they are not in violation of the Executive Order.[44] State and local funding agencies could adopt more stringent requirements that trigger penalties when contractors fail to meet the established criteria for participation.[45]

Illinois-specific targets]; Office of Federal Contract Compliance Programs - United States Department of Labor, "FAQs on Nondiscrimination in the Construction Trades," accessed January 20, 2019, https://www.dol.gov/ofccp/regs/compliance/faqs/NondiscriminationConstructionTrades_FAQs.htm#Q14.

[44] Office of Federal Contract Compliance Programs - United States Department of Labor, "FAQs on Nondiscrimination in the Construction Trades."

[45] Julian Gross and PolicyLink, "Local and Targeted Hiring," Policy Brief, Local Progress: The National Municipal Policy Network, accessed January 21, 2019, http://www.policylink.org/sites/default/files/Local-and-Targeted-Hiring.pdf.

The Federal Transportation Administration offers an alternative model that targets workers based on residence through the "National Targeted Worker" and "Disadvantaged Worker" hiring standards. National Targeted Workers are individuals whose primary place of residence is within an economically disadvantaged zip code that includes a census tract or portion thereof in which the median annual household income is below $40,000. A Disadvantaged Worker indicates an individual who, prior to commencing work on the project resides in an economically disadvantaged area and faces significant specified barriers to employment.[46] While this definition of economic disadvantage is used to overcome the limitations of local hiring provisions but still prioritize employment for low-income workers and workers of color, this model could be adopted to other measures of economic disadvantage already in use in Illinois. For instance, the FEJA Solar for All incentive program defines low-income households as those making at or below 80% of area median income.[47]

Recommendation 5: Require 35% of all workers on clean energy projects receiving public or ratepayer-funded incentives or funding to be people of color or residents of economically-disadvantaged zip codes.

In California, where targeted hiring based on race or ethnicity is prohibited, city governments working with the federal government have used the National Targeted Worker criteria to ensure that publicly-funded work produces jobs for low-income communities and communities of color. For instance, on federally-funded projects, the LA Metropolitan Transportation Authority (LA Metro) Construction Careers Policy requires that a minimum of 40% of all hours of project work shall be performed by National Targeted Workers, with priority given to residents of National Extremely Economically Disadvantaged areas. Disadvantaged

[46] Disadvantaged Workers include individuals who, prior to commencing work on the project, resides in an economically disadvantaged area and faces at least one of the following barriers to employment: (1) being a veteran; (2)being a custodial single parent; (3) receiving public assistance; (4) lacking a GED or high school diploma; (5) having a criminal record or other involvement with the criminal justice system; (6) suffering from chronic unemployment; (7) emancipated from the foster care system; (8) being homeless; or (9) being an apprentice with less than 15% of the required graduating apprenticeship hours in a program. Federal contracting requirements prohibit local hire requirements that give workers preference based on specific geographical boundaries. See: https://www.hsr.ca.gov/docs/programs/construction/National_Targeted_Hiring_Initiative_Plan.pdf However, as utilized in the Los Angeles Metro's Construction Careers Program (LA-CCP) "targeted hiring program identifies economically disadvantaged communities by a national rank of poverty and opportunity levels in different zip codes across the country. The program gives preference to bidders from zip codes based on their classification as economically disadvantaged, regardless of their geographic location. Since CCP's targeting treats all geographic areas across the country equally, it does not run afoul of limits on geographic preference embedded in the full and open competition standard." See: Jobs to Move America, "Inclusive Public Procurement," April 2017, p. 5, https://jobstomoveamerica.org/wp-content/uploads/2017/04/IPP-Brochure-and-Appendix-UCLA.pdf.

[47] "Illinois Solar for All Resources," Illinois Solar Energy Association, 2018, https://illinoissolar.org/Illinois-Solar-for-All.

Workers must perform a minimum of 10% of all project work hours and apprentices must perform at least 20% of total work hours. LA Metro sets similar targets for local workers on locally-funded projects and has also sought to meet federal goals for female participation.[48]

The National Targeted Worker criteria offers more flexibility than local hire requirements while still prioritizing participation of people of color who disproportionately live in lower-income communities. In 2017 in Illinois, the white poverty rate was 7%, compared to 24% for African Americans, 12% for Latinos and Latinas, and 10% for Asians,[49] so applying the National Targeted Worker criteria to clean energy investments would serve to enhance minority participation in the clean energy industry.

[48] Los Angeles County Metropolitan Transportation Authority, "General Management: Construction Careers Policy," January 26, 2017, https://media.metro.net/about_us/pla/images/construction_careers_policy_2017.pdf.

[49] "Poverty Rate by Race/Ethnicity," *The Henry J. Kaiser Family Foundation* (blog), November 29, 2018, https://www.kff.org/other/state-indicator/poverty-rate-by-raceethnicity/; see also discussions of geographic variations between cities and neighborhoods in national studies of distressed communities Richard Florida and Aria Bendix, "Despite the Recovery, the Most Distressed Communities in the U.S. Are Not Improving," CityLab, February 26, 2016, http://www.citylab.com/politics/2016/02/mapping-distressed-communities-in-the-us/471150/; "2018 Distressed Communities Index," *Economic Innovation Group* (blog), accessed January 21, 2019, https://eig.org/dci/2018-dci-map-national-zip-code-map.

Best Practice: Partner with Schools to Create Post-Graduation Career Pathways

Chicago Builds is a two-year construction training program offered for Chicago Public School students in the 11th and 12th grades. Classes meet five days a week throughout the school year at Dunbar High School. In the first year, students complete a 10-week rotation in different trades including electricity, carpentry, HVAC, and welding. Second year students specialize to prepare for the pre-apprenticeship training exam. The International Brotherhood of Electrical Workers Local 134 is one of the partner unions that works with Dunbar High School.

Local 134 also established *Jump Start* to offer assistance, guidance, and mentoring to those who are interested in exploring the electrical industry but are unfamiliar with the construction industry in general. *Jump Start* provides information on working in construction, dates and times for registration, test preparation, and documentation gathering assistance. In addition, its Trainee Program is a one-week classroom-based training orientation that includes OSHA, First Aid/CPR, physical training, and material identification followed by an opportunity to work on a job-site in the electrical industry for a period of one year until an apprenticeship opportunity becomes available. Trainees earn a wage of 30% of the journey-worker rate. In addition, those who successfully complete the *Jump Start* and Trainee programs earn points toward their apprenticeship application.

Other pre-apprenticeship training partners for Local 134 include the Chicago Women in Trades, St. Paul of God Project Upgrade, ACE Tech Charter High School, Simeon High School, and Arturo Velasquez Institute, which, in partnership with Richard J. Daley College and the Illinois Institute of Technology, offers college credit to apprentices.

There are many partnerships underway in Illinois – such as those with schools and community colleges– to increase access and diversity in apprenticeship programs.[50] Yet, this is only the first step to increasing access to clean energy jobs. Support networks that extend past apprenticeship readiness training also contribute to the success of individuals coming from groups under-represented in the skilled trades who might not see many people who look like them at work. The National Center for Women's Equity in Apprenticeship and Employment of the Chicago Women in Trades offers online resources, technical assistance, and training guides to recruit and retain women-identified workers in pre-apprenticeship and apprenticeship programs.[51] Resources to prevent and address sexual harassment at the workplace are also available.[52]

Recommendation 6: Build on the success of existing programs to provide support and mentorship to groups under-represented in the skilled trades.

[50] Chicago Public Schools, "Chicago Builds," Chose Your Future, 2019, https://chooseyourfuture.cps.edu/chicago-builds/.

[51] Chicago Women In Trades, "Technical Opportunities Program (TOP)," accessed November 12, 2018, http://chicagowomenintrades2.org/programs-2/technical-opportunities-program/; National Center for Women's Equity in Apprenticeship and Employment, "Pre-Apprenticeship Providers," Chicago Women in Trades, 2018, http://womensequitycenter.org/pre-apprenticeship-providers/.

[52] Lauren Sugerman, "#MeToo in Traditionally Male-Dominated Occupations: Preventing and Addressing Sexual Harassment" (Chicago Women in Trades, June 2018), http://womensequitycenter.org/wp-content/uploads/2017/10/CWIT-MeToo-in-Male-Dominated-Jobs-003.pdf.

Mentorship is an important component of the Tradeswomen curricula and has also been advanced within unions. Within the International Brotherhood of Electrical Workers (IBEW), the Electrical Workers Minority Caucus addresses discrimination and empowers leadership at all levels by workers of color.[53]

Recommendation 7: Implement apprenticeship training for skilled manufacturing and tech as needed.

The first six recommendations support building career pathways from job training to apprenticeship to journey-level positions in the skilled trades for construction. Similar strategies can apply to the manufacturing sector, which generated 21.2% of clean energy jobs in Illinois in 2017.[54] Innovative apprenticeship models jointly implemented between unions and employers are already in place in manufacturing facilities across the Midwest. These programs are tailored to recruit and train participants in highly specialized skills that companies require.[55] For example, in Chicago, a **community benefits agreement** brokered as part of the Jobs to Move America campaign between the Chicago Transit Authority, CRRC Sifang America, the Chicago Federation of Labor, IBEW, and SMART allocates funding for training and commits to hiring union workers in the construction and operation of a new manufacturing facility for railcars.[56] The WRTP/BIG-STEP training model for Industrial Manufacturing Technicians is one example of training for advanced manufacturing tailored to help workers learn the specific skills that industry needs while moving up a career pathway.[57]

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[53] "Our Mission," Electrical Workers Minority Caucus, 2018, http://www.ibew-ewmc.com/index.cfm?zone=/unionactive/view_article.cfm&HomeID=681475&page=Founding20oMembers.

[54] Clean Energy Trust and E2, "Illinois Executive Summary," 4.

[55] Other Midwestern states have developed an Industrial Manufacturing Technician program in conjunction with employers and unions to prepare workers for direct entry into advanced manufacturing positions. WRTP/Big Step initially developed the 3,000 hours, 18-month training program for use in Wisconsin and Minnesota. The program provides on-the-job and classroom instruction. Program coordinators work with industry to secure entry-level positions for workers, who can then specialize within the plant after gaining relevant work experience. See: WRTP/Big Step. (2016). "Industrial Manufacturing Technician (IMT)," accessed November 14, 2018, http://www.wrtp.org/imt/; Union Advocate. (2015). "In Minnesota, Apprenticeship Model Expanding to Other Industries," accessed November 14, 2018, https://advocate.stpaulunions.org/2015/06/26/in-minnesota-apprenticeship-model-expanding-to-other-industries/; Bergman, T., Gannon, T., Soth, J., Burress, T., Edwards, B., Shackelford, S., Bates, M., and Yudken, J. (2006). "Advanced Manufacturing: Workforce Strategies Toolkit. AFL-CIO Working for America Institute," accessed November 14, 2018, https://partners.aflcio.org/system/files/5_manuf_toolkit_program2_10_25_06.pdf

[56] Steven Greenhouse, "Connecting Public Transit to Great Manufacturing Jobs," *The American Prospect*, April 9, 2018, http://prospect.org/article/connecting-public-transit-great-manufacturing-jobs; "Mayor Emanuel, CTA, CRRC Sifang America Break Ground on New CTA Railcar Manufacturing Facility in Chicago," CTA, March 16, 2017, https://www.transitchicago.com/mayor-emanuel-cta-crrc-sifang-america-break-ground-on-new-cta-railcar-manufacturing-facility-in-chicago/.

[57] "Career Services for WRTP | BIG STEP," *WRTP* (blog), 2018, https://wrtp.org/career/.

In addition to construction and manufacturing, there is growing need for smart grid integration technicians for activities like managing advanced buildings, controls and automation devices, and big data. Across the country, demand for skilled and experienced workers far outweighs supply and constrains the growth of the industry. There is a need for workforce development partnerships to develop appropriate training pathways to meet both worker and employer needs. As this develops, efforts need to be made to ensure that disadvantaged workers have access to such training and employment opportunities.

Beyond blue-collar careers, the same efforts to recruit, retain, and give equal compensation to workers of color and women workers are needed at all levels of employment. Academic and industry research indicates that contractors and managers of color are more likely to hire and promote other people of color.[58] Extending targeted training opportunities through paid internships for young people or workers looking to change industries in planning, design, administration, and management positions within clean energy companies[59] and adopting targets for white collar employment will promote equity in all types of employment.

Best Practice: Apprenticeship for Skilled Manufacturing

WRTP/BIG-STEP is an "industry-led and worker centered" training program that started in response to the need for skilled workers for advanced manufacturing facilities in the Milwaukee area. Their nationally-renowned Industrial Manufacturing Technician (IMT) program is a 3000-hours apprenticeship program that provides classroom and on the job instruction tailored to specific employer needs. Participants can move up the career ladder from entry-level positions through developing a range of skills in testing, operating, and controlling manufacturing equipment. The IMT program benefits industry through resources, technical assistance, and targeted training to develop a curriculum and train workers.

[58] Michael Gee, "Why Aren't Black Employees Getting More White-Collar Jobs?," *Harvard Business Review*, February 28, 2018, https://hbr.org/2018/02/why-arent-black-employees-getting-more-white-collar-jobs; Laura Giuliano, David I. Levine, and Jonathan Leonard, "Manager Race and the Race of New Hires," *Journal of Labor Economics* 27, no. 4 (October 2009): 589–631, https://doi.org/10.1086/605946; John J. Rosen, "'Work for Me Means Work for the Community I Come From': Black Contractors, Black Capitalism, and Affirmative Action in the Bay Area," in *Black Power at Work: Community Control, Affirmative Action, and the Construction Industry*, ed. David Goldberg and Trevor Griffey (Ithaca, NY: Cornell University Press, 2010), 68–89; Michael A. Stoll, Steven Raphael, and Harry J. Holzer, "Why Are Black Employers More Likely than White Employers to Hire Blacks?," Discussion Paper, Institute for Research on Poverty, August 2001, https://www.ssc.wisc.edu/irpweb/publications/dps/pdfs/dp123601.pdf.

[59] See discussion of workforce development initiatives at the San Francisco Public Utility Commission in "SFPUC Community Benefits Program Social Impact Partnerships" (San Francisco Public Utilities Commission, May 10, 2018), https://sfwater.org/Modules/ShowDocument.aspx?documentid=11622.

B. Improving Job Quality

The growing clean energy economy in Illinois can be a vehicle for expanding economic opportunities and building wealth in low-income communities and communities of color that have historically borne a disproportionate burden of fossil fuel pollution.[60] Section A: Increasing Access and Diversity in the Clean Energy Workforce reviewed recommendations to broaden access to these opportunities by building pathways to clean energy jobs in Illinois. Certain measures can help to ensure that jobs created are high road jobs that pay family supporting wages and benefits.

Construction

Prevailing wage laws are the most important tool to enforce high road standards on clean energy projects, but prevailing wage laws can only apply to projects directly receiving public dollars. Such laws establish a local minimum wage for different types of skilled construction work on public works projects, based on what skilled craft workers in a given area are paid for comparable work.[61] Prevailing wage is an investment in a skilled construction workforce that ensures schools, roads, and clean energy infrastructure are built safely and at a high quality. In Illinois, if a project receives direct public funding, prevailing wage applies; however, monies from FEJA to incentivize renewable energy and energy efficiency are currently exempt from this requirement.[62]

While there are concerns that prevailing wage increases project costs, the vast majority of peer-reviewed studies conducted on prevailing wage since 2000 have concluded that prevailing wage laws have no impact on public construction costs.[63] This is in part because labor

[60] Robert D. Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality*, Third Edition (Boulder: Westview Press, 2000); City of Chicago's Mayor's Fisk and Crawford Reuse Task Force, "Fisk and Crawford Reuse Task Force: Process, Principles and Recommendations" (Delta Institute, 2012), http://delta-institute.org/delta/wp-content/uploads/Fisk_Crawford_Reuse_Task_Force_Sept-2012.pdf; Manuel Pastor, Jim Sadd, and John Hipp, "Which Came First? Toxic Facilities, Minority Move-in, and Environmental Justice," *Journal of Urban Affairs* 23, no. 1 (2001): 1–21; David Naguib Pellow, *Garbage Wars: The Struggle for Environmental Justice in Chicago*, Urban and Industrial Environments (Cambridge, MA: MIT Press, 2004).

[61] "Current Prevailing Wage Rates," Illinois Department of Labor, Conciliation and Mediation Division, 2018, https://www2.illinois.gov/idol/Laws-Rules/CONMED/pages/2018-rates.aspx.

[62] Monica Garcia, "Legislature Passes ComEd Rate Hike to Bail out Nuclear Power Plants, but Little Else," *Chicago Tribune*, December 1, 2016, https://www.chicagotribune.com/news/local/politics/ct-bruce-rauner-comed-exelon-rate-hike-met-1203-20161201-story.html; Illinois General Assembly, Public Act 099-0906; David Roberts, "Illinois Passes Huge, Bipartisan Energy Bill, Proves Democracy Still Works," *Vox*, December 8, 2016, https://www.vox.com/energy-and-environment/2016/12/8/13852856/illinois-energy-bill.

[63] Frank Manzo and Kevin Duncan, "An Examination of Minnesota's Prevailing Wage Law: Effects on Costs, Training, and Economic Development" (Midwest Economic Policy Institute, 2018); An analysis of 335 school construction projects built before and after the 2015 repeal of prevailing wage in Indiana reveals that repeal had no statistical impact on the average cost per public school project. See: Frank Manzo and Kevin Duncan, "The Effects of Repealing Common

costs are a low and declining percentage of total cost in the construction industry. Nationwide, in 2012, labor costs accounted for approximately 23% of total costs in construction.[64] In the wind and solar electric power generation sector, labor costs were just 11% of total revenue.[65]

Recommendation 8: Include projects receiving RECs and other clean energy-related public or ratepayer-funded incentives in the definition of "public works" in Illinois code to ensure that prevailing wage laws and reporting requirements apply.

Prevailing wage laws promote the hiring and retention of higher-skilled workers, and work to retain skilled labor within the construction sector. When wages increase in construction, contractors respond by substituting less-productive workers with skilled workers.[66] As a result, worksite productivity is 14%-33% higher and on-the-job fatality rates are 14% lower in states with prevailing wage laws.[67] Since labor costs are only a small portion of total costs, the boost to worker productivity offsets the rise in labor costs.[68] These changes increase efficiency, stabilize costs, and help to retain a skilled workforce.

Construction Wage in Indiana: Impacts on Ten Construction Market Outcomes" (Midwest Economic Policy Institute, 2018), https://midwestepi.files.wordpress.com/2018/01/mepi-csu-effects-of-repealing-common-construction-wage-in-indiana-final.pdf.

[64] U.S. Census Bureau, "2012 Construction (NAICS Sector 23)," 2016, https://www.census.gov/data/tables/2012/econ/census/construction.html.

[65] U.S. Census Bureau, "2012 Economic Census," accessed November 15, 2018, https://factfinder.census.gov/faces/nav/jsf/pages/programs.xhtml?program=econ.

[66] William Blankenau and Steven Cassou, "Industry Estimates of the Elasticity of Substitution and the Rate of Biased Technological Change between Skilled and Unskilled Labour," *Applied Economics* 43, no. 23 (2011): 3129–42.

[67] Peter Philips, "Environmental and Economic Benefits of Building Solar in California: Quality Careers, Cleaner Lives" (Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment University of California, Berkeley, 2014), http://laborcenter.berkeley.edu/pdf/2014/building-solar-ca14.pdf; Frank Manzo, "The $5 Billion Cost of Construction Fatalities in the United States: A 50 State Comparison" (Midwest Economic Policy Institute, 2017), https://midwestepi.files.wordpress.com/2017/05/mepi-construction-fatalities-nationwide-final.pdf; Other important factors to consider include apprenticeship enrollment, which is 6%-8% higher, and apprentice completion of on-the-job and classroom training, which occurs at faster rates in states with prevailing wage laws. See: Cihan Bilginsoy, "Wage Regulation and Training: The Impact of State Prevailing Wage Laws on Apprenticeship" (Working Paper Series, Department of Economics, University of Utah, 2003), https://ideas.repec.org/p/uta/papers/2003_08.html; Cihan Bilginsoy, "The Performance of ABC-Sponsored Registered Apprenticeship Programs in Michigan: 2000-2016" (Illinois Economic Policy Institute, 2017).

[68] Further, by promoting the use of higher skilled workers, prevailing wage laws reduce expenditures on materials, fuels, and rental equipment. See: Kevin Duncan and Alex Lantsberg, "How Weakening Wisconsin's Prevailing Wage Policy Would Affect Public Construction Costs and Economic Activity." (National Alliance for Fair Contracting, 2015).

In 2017, 18% of solar employers reported that finding qualified employees is "very difficult."[69] This is a reflection of low unemployment and a booming economy, but also points to the need to increase wages in order to compete for talent. Figure 1 compares employee compensation in Illinois' wind and solar sectors to other related industries. Currently, fossil fuel electric power generation pays a 19.2% wage premium over the renewable energy industry in Illinois (see Appendix 1 for extended discussion). By adopting prevailing wage standards, clean energy companies could attract, develop, and retain experienced and skilled workers from the Building Trades unions who currently are more likely to be employed at their high-carbon competitors.

The payroll per employee estimated in Figure 1 divides the total annual payroll reported for each industry by the total number of paid employees. It is important to note that while all power generation sectors in Illinois pay high relatively high wages, there may be greater variance in the clean energy sector beyond what the data reported here indicate. The *County Business Patterns* dataset only includes W2 employees and does not capture workers misclassified as independent contractors. Worker misclassification is rampant in the construction industry in general, especially in residential work, and it is very common in the rooftop solar segment of the construction industry in particular.

[69] The Solar Foundation, "National Solar Jobs Census," The Solar Foundation, 2017, 5, https://www.thesolarfoundation.org/national/.

Figure 1: Employee Compensation in Illinois' Wind and Solar Electric Power Generation vs. Similar Sectors, 2016

Industry	Establishments	Paid Employees	Annual Payroll	Employees Per Establishment	Total Payroll Per Employee	Compensation Difference
Wind and solar electric power generation	**21**	**290**	**$25,018,000**	**13.8**	**$86,269**	**--**
Fossil fuel electric power generation	40	2,378	$244,462,000	59.5	$102,802	**+19.2%**
Natural gas distribution	83	5,436	$511,252,000	65.5	$94,049	**+9.0%**
Heavy and civil engineering construction	1,378	24,405	$2,431,678,000	17.7	$99,639	**+15.5%**
• *Oil and gas pipeline and related structures construction*	• *38*	• *2,168*	• *$191,845,000*	• *57.1*	• *$88,489*	• **+2.6%**
• *Power and communication line and related structures construction*	• *190*	• *7,602*	• *$686,003,000*	• *40.0*	• *$90,240*	• **+4.6%**
• *Highway, street, and bridge construction*	• *431*	• *6,528*	• *$870,336,000*	• *15.1*	• *$133,324*	• **+54.5%**

*Source: 2016 County Business Patterns (CBP), U.S. Census Bureau: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

Studies that compare online solar job postings[70] and contrast employment in the fossil fuel and utility-scale clean energy sectors[71] indicate that wage and benefit packages are better for workers in the fossil energy sector than for those in the clean energy sector. *The National Solar Jobs Census* compiled by The Solar Foundation in 2017 corroborates these findings. This report is the most extensive study of solar jobs available in the U.S., compiling information from 2,389 establishments in the solar industry with a "level of sampling rigor [that] provides a margin of error of +/-1.25% for the national employment numbers."[72] It reports hourly wages of $15 an hour for entry-level workers in solar installation and manufacturing and $20-21 an hour for mid-level employees.[73] This survey indicates that a full-time solar installer is likely earning less than $30,000 per year, far less if they are classified as an independent contractor, responsible for their own payroll taxes.

Further accentuating the compensation gap, but unreported in payroll data (including, the data in Figure 1), are the varied benefits packages workers receive. In the heavy and civil engineering sector, which is heavily unionized, unions collectively bargain for prevailing wages and health, pension, and workers' compensation benefits, which often add up to about 50% of the wages, providing a significant compensation boost to workers receiving them. In contrast, in the solar sector – particularly residential solar – firms are small and union representation is low. Workers in solar are far less likely to receive the same benefits or job security as their colleagues in fossil fuel employment.[74] Some prevailing wage scholars suggest that benefits packages are a more accurate indicator of job quality than wages.

The Solar Foundation reports that nationwide, women of all races and ethnicities and African-American men are under-represented in the solar industry relative to the overall workforce.[75] Their 2016 report found that

> women make up only 28% of the solar workforce…. People of color still comprise relatively small percentages of the domestic solar workforce which has remained relatively stagnant over recent years. Today, 17% of U.S. solar workers are Hispanic or Latino, 7% are African American, 9% are Asian, and American Indian or Alaskan Native and Native Hawaiian each

[70] Betony Jones and Carol Zabin, "Are Solar Energy Jobs Good Jobs?," *Don Vial Center on the Green Economy Blog* (blog), July 2, 2015, http://laborcenter.berkeley.edu/are-solar-energy-jobs-good-jobs/.

[71] Josh Bivens, "A Comprehensive Analysis of the Employment Impacts of the EPA's Proposed Clean Power Plan," Briefing Paper (Economic Policy Institute, 2015), http://www.epi.org/publication/employment-analysis-epa-clean-power-plan/.

[72] The Solar Foundation, "National Solar Jobs Census," 6.

[73] The Solar Foundation, 46.

[74] Bivens, "A Comprehensive Analysis of the Employment Impacts of the EPA's Proposed Clean Power Plan"; Betony Jones, "Creating Opportunities for Good Jobs in Distributed Solar," *Don Vial Center on the Green Economy Blog* (blog), August 27, 2015, http://laborcenter.berkeley.edu/creating-opportunities-for-good-jobs-in-distributed-solar/.

[75] The Solar Foundation, "National Solar Jobs Census," 38–40.

> account for less than 1%. Veterans of the U.S. Armed Forces make up 9% of the industry's workforce.[76]

In 2015, Illinois was actually doing better than the national average for inclusion of African American and Asian and Pacific Islander workers, who comprised 14.4% and 8.8% of solar employees respectively. Women held 36.2% of solar positions, compared to 47.9% of jobs in the economy overall. Hispanic or Latina/o workers held 10.8% of solar jobs compared to 14.1% of jobs in Illinois overall.[77] As the clean energy economy matures, inclusion and equitable participation of women and people of color at all levels of employment must remain a guiding principle. A related study, *2017 U.S. Solar Industry Diversity Study: Current Trends, Best Practices, and Recommendations*, reports the finding of an employee survey based on 279 respondents who primarily work in white-collar professional and managerial positions. The responses indicate people of color are less likely to be in manager, director, or president positions and that significant wage disparities exist. Women and men were approximately equally represented in the survey, however, white men self-report the greatest satisfaction with their wage and are

> significantly more likely to earn wages that fall in the highest wage bracket of $75 or more per hour. Thirty-six percent of white male respondents earn salaries in this wage bracket, compared to 28% of men of color and 21% of white women. Women of color are grossly excluded from the highest wage category, with only 4% of women of color earning wages above $75 per hour.[78]

The report further finds that while only 8% of African American employees reported they are "very satisfied" with their wage and position within their company, 42% reported that they are "not at all satisfied." These differences were the greatest for women of color, who were under-represented in the survey, and are the least likely of all groups represented in the study to be satisfied with their wage and position.[79] These findings illustrate the need for efforts to improve diversity and equity in compensation at all levels of employment.

In the construction sector, the importance of prevailing wage is further evidenced in Figure 2 in the wage differentials between union and non-union workers in Illinois' construction and extraction occupations between 2008 and 2017. Unions boost hourly wages for all construction and extraction workers, regardless of racial background or gender identification. Without controlling for other factors, construction unions raise wages by 49% for white workers and 56% for African American workers. Similarly, construction unions raise wages by 55% for men and 67% for women.

Prevailing wage laws and collective bargaining agreements stabilize minimum compensation standards on construction projects so that all workers with the same level of skill

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[76] The Solar Foundation, "U.S. Solar Industry Diversity Study: Current Trends, Best Practices, and Recommendations," 2017, 6, www.TheSolarFoundation.org/diversity.

[77] "Solar Jobs Compendium: Illinois," The Solar Foundation, 2015, https://www.thesolarfoundation.org/solar-jobs-census/solar-jobs-compendium-il/.

[78] The Solar Foundation, "U.S. Solar Industry Diversity Study: Current Trends, Best Practices, and Recommendations," 6.

[79] The Solar Foundation, 6.

proficiency performing the same job duties with the same equipment must receive the same prevailing wage and benefits package. Income gaps that persist are due to differences in experience or skill level (i.e., apprentices earn less than journey-level workers), differences by trade (i.e., operating engineers tend to earn more than laborers), or geographical differences in county-specific prevailing wage compensation rates.[80] The share of people of color and women will increase in the Building Trades if the measures discussed in Section A are adopted and, as a result, differences in compensation between groups will continue to decline. The data is clear that unions raise earnings and reduce overall inequality, combating wage discrimination in construction and lifting workers into the middle class.

Figure 2: Union Wage Premiums in Construction and Extraction Occupations by Race and Gender in Illinois, 2008-2017[81]

Construction and Extraction Occupations	Average Union Wage	Average Nonunion Wage	Wage Difference ($)	Wage Difference (%)
White non-Latino/a workers	$34.70	$23.21	+$11.49	+49.5%
African American workers	$29.08	$18.61	+$10.46	+56.2%
Latino and Latina workers	$31.03	$19.46	+$11.57	+59.5%
Male workers	$33.83	$21.88	+$11.95	+54.6%
Female workers	$32.04	$19.17	+$12.88	+67.2%

Prevailing wage laws are also associated with more work for local contractors. The most recent data from the *Economic Census of Construction* indicates that states with prevailing wage laws have 2%more of the total value of construction work completed by in-state contractors. While 2%seems small, the total value of construction work in Illinois in one year was almost $54 billion, including $10 billion in heavy and civil engineering construction. This suggests that the Illinois Prevailing Wage Act supported $1.1 billion in construction work ($197 million in heavy and civil work) for in-state contractors that otherwise may have gone to out-of-state firms.[82] By hiring local contractors and local workers, prevailing wage laws keep more tax dollars, more income, and more spending in the local community and create jobs in all sectors of the economy.

[80] Jill Manzo, Robert Bruno, and Frank Manzo, "State Prevailing Wage Laws Reduce Racial Income Gaps in Construction Impacts by Trade, 2013-2015" (University of Illinois at Urbana-Champaign: Project for Middle Class Renewal, Labor Education Program School of Labor and Employment Relations, 2018), https://illinoisepi.files.wordpress.com/2018/02/ilepi-pmcr-prevailing-wage-reduces-racial-income-gaps-final.pdf.

[81] CEPRdata, "Current Population Survey Outgoing Rotation Groups, 2007-2016," 2017, http://ceprdata.org/cps-uniform-data-extracts/cps-outgoing-rotation-group/cps-org-data/.

[82] Manzo and Duncan, "An Examination of Minnesota's Prevailing Wage Law: Effects on Costs, Training, and Economic Development."

While prevailing wage laws promote a level playing field for local contractors, they do not reduce the number of bids that may be submitted for consideration on public projects.[83] Five studies using 4,245 total bids to examine the effect of prevailing wage laws on bid competition since 1999 find that prevailing wage does not reduce bid competition– and may in fact increase it.[84] We discuss this more in Section C: Expanding Entrepreneurship.

A survey of states with prevailing wage laws finds that they increase blue-collar construction worker earnings up to 16%-17%, expand health insurance coverage between 8%-10%, and reduce the probability that a construction worker will rely on food stamps.[85] Nationwide, up to one-third of construction workers' families rely on public assistance.[86] In part, this is attributable to the nature of construction work, which is inherently seasonal with major projects built and repaired during peak months with desirable weather. Construction work is also cyclical and contingent on both private market conditions and public sector investment. When workers finish a project, there is often a period of unemployment while they look for another job, sometimes with new employers.[87]

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[83] Kevin C. Duncan, "The Effect of Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations on Highway Maintenance Costs," *ILR Review* 68, no. 1 (January 1, 2015): 212–37, https://doi.org/10.1177/0019793914546304.

[84] Cihan Bilginsoy, "Labor Market Regulation and the Winner's Curse," *Economic Inquiry* 37, no. 3 (July 1, 1999): 387–400, https://doi.org/10.1111/j.1465-7295.1999.tb01438.x; Duncan, "The Effect of Federal Davis-Bacon and Disadvantaged Business Enterprise Regulations on Highway Maintenance Costs"; Jaewhan Kim, Chang Kuo-Liang, and Peter Philips, "The Effect of Prevailing Wage Regulations on Contractor Bid Participation and Behavior: A Comparison of Palo Alto, California with Four Nearby Prevailing Wage Municipalities," *Industrial Relations: A Journal of Economy and Society* 51, no. 4 (October 1, 2012): 874–91, https://doi.org/10.1111/j.1468-232X.2012.00708.x; Manzo and Duncan, "The Effects of Repealing Common Construction Wage in Indiana: Impacts on Ten Construction Market Outcomes"; Lameck Onsarigo et al., "The Economic, Fiscal, and Social Effects of Ohio's Prevailing Wage Law" (Illinois Economic Policy Institute, 2017), https://illinoisepi.org/site/wp-content/themes/hollow/docs/prevailing-wage/bowling-green-su-kent-state-ohio-pw-study-4-10-17.pdf.

[85] Frank Manzo, Alex Lantsberg, and Kevin Duncan, "The Economic, Fiscal, and Social Impacts of State Prevailing Wage Laws: Choosing Between the High Road and the Low Road in the Construction Industry" (Illinois Economic Policy Institute, Smart Cities Prevail, 2016) This study also finds that overall, if all states with prevailing wage legislation weakened or repealed their laws, 319,000 blue-collar construction workers would lose their health insurance coverage and reliance on food stamps would increase by 102,000 construction workers.

[86] David Cooper, "Balancing Paychecks and Public Assistance: How Higher Wages Would Strengthen What Government Can Do," Briefing Paper #418 (Economic Policy Institute, 2016), https://www.epi.org/publication/wages-and-transfers/.

[87] The turbulence caused by these seasonal factors creates strong disincentives for employers and employees to invest in the type of training that leads to a highly-skilled, efficient, and safe workforce. Contractors are afraid of losing their investment if workers who they train decide to leave to work for a competitor after a project is finished. On the other hand, workers do not have the incentive to pay for training out-of-pocket because the possibility of prolonged spells of unemployment could prevent the investment from paying off. The result is

According to the 2012 *Economic Census of Construction*, the average blue-collar worker in the "heavy and civil engineering construction" sector worked 1,787 hours over the year. The average annual hours for all sectors of construction was 1,902 hours. Put another way, construction workers only work the equivalent of 10-11 months over the year and many of those hours come as overtime during the peak months.[88] Prevailing wage helps workers to save for the off season and reduce dependence on public assistance. Ultimately, prevailing wage laws are a great value for taxpayers.

Another pathway to jobs that pay prevailing wage is to expand investment in the municipal, university, school, and hospital (MUSH) sectors. These public buildings, including public housing, can model effective integration of renewable energy and energy efficiency as well as high-road job pathways since the MUSH sector tends toward hiring highly skilled and trained workers due to their long-term investments and need for high-quality work.

Recommendation 9: Prioritize clean energy investments in municipal, university, school, and hospital (MUSH) sector buildings.

Joint labor-management agreements can also include wage and benefit requirements and other criteria that govern workplace conditions. For construction work, project labor agreements (PLAs) are comprehensive pre-hire collective bargaining agreements for a given project. PLAs are recommended on public works projects in Illinois and are also common on large private projects as they guarantee a skilled and trained workforce.[89] By stipulating the terms of the contract ahead of time and preventing labor shortages or work stoppages, PLAs help contractors meet project deadlines. Workforce standards such as giving a specified number of positions to first-year apprenticeships, targeted hire requirements, contractor pre-selection, and disadvantaged business procurement policies can be required through a PLA. PLAs that contain provisions for the targeted hire of specific groups can also be referred to as community workforce agreements (CWAs). The Cypress Mandela Center in Oakland, California is one example of a program that leverages PLAs and CWAs to place their participants.[90]

Recommendation 10: Prioritize public and ratepayer-funded incentives for clean energy projects that have negotiated joint labor-management agreements such as PLAs, CWAs, or CBAs.

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a "market failure" in which insufficient worker training is provided in construction. Prevailing wage laws and collective bargaining agreements help correct this market failure by stabilizing local, market-based standards for wages, benefits, and training contributions in the community where the project is being built.

[88] U.S. Census Bureau, "2012 Economic Census."

[89] HB 2987, the 2011 Project Labor Agreements Act requires state agencies to consider the use of a PLA on all public works on a project-by-project basis. See: "Finance (30 ILCS 571/) Project Labor Agreements Act." (Illinois General Assembly, Compiled Statutes, 2011), http://www.ilga.gov/legislation/BillStatus.asp?GAID=11&GA=97&DocNum=2987&DocTypeID=HB&SessionID=84

[90] Brownfields Toolbox.org, "Cypress Mandela Training Center, Inc.," accessed January 30, 2019, https://brownfields-toolbox.org/download/program_overviews/CA_Cypress_Mandela.pdf; Cypress Mandela

Economic research on PLAs tends to find positive effects. In an analysis of school construction projects in Massachusetts, where some projects were conducted with PLAs and others were not, researchers found that PLAs had no negative impact on total construction costs;[91] in fact, PLAs often result in cost efficiencies. Utilization of PLAs by the New York City School Construction Authority from 2005 to 2009 saved the city $221 million over five years due to the standardized shift work and uninterrupted supply of qualified workers. The collective bargaining agreements of every union involved in the PLAs were renegotiated during this time and two unions even went on strike. However, school construction continued uninterrupted due to the "no strike" provision in the PLA– providing predictability and cost savings to the city.[92]

Best Practice: Placement through Project Labor and First Source Hiring Agreements

The Cypress Mandela Training Center in Oakland, California is a nationally-renowned leader in workforce training that works to provide pathways into the skilled trades for economically-disadvantaged residents of Oakland, San Leandro, Berkeley, Emeryville, and Richmond. In the areas where they work, most residents live under of the poverty line and are predominately people of color. Cypress Mandela also works with people involved in the justice system.

Since the program began in 1989, it has been a source of skilled workers that local contractors know they can count on. As a result, Cypress Mandela is written into project labor agreements and identified as a source of skilled local workers. They place participants into apprenticeship through PLAs, CWAs, and first source hiring agreements with local governments. Central to their success is continued contact with past participants. They continue to track participants for five years after they leave the program. Alumni provide referrals for new participants on jobsites and also give back to the program as mentors. Cypress Mandela operates on a $1.5 million annual budget and relies on partnerships to leverage resources and funding that come from multiple sources. The partner network contributes to the sustainability of the organization as all partners work together to recruit, train, and ensure the long-term success of their participants.

Community benefit agreements (CBA) extend to govern not only worksite expectations but also the relationship between the contracted company and the rest of the community. CBAs may stipulate investment that benefits workers or residents living within a certain distance from the project site, such as affordable housing, green space provision, pollution

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Training Center, "About Cypress Mandela," accessed January 30, 2019, http://www.cypressmandela.org/about_cypress_mandela; Marex, "Port of Oakland Invests in Local Workforce," The Maritime Executive, August 16, 2018, https://www.maritime-executive.com/article/port-of-oakland-invests-in-local-workforce.

[91] Dale Belman, Matthew Bodah, and Peter Philips, "Project Labor Agreements," (ELECTRI International, Michigan State University, University of Rhode Island, University of Utah, 2007), https://www.cpwr.com/sites/default/files/publications/NECA-PLA-Report.pdf.

[92] U.S. Department of Labor, "Implementation of Project Labor Agreements in Federal Construction Projects: An Evaluation," (Hill International, 2011), https://www.dol.gov/asp/evaluation/reports/20110225.pdf.

reduction, support for pre-apprenticeship programs, investment into public amenities, profit-sharing, and community ownership of the project.[93]

Manufacturing

Job quality in manufacturing is also a concern. Manufacturing work has become less certain as a result of deindustrialization and the increasing reliance on temporary workers. In the U.S., 47%of all temporary workers are in manufacturing. This raises new concerns for workers who are subject to discrimination, wage theft, "just-in-time" scheduling, and lax workplace safety training and regulatory enforcement.[94] In frontline production jobs, wage stagnation contributes to an increasing reliance on public assistance and more than one-third of these manufacturing workers' families are enrolled in one or more public safety net programs.[95] Union representation remains an important way for workers to collectively bargain with their employer for fair compensation, benefits, and safety measures and build high-road jobs in the local manufacture of clean energy components. Public funding should not subsidize employment under unjust conditions. Importantly, projects supported with public funding should not use prison labor or purchase solar panels or other clean energy technologies manufactured by prisoners.[96]

Governments with a "propriety interest" in a private sector enterprise, including businesses that contract with the government or receive public funding, can require employers to establish labor peace agreements with any union trying to organize workers.[97] Labor peace

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[93] The CBA between the City of Richmond, California and Chevron regarding updates to a local refinery called for $3 million annual investment into local greenhouse gas reduction programs. See: Chevron Refinery Modernization Project Environmental and Community Investment Agreement between City of Richmond, California and Chevron Products Company. (no date). City of Richmond, California, http://www.ci.richmond.ca.us/DocumentCenter/View/36095.

[94] Laura Putre, "Manufacturing's Temporary Worker Boom," *IndustryWeek*, May 11, 2015, https://www.industryweek.com/workforce/manufacturings-temporary-worker-boom.

[95] Ken Jacobs et al., "Producing Poverty: The Public Cost of Low-Wage Production Jobs in Manufacturing" (UC Berkeley Center for Labor Research and Education, 2016), http://laborcenter.berkeley.edu/pdf/2016/Producing-Poverty.pdf.

[96] Nichola Groom, "INSIGHT-Prison Labor Helps U.S. Solar Company Manufacture at Home," *Reuters*, June 10, 2015, https://uk.reuters.com/article/solar-prison-suniva-idUKL1N0YP17Y20150610; Ted Sickinger and Jeff Manning, "Oregon's Signature Solar Energy Project Built on Foundation of False Hopes and Falsehoods," The Oregonian, February 27, 2015, http://www.oregonlive.com/politics/index.ssf/2015/02/oregon_signature_solar_project.html.

[97] U.S. Chamber of Commerce - Workforce Freedom Initiative, "Labor Peace Agreements: Local Government as Union Advocate," 2016, https://www.uschamber.com/sites/default/files/documents/files/laborpeaceagreements.pdf; For example see City of Chicago ordinance to require "labor peace agreements between O'Hare and Midway ground handling operators and labor unions representing or seeking to represent their employees" in SEIU Local 1, "Chicago Airport Workers Cheer Passage Of City Ordinance For Union Rights, Higher Wages At O'Hare, Midway," *SEIU Local 1* (blog), September 6, 2017, http://www.seiu1.org/2017/09/06/chicago-airport-workers-cheer-passage-city-ordinance-union-rights-higher-wages-ohare-midway/; Alexia Elejalde-Ruiz, "City Council Approves Law

Recommendation 11:
Apply labor peace agreements to clean energy component manufacturing.

agreements are an arrangement between a union and an employer in which the union agrees not to strike or picket and the employer agrees not to resist the organizing efforts. Employers may agree to remain neutral during the union campaign, allow access to the workplace, offer information about employees to the union, or recognize a card check in lieu of a formal NLRB election to certify whether workers want a union.[98] Historically, labor peace has led to more successful first contract negotiations.[99]

C. Expanding Entrepreneurship and Inclusive Procurement

Building equity in the clean energy workforce also requires changes to the process for bidding and contracting projects. Policy is needed to incentivize small and disadvantaged business participation, support disadvantaged business development, and reverse the "legacy of discrimination—in lending, contracting, and business ownership—[that] produced the wealth gap that renders minority firms non-competitive with respect to track record, credit scores, business networks, accumulated wealth, and other qualities needed to be competitive."[100] FEJA does not have statutory requirements for participation of **disadvantaged business enterprises (DBEs) or minority-, veteran-, or women-owned businesses (M/V/WBE),**[101] but requirements

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Boosting Pay, Easing Unionization for Airport Workers," *Chicago Tribune*, September 6, 2017, https://www.chicagotribune.com/business/ct-airport-worker-ordinance-passed-0907-biz-20170906-story.html.

[98] See related discussion of neutrality agreements in Brendan D. Cummins, "Neutrality Agreements and Proproetary Interest Protection Agreements" (Miller-O'Brien, November 2017), 5, https://alamedamgr.files.wordpress.com/2017/11/obrien-neutrality-agreements.pdf.

[99] Elejalde-Ruiz, "City Council Approves Law Boosting Pay, Easing Unionization for Airport Workers"; Lisa Jordan and Robert Bruno, "Do the Organizing Means Determine the Bargaining Ends?," in *Advances in Industrial & Labor Relations*, vol. 14 (Bingley: Emerald (MCB UP), 2005), 101–25, https://doi.org/10.1016/S0742-6186(05)14004-9.

[100] Denise Fairchild and Kalima Rose, "Inclusive Procurement And Contracting: Building a Field of Policy and Practice" (Emerald Cities Collaborative and PolicyLink, February 2018), 7, http://www.policylink.org/resources-tools/inclusive-procurement-and-contracting.

[101] The City of Chicago, Chicago Transit Authority (CTA), Illinois Department of Transportation (IDOT), METRA or PACE offer a statewide certification program for DBEs. Firms must have at least 51% ownership by a socially or economically disadvantaged individual. The City of Chicago's Department of Procurement Services Certification and Compliance division also certifies minority- (MBE) women-owned businesses (WBE) with at least 51% ownership by a woman or person of color or group of women or people of color. Similar certification is available for people with disabilities as part of the Business Enterprises Owned by People with Disabilities (BEPD) Program. See: City of Chicago, "Airport Concessions Disadvantaged Business Enterprise (ACDBE) or Disadvantage Business Enterprise (DBE)," Procurement Services, 2018, https://www.cityofchicago.org/city/en/depts/dps/provdrs/cert/svcs/airport_concessionsdisadvantagedbusinessenterpriseacdbeordisadva.html; City of Chicago, "Certification - BEPD," Procurement Services, 2018,

do exist for procurement of goods and services from DBEs on other public contracts in Illinois.[102] The City of Chicago requires a good faith effort for contractors to "solicit through reasonable and available means at least 50% (or at least five when there are more than eleven certified firms in the commodity area) of certified MBEs and WBEs."[103] The City also establishes goals of 26% MBE and 6% WBE participation on public construction and contracts for goods and services.[104] Many other institutions have similar commitments. For instance, the University of Chicago has 35% DBE/MBE and 6% WBE participation goals. The utility ComEd established and met goals to procure 36% of their total supply chain expenditure with "diversity-certified suppliers" including women-, minority-, and veteran-owned businesses in 2017.[105] Ameren's Illinois Company set a goal of 14% and achieved 20.4% diverse procurement in 2017.[106]

Recommendation 12:
Establish 35% participation requirements for M/W/VBEs on clean energy projects that receive public or ratepayer-funded incentives. Evaluate progress toward goal to increase targets by 5% to 50% in 203.

Figure 3: Minority, Women, and Veteran-Owned Businesses by sector in Illinois, 2016[107]

All Firms with Paid Employees	All	Construction	Manufacturing	Utilities	Wholesale Trade
Total	244,176	27,748	12,133	146	15,230

https://www.cityofchicago.org/city/en/depts/dps/provdrs/cert/svcs/business_enterprisesownedbypeoplewithdisabilitiesbepd.html; City of Chicago, "Certification - M/WBE Program," Procurement Services, 2018, https://www.cityofchicago.org/city/en/depts/dps/provdrs/cert/svcs/minority_and_womenownedbusinessenterprisecertificationmbewbe.html.

[102] Illinois Capital Development Board, "Minority/Women/Veteran Business," 2018, https://www2.illinois.gov/cdb/business/Pages/MinorityWomenBusiness.aspx.

[103] Department of Procurement Services, "Vendor Compliance Resource Guide" (City of Chicago, 2014), 12, https://www.chicago.gov/content/dam/city/depts/dps/Outreach/DPSVendorComplianceResourceGuiderevo514.pdf.

[104] City of Chicago, "The City of Chicago's Guide to Procurement Fundamentals," 2010, https://www.chicago.gov/dam/city/depts/dps/Outreach/ProcurementFundamentalsGuideMay262010.pdf; Ken Hare, "City Expands Its MBE/WBE Participation Program," *The Chicago Defender* (blog), July 28, 2016, https://chicagodefender.com/2016/07/28/city-expands-its-mbewbe-participation-program/.

[105] "Powering Lives with a Commitment to Supplier Diversity: ComEd's Diverse Supply Chain Benefits the Illinois Economy" (Prepared for the Illinois Commerce Commission pursuant to 220 ILCS 5/5-117, April 15, 2018), https://www.comed.com/DoingBusinessWithUs/Pages/SupplierDiversity.aspx.

[106] Byron Witherspoon, "Annual Report on Business Diversity for the Illinois Commerce Commission," Prepared for the Illinois Commerce Commission pursuant to 220 ILCS 5/5-117 (Ameren Illinois Company, April 2018), 8, https://www.icc.illinois.gov/filings/mwvs/default.aspx.

[107] U.S. Census Bureau, "2016 Annual Survey of Entreprenuers," American FactFinder, accessed November 27, 2018, https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

White Male	133,429	20,336	7,817	67	9,176
Veteran	13,639	1,500	1,196	0	1,237
●White & Veteran	●12,940	●1,477	●1,086	●0	●1,237
M/V/WBE Total	123,687	8,889	5,402	79	7,291
M/V/WBE Share	50.7%	32.0%	44.5%	54.1%	47.9%

According to the 2016 Annual Survey of Entrepreneurs, fully 50.7% of all firms with paid employees in Illinois are M/V/WBE owned with important differences across industry sectors. The M/V/WBE ownership rate for firms with paid employees is 32.0% in construction, 44.5% in manufacturing, 54.1% in the utilities sector which includes clean power generation, and 47.9% in wholesale trade which would include industrial suppliers. Public procurement requirements can increase demand for services from construction firms owned by people of color, women, veterans, and people with disabilities and encourage more people to enter this sector. A graduated goal that ramps up clean-energy related procurement, project contracting/subcontracting, and supplier targets from 35%to 50% participation by disadvantaged business by 2035 would be in line with the growth trajectory in DBE procurement seen in companies such as ComEd.[108]

Recommendation 13:
Provide technical and financial assistance to disadvantaged businesses through a Contractor Incubator. This could be part of the Workforce Hub.

A "Contractor Incubator" program that focuses on the development of underserved and disadvantaged businesses in the Clean Energy sector should be established to meet these targets by fostering entrepreneurship and disadvantaged business participation. The incubator should connect DBEs and M/V/WBEs to existing services, such as becoming certified with the Illinois Unified Certification Program, which already acts as a central clearinghouse for participating public agencies, and be integrated with other state-level efforts to support small business development, such as the DBE Working Capital Revolving Loan Program.[109] The incubator would facilitate connections between DBEs and M/V/WBEs and specific partners,

[108] "Powering Lives with a Commitment to Supplier Diversity: ComEd's Diverse Supply Chain Benefits the Illinois Economy."

[109] Stuart Batty, "DBE Working Capital Revolving Loan Program," Illinois Department of Transportation, 2018, http://www.idot.illinois.gov/doing-business/procurements/Industry-Marketplace/dbe-revolving-loan-program/index; Stuart Batty, "IL UCP Directory," Illinois Department of Transportation, accessed November 15, 2018, http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index; Participating agencies in the IL UCP include the Illinois Department of Transportation, City of Chicago, Chicago Transit Authority, Metra and Pace. See: City of Chicago, "Airport Concessions Disadvantaged Business Enterprise (ACDBE) or Disadvantage Business Enterprise (DBE)."

subcontracts, and low-cost capital to advance their long-term development.[110] In the construction sector, support for insurance and bonding can also help small businesses compete with start-ups on a level playing field.

Local and state agencies play a key role in implementing inclusive procurement policies and helping contractors and business owners navigate differences in requirements that may vary by sector, geography, and funding stream. Aligning policy environments across city, state, utility, and private sector contracts can help DBEs be competitive for a greater share of projects. Importantly, public agencies need to track and hold firms and large contractors accountable for meeting the targets identified.[111]

In addition, requirements for larger, more established contractors and vendors to have multi-year mentorship and development programs in place with disadvantaged businesses is also a critical tool. Mentorship programs between established contractors and DBEs and utilization of DBEs above the minimum thresholds can also be supported through bid incentives, **best-value contracting**, or **responsible bidder ordinances**. Accepting the lowest bidder based on "hard" low bids puts pressure on contractors to reduce quality, cut wages, and avoid contributing to employee health and pension plans. Best-value contracting circumvents competition based on price and rewards bidder commitments to job access and job quality standards (and sometimes other community benefits) through a points-based system used to evaluate bids. These incentives are designed before bidding begins to set the terms for scoring bids, awarding a contract, and monitoring compliance. Inclusive procurement should be part of the formula for awarding contracts.[112] Similarly, a responsible bidder ordinance (RBO) sets minimum requirements for all contractors bidding on taxpayer-funded projects. The purpose of an RBO is to ensure that local governments hire only professional, competent contractors that provide the highest-quality work to complete taxpayer-funded projects efficiently, safely, on time, and on budget (see Appendix 2).

Best Practice: Training and Supporting New Contractors

The Emerald Cities Collaborative E-Contractor Academy in Los Angeles, San Francisco, and Cleveland is an established training program and toolkit to support disadvantaged and new contractors, including facilitating mentorships between small and established contractors, connecting participants to banks to assist with bonding and insurance requirements needed to bid on public projects, and offering insight into how to become a union signatory contractor. Sponsored networking and mentorship can help ensure DBEs have access to the resources, capital, and information and supply networks needed to execute projects.

[110] See more information on the Emerald Cities Collaborative E-Contractor Academy as one example here: Emerald Cities Collaborative, "E-Contractor Academy," 2018, http://emeraldcities.org/about/national-initiatives/e-contractor-academy; "The E-Contractor Academy," Emerald Cities Collaborative, 2019, http://e-contractoracademy.com/.

[111] Fairchild and Rose, "Inclusive Procurement And Contracting: Building a Field of Policy and Practice."

[112] Fairchild and Rose, 31.

City and state agencies can also offer bid incentives for contractors that contribute to the training of skilled clean energy workers through participation in state- or federally-registered apprenticeship programs or hiring graduates of FEJA training programs. Apprentice or pre-apprentice utilization requirements can be written into a PLA or CBA, yet, prior to a contract being awarded, bid incentives can encourage contractors to take necessary steps to form relationships with pre-apprenticeship training programs and unions to be competitive for projects. The City of Chicago utilizes bid incentives to encourage utilization of DBEs and the participation of women, people of color, and apprentices in the construction skilled trades.[113]

Contractor prequalification requires a contractor to meet certain criteria before submitting a bid for public projects such as proving certificates of liability insurance or workers' compensation insurance, the payment of health and retirement benefits, compliance with a state-level prevailing wage act or payment of local prevailing wages, and a willingness to meet an apprenticeship requirement. Other common characteristics require contractors to identify prior contract performance, debarments, or previous labor violations, respond to a questionnaire or submit an official statement for the public record, and include a safety requirement or rating system.[114]

Recommendation 14:
Utilize best-value contracting to prioritize equity goals in clean energy-related projects.

It is harder for smaller companies, including D/M/W/VBEs, to meet these requirements, making bonding, insurance, and technical assistance for DBEs a critical part of increasing the diversity of the clean energy workforce. Rather than lower standards, the Contractor Incubator program should help new and disadvantaged businesses meet the standards to ensure quality jobs for workers. Prequalification could help further streamline Illinois' solar market procurements and energy efficiency programs by disallowing vendors who fail to meet workforce criteria from bidding. Criteria to prequalify vendors should be combined with a best-valuing contracting approach to reward developers based on commitments to diversity and equity.[115] Clean energy companies could benefit in knowing who is eligible to bid on which projects and what criteria will be rewarded. These standards may also give an advantage to local companies in Illinois who are more likely to take the time to form partnerships with community-based pre-apprenticeship programs and unions. These measures bring together business, labor, and the community in building a career pathway for workers in the clean energy sector.

D. Funding Workforce Equity Initiatives

[113] Department of Procurement Services, "Vendor Compliance Resource Guide."

[114] Carol Zabin et al., "Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities." (Donald Vial Center on the Green Economy, Institute for Research on Labor and Employment at the University of California, Berkeley, 2014), http://laborcenter.berkeley.edu/pdf/2014/WET-Plan14.pdf.

[115] Emma Foehringer Merchant, "Inside the 'Chaos' Enveloping Illinois' Distributed Solar Market," Greentech Media, October 16, 2018, https://www.greentechmedia.com/articles/read/inside-the-chaos-enveloping-illinoiss-distributed-solar-market.

FEJA laid the groundwork for decarbonizing the Illinois economy.[116] Achieving 100% clean energy will require significant investment to redesign and renovate energy, building, and transportation systems that will spur new growth in construction and other sectors. Ensuring a just transition to a clean energy economy requires taking care of the workers currently employed in the fossil fuel industry energy (see Section E), preserving the benefits in energy sector employment that unions collectively bargained for in private negotiation with their employers, expanding access to high-road employment, and ensuring that all residents have access to clean energy technologies.

In other states, community solar, residential energy efficiency programs, upgrades to public building stock, residential battery systems, micro-grids, electrical vehicle (EV) charging stations, and subsidies for EVs have required public funding.[117] Investing in these technologies can provide job opportunities for new and displaced workers. Bridging gaps in the training system to better serve disadvantaged workers and business also requires funding.

The funding required to support training, however, is relatively small. For example, between 2013 and 2017 California invested nearly $1.5 billion to create clean energy jobs by funding school clean energy programs as part of Proposition 39. Of this, the $12 million was spent to establish twelve clean energy/construction training partnerships between community-based organizations, schools, community colleges, employers, and apprenticeship programs across the state.[118] Subsequently, California's state transportation funding bill (SB 1) in 2017 granted the CWDB $5 million annually to continue administering these high road construction training partnerships.[119] Funding should be used to fill the gaps and improve training outcomes by supporting partnerships between community-based organizations, service providers, unions, and employers. Because these programs should also respond to labor market demand, it's important not to create too many programs or train too many people, as doing so can lead to a shortage of employment opportunities for trained workers and wage suppression.

Recommendation 15: Direct Workforce Opportunity and Investment Act funding for apprenticeable occupations to programs conducted in coordination with registered apprenticeships or employers.

Supporting good jobs in clean energy means supporting good jobs in construction through established training pathways. Joint apprenticeship training is privately funded by industry and union members. Funding for apprenticeship and journey-level worker training is engineered into collective bargaining agreements that require an employer contribution to fund and staff joint apprenticeship and training committees. Collective

[116] Peter Maloney, "Illinois Energy Law Revives Renewables While Aiding Nuclear," Utility Dive, April 30, 2018, https://www.utilitydive.com/news/illinois-energy-law-revives-renewables-while-aiding-nuclear/522195/; Sally Wang, "Renewable Portfolio Standard," DSIRE, June 28, 2018, http://programs.dsireusa.org/system/program/detail/584.

[117] California Public Utilities Commission, "Disadvantaged Communities," 2018, http://www.cpuc.ca.gov/discom/; California Public Utilities Commission.

[118] California Energy Commission, "The California Clean Energy Jobs Act Proposition 39 (K-12) Program," March 2017.

[119] California Legislative Information, "SB-1 Transportation Funding (2017-2018)," May 1, 2017, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB1.

bargaining agreements, project labor agreements, and community benefits agreements are important tools to require employers to make contributions to help fund the training programs from which they will benefit.

As discussed in Section A, recruiting and preparing young people, low-wage or under-employed workers, dislocated fossil fuel workers, or other disadvantaged populations with the skills needed to be competitive for and succeed in apprenticeship programs often requires pre-apprenticeship or apprenticeship readiness training. These programs often require subsidies. While funding for these programs could be similarly included in PLAs and CBAs, existing sources of public monies made available through the federal Workforce Innovation and Opportunity Act (WIOA) can also be redirected to support apprenticeship and pre-apprenticeship programs.

Nationwide, WIOA is the most significant program to train adults and workers dislocated from employment, which can include fossil fuel workers displaced as a result of mine or plant closures. In state fiscal year 2017, Illinois spent $16 million in adult training programs and more than $11 million to support dislocated workers.[120] To ensure that these monies are only directed to programs with clear pathways to employment, the Workforce Innovation Board or State Legislature could require WIOA-funded programs and services directed to apprenticeable occupations, including pre-apprenticeship training, be conducted in coordination with one or more state- or federally-approved apprenticeship programs within the occupation and geographic area.[121] The North American Building Trades Unions found that less than 5%of apprenticeship programs surveyed in Illinois currently access Workforce Opportunity and Investment Act (WIOA) funding.[122]

In addition, all state capital projects will benefit from a skilled and trained workforce and all infrastructure investments should be designed with carbon-emission reduction in mind. Therefore, capital bills should include a sum to finance continued job training, support coordinated training efforts such as a Workforce Hub, and support services to build D/M/WBE capacity.

Recommendation 16: Build job training funding for community-based or pre-apprenticeship programming into all state capital bill or infrastructure investments.

Across North America, other states have piloted methods of pollution taxes, fees, and permitting systems to collect revenue to support clean energy and sustainable job creation as

[120] State of Illinois, Illinois Workforce Innovation Board, "Illinois Workforce Development: FPY'16/SFY'17 Annual Report," 2017, https://www.illinoisworknet.com/DownloadPrint/SFY'17%20Annual%20Report%20Final.pdf.

[121] This recommendation stems from California Assembly Bill 554, which was signed by the Governor in 2011, and creates a legal requirement for the US Department of Labor recommendation in their quality pre-apprenticeship guidance that job readiness programs be designed in conjunction with or attached to registered apprenticeship programs. See California Legislative Information, "Assembly Bill No. 554 Employment: Workforce Services (2011-2012)," accessed November 27, 2018, http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB554.

[122] North America's Building Trades Unions, "Registered Apprenticeship Sponsor Survey," (April 13, 2017), https://nabtu.org/wp-content/uploads/2017/06/NABTU-WIOA-Survey-ETA-Staff-Meeting-4-13-17.pdf.

seen in California's cap-and-trade system, British Columbia's carbon tax, and the Regional Greenhouse Gas Initiative in Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.[123] However, these systems for pollution regulation are controversial methods to control carbon and can fail to reduce both carbon and co-pollutant pollution, thus exacerbating local environmental justice concerns.[124] ~~In the 2018 election, Washington state voters rejected a ballot initiative with an innovative model to price pollution through a carbon fee that was developed in coalition with environmental justice, union, tribal, faith, and business organizations among others~~.[125]

States with existing carbon pricing programs have also taken steps to invest revenue generated from emission credit sales in the most impacted communities.[126] Taking lessons from the models piloted elsewhere, the Illinois Environmental Protection Agency could assess a fee for pollution on air and water from Illinois fossil fuel extraction and power plants.[127]

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[123] California Air Resources Board, "Greenhouse Gas Reduction Fund Appropriations by Fiscal Year," August 31, 2018, https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/detail_appropriation_8_31_18.pdf?_ga=2.201584529.1667454696.1538277478-312316492.1505438054; Province of British Columbia, Ministry of Environment, "British Columbia's Carbon Tax," 2018, https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/carbon-tax; RGGI, Inc., "Welcome," The Regional Greenhouse Gas Initiative: an initiative of the New England and Mid-Atlantic States of the US, 2018, https://www.rggi.org/.

[124] Lara Cushing et al., "Racial/Ethnic Disparities in Cumulative Environmental Health Impacts in California: Evidence From a Statewide Environmental Justice Screening Tool (CalEnviroScreen 1.1)," *American Journal of Public Health* 105, no. 11 (2015): 2341–2348; Lara J. Cushing et al., "A Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program" (Program for Environmental and Regional Equity, University of Southern California Dornsife, 2016).

[125] David Roberts, "Washington Votes No on a Carbon Tax - Again," *Vox*, November 6, 2018, https://www.vox.com/energy-and-environment/2018/9/28/17899804/washington-1631-results-carbon-fee-green-new-deal.

[126] California Environmental Protection Agency, "Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De León)," April 2017, https://calepa.ca.gov/wp-content/uploads/sites/34/2017/04/SB-535-Designation-Final.pdf; California Public Utilities Commission, "Disadvantaged Communities"; John Faust and et al., "CalEnviroScreen 3.0: Update to the California Communities Environmental Health Screening Tool" (California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, 2017), https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf.

[127] For lessons adopted elsewhere see WA state initiate 1631 as well as policy guides compiled in advance of the Clean Power Plan proposed under the Obama Administration: Jessica Juarez Scruggs and Dana Bartolomei, "Fair and Just Investments in Frontline Communities Through the Clean Power Plan" (The Clean Power Plan for All Collaborative, 2016), https://d3n8a8pro7vhmx.cloudfront.net/greenforall/pages/7020/attachments/original/1464933284/TOOLKIT_1_-_Fair_and_Just_Investments.pdf; David Weiskopf, "Exposing and Avoiding False Solutions" (The Clean Power Plan for All Collaborative, 2016), https://d3n8a8pro7vhmx.cloudfront.net/greenforall/pages/7020/attachments/original/1464933284/TOOLKIT_1_-_Fair_and_Just_Investments.pdf; In 2013 a severance tax for oil and gas was

Severance taxes and pollution fees serve myriad purposes, including taxing polluting systems for the harm to human and environmental health, incentivizing a more rapid and equitable transition to clean energy, and raising revenue to support community and worker needs such as those that arise with power plant or mine closures.[128] Pollution pricing can also ensure that Illinois does not simply shift its pollution burden to other states. Efforts to decarbonize the power sector in Illinois would be offset by continuing to import dirty energy produced in neighboring states through inter-connected electrical grids.

To reach its ambitious clean energy targets, Illinois must also expand the range of programs so that all consumers can access the benefits of renewable energy and energy efficiency. Innovative funding mechanisms such as pay-as-you-save energy efficiency and residential or community solar programs that allow consumers to pay back the cost of energy efficiency improvements or solar system installations over time on their utility bill allows renters and low-income households to access these benefits. Administering and bundling these programs through utilities, co-ops, or the Illinois Power Agency creates economies of scale. Requiring contractor pre-certification would facilitate high job standards on these projects.

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adopted in Illinois under (35 ILCS 450/) Illinois Hydraulic Fracturing Tax Act. Numerous studies have explored the implementation of an extraction tax for coal as Illinois is one of only three states in the nation with coal extraction that does not have such a fee in place. Given that the majority of coal mined in Illinois is exported, an extraction tax is an important measure to ensure that coal emissions are not also exported. Importantly, a tax can also raise revenue to protect environmental and community health for coal communities as production slows. See: Kari Lydersen, "Amid Illinois Budget Crisis, Coal Severance Tax Proposed," *Energy News Network*, April 1, 2016, https://energynews.us/2016/04/01/midwest/amid-illinois-budget-crisis-coal-severance-tax-proposed/; Evan Hansen et al., "Capturing Resource Wealth to Invest in the Future: Possible Structures and Potential Benefits of an Illinois Coal Severance Tax" (Downstream Strategies and the Center for Tax and Budget Accountability, October 23, 2015); Illinois General Assembly, "35 ILCS 450/ Illinois Hydraulic Fracturing Tax Act.," 2013, http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=003504500HArt%2E+2&ActID=3494&ChapterID=8&SeqStart=200000&SeqEnd=1900000; Calvin A. Kent and Elizabeth Eastham, "Taxation of Coal: A Comparative Analysis, Prepared for: Subcommittee B of the Joint Standing Committee on Finance, West Virginia Legislature" (Marshall University: Center for Business and Economic Research, February 1, 2011), http://www.cbermu.org/wp-content/uploads/2017/08/2011_02_01_Coal_State_Compare.pdf.

[128] California Environmental Protection Agency, "Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De León)"; Fairchild and Rose, "Inclusive Procurement And Contracting: Building a Field of Policy and Practice"; Richard Lipsitz and Rebecca Newberry, "Huntley, a Case Study: Building Strategic Alliances for Real Change" (Labor Network for Sustainability, September 2016); Scruggs and Bartolomei, "Fair and Just Investments in Frontline Communities Through the Clean Power Plan."

Similarly, community solar programs create economies of scale and allow renters and homeowners whose houses are not conducive to solar installation to benefit. Various pilot programs to expand community solar participation to low-income communities include allowing customers to use utility rebates to purchase shares in community solar programs, applying community solar discounts before state assistance for utility bills is applied (i.e. PIPP, LIHEAP) to ensure subscribers receive maximum bill discount, requiring a certain percentage of subscribers be low-income customers,[129] and enrolling back-up subscribers such as churches, municipal governments, and schools.[130] Community solar and residential energy efficiency programs can also provide important entry-level training opportunities.[131]

Recommendation 17: Adopt a pollution fee on fossil fuel power plants and extraction.

E. Just Transition from Fossil Fuels

An equity agenda for Illinois must include a just transition for workers and communities affected by the closure of fossil fuel extraction and dirty energy production, transmission, and distribution facilities. Studies to date indicate that Illinois' transition to clean energy is possible

Best Practice: On-the-Job Pre-Apprenticeship Training through Weatherization

The Utility Pre-Craft Trainee (UPCT) program operated between the Los Angeles Department of Water and Power (LADWP) and the International Brotherhood of Electrical Workers (IBEW) Local 18 is a model for entry-level workforce training that increases community resiliency through residential energy efficiency and renewable energy installations. Participants are union members who earn $16 an hour plus benefits in this pre-apprenticeship program that combines classroom instruction to prepare participants to take the civil service exam and on-the-job training in each of the utility's service areas.

The program came about through the cooperation of many partners, including the RePower LA Coalition, which formed to increase local investment in energy efficiency and assists with outreach and coordination, the South East Los Angeles County WorkSource Center, which completes orientation and pre-screening for prospective participants, and the Los Angeles Trade Technical College, which provided the initial weatherization training. The utility and union work with these partners to recruit, train, and prepare trainees for a career with the utility. UPCT participants work on the LADWP's Home Energy Improvement Program and Small Business Direct Install Program to weatherize homes and small businesses and increase access to clean energy amenities for low-income residents and small businesses across the utility's service territory.

[130] Frank Jossi, "Minnesota Community Solar Projects Aimed at Low-Income Subscribers," *Energy News Network*, July 6, 2017, https://energynews.us/2017/07/06/midwest/minnesota-community-solar-projects-aimed-at-low-income-subscribers/.

[131] Ellen Avis and Carol Zabin, "Training for the Future, Workforce Development for a 21st Century Utility Los Angeles's Utility Pre-Craft Trainee Program" (Donald Vial Center on the Green Economy, Institute for Research on Labor and Employment at the University of California, Berkeley, 2013), http://laborcenter.berkeley.edu/pdf/2013/training_future13.pdf; Scott and Zabin, "Training for the Future II Los Angeles's Utility Pre-Craft Trainee Program: Progress to Date."

and on the horizon. A May 2018 report that NRDC, the Sierra Club, and other stakeholders commissioned on the retirement of the Dynegy-Vistra Coal Fleet in Southern Illinois found that, contrary to Dynegy-Vistra's claims, the closure of these plants would save Illinois up to $14 billion between 2018 and 2030 while maintaining grid reliability through the integration of new clean energy sources.[132] While the modeling demonstrated that Illinois' growing clean energy economy are already effectively supporting ratepayers and grid reliability in this transition, the needs of workers and communities dependent on jobs and tax revenue from these coal plants, must also be accounted for. Tony Mazzocchi of the Oil, Chemical, and Atomic Workers Union, who advanced efforts to compensate and retrain workers affected by necessary environmental regulation in the 1990s explained that a just transition should "provide workers with a guarantee that they will not have to pay for clean air and water with their jobs, their living standards or their future."[133]

Recommendation 18:
Expand and bundle affordable residential energy efficiency and community solar programs to create programs with economies of scale that maximize good job gains.

The International Trade Union Confederation, which represents 207 million workers across the world, identifies that a *just* transition from fossil fuels

> *secures the future and livelihoods of workers and their communities in the transition to a low-carbon economy. It is based on social dialogue between workers and their unions, employers, government and communities. A plan for Just Transition provides and guarantees better and decent jobs, social protection, more training opportunities and greater job security for all workers affected by global warming and climate change policies.*[134]

The AFL-CIO similarly adopted a resolution at their national convention in 2017 in support of the Paris Climate Agreement and action to reduce greenhouse gas emissions, while committing also to "fight politically and legislatively to secure and maintain employment, pensions and health care for workers affected by changes in the energy market; and … support the passage of key energy and environmental policies with a focus on ensuring high labor standards, the creation of union jobs and environmental sustainability."[135]

Recommendation 19:
Facilitate advanced planning for facility closure with grants for development of just transition plans with affected unions, local governments, business, and community-based organizations.

Getting ready for the transition to clean energy is a complicated process, which requires advanced planning, consultation, and negotiation between workers, unions, various levels of government and affected parties. Early notification

[132] Vibrant Clean Energy, LLC, "Analysis of the Dynegy-Vistra Coal Fleet Future Viability in MISO Zone 4 (Southern Illinois)" (Prepared for Natural Resources Defense Council, Sierra Club, and other stakeholders, 2018), https://www.nrdc.org/sites/default/files/retiring-dynegy-vistras-coal-plants-cheaper-cleaner-and-reliable-energy-for-illinoisans_2018-05-15.pdf.

[133] Tony Mazzocchi, "A Superfund for Workers," *Earth Island Journal* 9, no. 1 (1993): 40.

[134] "Just Transition Centre," 2018, https://www.ituc-csi.org/just-transition-centre.

[135] AFL-CIO, "Resolution 55: Climate Change, Energy and Union Jobs," accessed December 4, 2018, /resolutions/resolution-55-climate-change-energy-and-union-jobs.

of facility closure allows workers and communities time to prepare. Abruptly shutting down a facility without adequate notice can devastate local economies dependent on jobs and tax revenue from power plants or mines.[136] The Illinois Environmental Protection Agency (IEPA) should work with companies and utilities to broker advanced planning for facility closure with affected stakeholders. To achieve effective participation of state, industry, worker, and community representatives depends upon agreement as to the expected outcomes of negotiation, criteria for the meaningful engagement of all stakeholders, and fostering an appropriate forum for engagement. Monetary grants can enable participation of unions and community-based stakeholders. Financial resources could also be used to hire professional facilitators, translate materials into multiple languages, and provide resources for on-going consultation instead of one-time input gathering. Dedicated personnel within state government can also assist with outreach to participants to make sure meetings are well-attended and participants have the technical assistance needed to engage.

Best Practice: Early Stakeholder Engagement

In 2011, state officials, environmental organizations, labor, and business reached an agreement to close the Centralia Coal Plant in Washington state. Environmental groups had campaigned to close the plant by 2015 to reduce criteria pollutants and meet state greenhouse gas emission targets while the plant operator planned to maintain operations until 2025. In negotiations brokered by the Governor between environmental stakeholders and the company, the environmentalists advocated for workers at the plant and agreed to a compromise to close one coal boiler in 2020 and another in 2025. The 15-year phase out of the plant, during which time 40% of the workforce would retire, allowed workers an opportunity to find other forms of employment. The company also committed to putting $30 million into a community investment fund and $25 million into an energy-technology transition fund.

There exist numerous instances of power-generating facility closure across North America that model effective stakeholder engagement. In each case, securing a just transition for workers was a lengthy process that relied on years of relationship building, negotiations, and activism. Negotiating the coal phase-out in Alberta, Canada, the Diablo Canyon Nuclear Reactor phase-out in San Luis Obispo, California, and the closure of the Crawford and Fisk coal plants in Chicago were also lengthy processes.[137] In Chicago, the Little Village Environmental

[136] Dean Hubbard and Alejandra Núñez, "Just Transition" (The Clean Power Plan for All Collaborative, 2016), https://d3n8a8pro7vhmx.cloudfront.net/greenforall/pages/7020/attachments/original/1473442814/TOOLKIT_6_-_Just_Transition.pdf?1473442814; see also discussion of long-term impacts Megan Noe, "Illinois Community Still Struggling Nearly Two Decades after Nuclear Plant Closure," *WQAD* (blog), November 9, 2016, https://wqad.com/2016/11/09/illinois-community-still-struggling-nearly-two-decades-after-nuclear-plant-closure/.

[137] Alberta, "Support for Workers Affected by Coal Phase Out," 2018, https://www.alberta.ca/support-for-coal-workers.aspx; Alberta Federation of Labour and Coal Transition Coalition, "Getting It Right: A Just Transition Strategy for Alberta's Coal Workers," 2016, http://uswlocal1595.com/wp-content/uploads/2016/12/getting_it_right_lowres.pdf; Tom Dalzell, "Diablo Canyon: A Just Transition for Workers and the Environment," *Center for Labor Research and Education* (blog), November 30, 2018, http://laborcenter.berkeley.edu/diablo-

Justice Organization, Pilsen Environmental Rights and Reform Organization, and the Pilsen Alliance fought both to close the polluting coal plants in their neighborhoods and to be involved in redeveloping the sites.[138] The guiding principles for redevelopment of the Fisk and Crawford Re-Use Taskforce include a commitment that the industrial sites located in neighborhoods facing gentrification will not be converted to residential uses but rather uses that will create living wage jobs for community residents and enhance the ability of residents and businesses to live, work, and play in a healthy environment.[139] Unfortunately, following the subsequent bankruptcy and sale of Midwest Generation and its assets to New Jersey-based NRG Energy, these principles were not honored by the new property owners or the City of Chicago. Community residents in Little Village are now fighting Hilco Corporation and its proposed warehouse distribution facility on the Crawford site that will increase exposure to diesel pollution from truck traffic. This example demonstrates the need for ongoing leadership from all levels of government, especially municipal government, which should also consider ways to legally memorialize such redevelopment principles through local ordinances and zoning designations.

Elsewhere, legislative action has established the groundwork for these negotiations. In Minnesota, the Legislative Energy Commission required nuclear plant operators to include a worker transition plan in their annual report to the state's Public Utility Commission in the event of plant closure. Designed to be consistent with the collective bargaining agreements of the utility's unionized employees, in their 2016-2030 plan, Xcel Energy proposed four pathways for workers: (1) to stay with the utility in a similar position; (2) to stay with the utility in a different job or career path; (3) to retire; or (4) to leave utility employment.[140] Recognizing the collective bargaining agreement that establishes the terms and conditions of employment is crucial for workers who agree to a contract with the expectation of certain wages, benefits, and representation in negotiations with their employers.

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canyon-just-transition-workers-environment/; Mike Hodgson, "Governor Signs Legislation Authorizing Diablo Canyon Decommissioning Plan," *Santa Maria Times*, September 21, 2018, https://santamariatimes.com/news/local/governor-signs-legislation-authorizing-diablo-canyon-decommissioning-plan/article_7b04c8b5-6572-5f34-b566-3a8887ef7f88.html; Peter Miller, "Diablo Canyon Legislation Approved by California Senate," NRDC, May 30, 2018, https://www.nrdc.org/experts/peter-miller/diablo-canyon-legislation-approved-california-senate.

[138] Chris Bentley, "In Southwest Chicago, Environmental Groups Must Also Grapple With a Sluggish Economy," CityLab, December 9, 2014, http://www.citylab.com/politics/2014/12/in-chicagos-southwest-side-environmental-groups-grapple-with-a-sluggish-economy/383082/; Little Village Environmental Justice Organization, "Coal Plant Shutdown," accessed November 28, 2018, http://lvejo.org/our-accomplishments/coal-plant-shutdown/; PERRO, "Fisk Power Plant: Remediation and Redevelopment," 2012, http://pilsenperro.org/wp-content/uploads/Fisk_Generating_Station_Final_PERRO_Booklet_PRINT.pdf.

[139] Delta Institute, "Coal Plant Redevelopment Roadmap: A Guide for Communities in Transition," May 2018, 31, https://delta-institute.org/delta/wp-content/uploads/5-2-18-Coal-Redevelopment-Roadmap.pdf.

[140] Hubbard and Núñez, "Just Transition," 8.

While Federal and state governments have also provided assistance to affected workers and communities, the costs of energy transition should not be placed on impacted workers or communities that have already carried the greatest burden of dirty energy pollution. Mining and energy generation companies should be solely responsible for environmental clean-up and remediation costs and additionally contribute a significant portion of the financial costs needed to support impacted communities and workers. As government entities begin preparing now for energy transition, state governments should explore ways to equitably generate revenue from profitable energy corporations operating in their states that do not cause increased costs for consumers.

Most top producing coal states in the U.S. collect a severance fee on coal production. Such a fee can deliver millions of dollars to fund transition programs and have shown little impact on production. Of the top 25 top producing coal states, only Illinois, Texas and Pennsylvania have not adopted a coal severance fee. With only 15% of Illinois-mined coal used in-state, advocates in Illinois' Community Futures Initiative have pushed for such legislation in Springfield but the State Legislature has never moved the proposal, leaving millions of dollars on the table that could be reinvested in transition assistance programs for Illinois.

A comprehensive transition assistance program should assist workers with household expenses immediately following plant closure and help direct dislocated employees to new employment or retirement. The exact levels of funding, duration of assistance, and specific needs should be determined in conversation with unions, local governments, and other affected stakeholders.[141] Components of a transition assistance should account for :

- Extended unemployment insurance
- Access to healthcare and continued pension payments, including support for health and retirement fund security so that workers can receive the benefits that they have already earned;
- Job training, re-training, or education assistance;
- Additional income supplement or early pension options as part of a pathway to retirement for workers over 50;
- Career counseling services and job search and relocation stipends for dislocated workers;
- Remediation and redevelopment of Superfund, power plant, and abandoned mine lands sites;
- Local income tax replacement and grants and tax credits to incentivize economic redevelopment and diversification;
- Accountability mechanisms such as a citizens' oversight board.[142]

[141] Hubbard and Núñez, "Just Transition."

[142] For a broad discussion of transition assistance packages see: Jeremy Brecher, "Jobs Beyond Coal: A Manual for Communities, Workers, and Environmentalists" (Labor Network for Sustainability, 2012), http://report.labor4sustainability.org/coal_2012.pdf; Examples include: Alberta Federation of Labour and Coal Transition Coalition, "Getting It Right: A Just Transition

The first step of establishing such a just transition package is taking stock of who and where might be affected with the transition to a carbon-free power sector. Figure 4 below indicates that there are 23,362 employees directly employed in electric power generation, transmission, and distribution sectors in Illinois. While job creation in clean energy is far outpacing that of fossil fuel and nuclear power, the majority of Illinois' directly employed energy workers are in dirty energy, which still accounted for 93% of Illinois' net electricity generation in 2018.,[143] . Pre-qualifying current employees of extractive industries for assistance can prevent a lengthy application process and omission of eligible workers as seen in past instances of transition assistance programs for dislocated workers.[144]

Funding for certain programs, such as dislocated worker retraining, is available through WIOA. State efforts to decarbonize power generation to date in the U.S. have also authorized new funding sources to cover program needs from carbon fees or utility rate increases. It is important to note that the needs of workers will vary based on new opportunities that become available in clean energy development or through economic development opportunities.

Figure 4: Workers in the electric power generation, transmission, and distribution sectors in IL

Workers in the electric power generation, transmission, and distribution sectors		
Total	23,362	23,362

Strategy for Alberta's Coal Workers"; Harriet H. Christensen et al., "Northwest Forest Plan: Outcomes and Lessons Learned from the Northwest Economic Adjustment Initiative: Proceedings of a Forum; 1997 July 29-30; Portland, OR." (Pacific Northwest Research Station: United States Department of Agriculture, Forest Service, 1999), http://www.treesearch.fs.fed.us/pubs/2956; Dalzell, "Diablo Canyon"; Christopher E. DeForest, "Watershed Restoration, Jobs-in-the-Woods, and Community Assistance: Redwood National Park and the Northwest Forest Plan" (US, Dept. of Agriculture, Forest Service, Pacific Northwest Research Station, 1999), http://ir.library.oregonstate.edu/xmlui/handle/1957/5124; Delta Institute, "Transforming Coal Plants into Productive Community Assets," 2014, http://delta-institute.org/delta/wp-content/uploads/Coal-Plant-Overview-Report-10-21-14.pdf; Robert Pollin, "A Just Transition for U.S. Fossil Fuel Industry Workers," *The American Prospect*, July 6, 2016, http://prospect.org/article/just-transition-us-fossil-fuel-industry-workers; Laura Powers and Ann Markusen, "A Just Transition? Lessons from Defense Worker Adjustment in the 1990s" (Economic Policy Institute, April 1999).

[143] U.S. Energy Information Administration, "Illinois - State Energy Profile Analysis," April 19, 2018, https://www.eia.gov/state/analysis.php?sid=IL.

[144] Ronald D'Amico and Peter Z. Schochet, "The Evaluation of the Trade Adjustment Assistance Program: A Synthesis of Major Findings," Evaluation of the Trade Adjustment Assistance Program (Social Policy Research Associates and Mathematica Policy Research, Inc for The U.S. Department of Labor Employment and Training Administration, Office of Policy Development and Research, 2012), https://www.mathematica-mpr.com/~/media/publications/pdfs/labor/taa_synthesis.pdf.

Gender	Male	80%
	Female	20%
Race/Ethnicity	White	80%
	African-American	8%
	Latino/a	8%
	Other	4%
Education	Associate's Degree	13%
	Bachelor's Degree	23%
	Advanced Degree	10%
Age	Average	43.4 years
	Median	44 years
Income from Wages	Average	$86,521
	Median	$81,000

Recommendation 20:
Create a just transition fund to mitigate losses in local tax revenue and offer tax incentives for workforce development, site clean-up and reuse, and new business growth in communities affected by plant or mine

Executive director and co-founder of the philanthropic Just Transition Fund Heidi Binko explains that in coal communities of Appalachia, the Midwest, and the Mountain West, she sees that "[t]he underlying problem is the same — erosion of the tax base.... In both cases jobs are lost, but the significant economic impact is erosion of the tax base. In some places that could mean the community will lose 80 percent of its revenue."[145] The loss of tax revenue has knock on effects for school districts, the police force, and other local services.[146] New York state's just transition fund for local tax replacement is one innovative

[145] Kari Lyderson, "Midwest Communities Seek Help Bracing for More Coal Closures," US News & World Report, July 14, 2018, https://www.usnews.com/news/best-states/illinois/articles/2018-07-14/midwest-communities-seek-help-bracing-for-more-coal-closures.

[146] See discussion of the effects of extraction tax losses following the collapse of the coal industry in West Virginia in Sarah Jones, "The West Virginia Teachers' Strike Takes Aim at Coal and Gas," *The New Republic*, March 2, 2018, https://newrepublic.com/article/147266/west-virginia-teachers-strike-takes-aim-coal-gas.

example of how to stem the effects of local budget shortfalls as a result of state climate

Best Practice: Just Transition Fund for Community Economic Development

In 2015, New York state created a $45 million just transition fund. The fund was established following requests for state assistance from the "Huntley Alliance," a coalition of labor, environmental, and community-based stakeholders working to stem the effects of the closure of a coal-fired power plant in a suburb of Buffalo. The state offers seven years of "gap funding" for impacted communities to protect public services as other workforce and economic development initiatives take root.

policy.[147]

Summary

This report outlines and provides evidence for the most powerful best practices to support economic justice in the clean energy transition in Illinois. The recommendations focus on opportunities that can be addressed in state-level policy proposals.

Glossary

Apprenticeship Programs provide paid, on-the-job training and work experience as well as classroom instruction to prepare participants for a career in a particular trade. Apprenticeships last between three and five years during which time apprentices receive graduated pay increases tied to skill acquisition before graduating as a journey-level worker. There are many kinds of apprenticeships that can be employer, community college, or jointly-sponsored. Joint labor-management apprenticeships are funded in partnership between both a local union and the employers with whom it has a collective bargaining agreement. State- or federally-registered apprenticeship programs are regulated to ensure that apprentices complete minimum training requirements to master the occupational skills needed in a given trade. There are also standards requiring that apprenticeship programs graduate a certain percentage of their students.

Best-Value Contracting circumvents competition based on price and rewards bidder commitments to job access and job quality standards (and sometimes other community benefits) through a points-based system used to evaluate bids. These incentives are designed

[147] Lipsitz and Newberry, "Huntley, a Case Study: Building Strategic Alliances for Real Change"; Elizabeth McGowan, "Rising from the Ashes, a Buffalo Suburb Ends Its Dependence on Coal," *Grist* (blog), July 11, 2017, https://grist.org/justice/a-working-class-buffalo-suburb-retired-a-coal-plant-the-right-way/; Scott Waldman, "In Power-Plant Closure Fund, a Recognition of the Energy Grid's Future," *Politico PRO*, March 31, 2016, https://subscriber.politicopro.com/states/new-york/albany/story/2016/03/in-power-plant-closure-fund-a-recognition-of-the-energy-grids-future-032983.

before bidding begins to set the terms for scoring bids, awarding a contract, and monitoring compliance. Inclusive procurement should be part of the formula for awarding contracts.[148]

Community-Based Training Programs provide entry-level training and are most often run by organizations with deep ties in a particular community or with a particular population. Community-based training programs are especially important in recruiting and training under-represented or disadvantaged groups, such as women, workers of color, immigrants, formerly incarcerated, and low-income workers. These programs are not subject to the intensive certification to ensure quality for apprenticeship and may vary greatly in skills taught and in job placements made upon graduation.

Community Benefits Agreement (CBA) is a contract between community-based organizations and develops to require specific amenities as part of a large construction project. CBAs often include a project labor agreement with specific goals for the targeted hire of local residents as apprentices, journey-level workers, or staff following the facility's completion. This governs not only worksite expectations but also the relationship between the contracted company and the rest of the community. CBAs may stipulate investment that benefits workers or residents living within a certain distance from the project site, such as affordable housing, green space provision, pollution reduction, support for pre-apprenticeship programs, investment into public amenities, profit-sharing, and community ownership of the project.[149] These agreements change the "development paradigm" and harness development to invest in community amenities and bring benefits and opportunities to a community.[150]

Contractor Prequalification requires a contractor to meet certain criteria before submitting a bid for public projects such as proving certificates of liability insurance or workers' compensation insurance, the payment of health and retirement benefits, compliance with a state-level prevailing wage act or payment of local prevailing wages, and a willingness to meet an apprenticeship requirement. Other common characteristics require contractors to identify prior contract performance, debarments, or previous labor violations, respond to a questionnaire or submit an official statement for the public record, and include a safety requirement or rating system.[151]

Demand-Driven Training is based on thorough assessments of workforce labor openings and expected future labor needs to ensure that training participants will be able to find gainful,

[148] Fairchild and Rose, "Inclusive Procurement And Contracting: Building a Field of Policy and Practice," 31.

[149] The CBA between the City of Richmond, California and Chevron regarding updates to a local refinery called for $3 million annual investment into local greenhouse gas reduction programs. See: Chevron Refinery Modernization Project Environmental and Community Investment Agreement between City of Richmond, California and Chevron Products Company. (no date). City of Richmond, California, http://www.ci.richmond.ca.us/DocumentCenter/View/36095.

[150] Partnership For Working Families, "Community Benefits 101," 2015, http://www.forworkingfamilies.org/page/community-benefits-101.

[151] Zabin et al., "Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities."

continued employment in their fields upon graduation. Demand-driven training is the central pillar of building pipelines into careers by aligning training with current and future industry needs. Union apprenticeship programs are one example of programs driven by the demands of the market – the more jobs there are for skilled union workers, the more new apprentices unions will accept and train. This model helps ensure that individuals who invest time in their skill development and training and employers who support them will see a return on their investment.

Disadvantaged Business Enterprises (DBE) are majority owned and operated by individuals in a protected category, including people of color, women, veterans, or people with disabilities. Companies and local governments often set criteria for the utilization of DBEs, which may be subdivided into minority-owned (MBE), women-owned (WBE), or veteran-owned business enterprises (VBE).

First Source Hiring agreements put graduates of pre-apprenticeship programs at the front of the line for a registered apprenticeship program, meaning that when apprenticeship opportunities open, the first source of applicants will be graduates of quality pre-apprenticeship programs. **Direct Entry** agreements are less common, but advance graduates of pre-apprenticeship programs directly into apprenticeships when openings arise. Joint apprenticeship training committees are more willing to make these agreements when they know that the graduates of a pre-apprenticeship training program have the skills, resources, and support network needed to succeed in apprenticeship. Direct entry/first source hiring may cut down on the wait time between when a worker graduates from a pre-apprenticeship program and can begin an apprenticeship. Apprenticeship programs can also provide other application benefits to partner training programs that may include an interview guarantee, granting points in the application for completion of a pre-apprenticeship program, or moving graduates of pre-apprenticeship programs ahead in a waitlist.[152]

Multi-Craft Core Curriculum (MC3) is a comprehensive pre-apprenticeship training curriculum that has received support from industry, government, and labor partners.[153] The curriculum is taught in partnership with Building Trades unions to introduce participants to the range of skilled trade jobs that exist and the possibilities of a career in the trades. Programs can add to the MC3 as needed to address specific interests or needs of their target population, such as improving math skills or introducing participants to clean energy technologies.

Pre-apprenticeship Programs are based around high-road training partnerships between employers, labor unions, and community-based organizations recruit and prepare participants to enter an apprenticeship, community college, or employment. Some community-based training programs might be organized as pre-apprenticeship programs, but many are not. Quality programs provide a range of individualized services to ensure that workers facing high barriers to employment have the skills and resources needed to succeed in an apprenticeship program. To meet the needs of a diversifying workforce, pre-apprenticeship programs

[152] Nichols and Sofer, "Getting Started with Pre-Apprenticeship: Partners," 3; ApprenticeshipUSA, "Advancing Apprenticeship as A Workforce Strategy: An Assessment and Planning Tool for the Public Workforce System."

[153] North American Building Trades Unions, "The Building Trades' Multi-Craft Core Curriculum: A Guide for Students and Parents."

incorporate a range of soft skill, adult education, and trade-specific training, in addition to wrap around services that may include specific career and industry awareness workshops, comportment and professional development courses, English for speakers of other languages, Adult Basic Education, financial literacy seminars, math tutoring, physical fitness training, provision of tools and safety equipment, and/or helping workers access child care, transportation (including driver's license application, renewal, or reinstatement), and/or legal aide. While the term "pre-apprenticeship" may seem over prescriptive, not all graduates of pre-apprenticeship programs go into apprenticeships. Some participants discover they do not enjoy the work and others find employment as a result of the training, while some apply to and enter apprenticeships.

Prevailing Wage is a local minimum wage for different types of skilled construction work on public works projects that is based on what workers actually earn in a community. Typically, rates are ascertained in annual surveys of both workers and contractors, who submit certified payroll records. The main purpose of a prevailing wage law is to promote local market-based standards in the competitive public bidding process. By including wages, fringe benefits, and apprenticeship training contributions by job classification *where the work is performed*, prevailing wage levels the playing field for local contractors. Because prevailing wage ensures that public expenditures reflect local market standards for compensation and craftmanship, it promotes investment in apprenticeship training programs and prevents skilled workforce shortages.

Project Labor Agreement (PLA) is a pre-hire agreement covering all crafts on a large, complex, and long-term construction project in order to establish comprehensive employment terms and worksite conditions for construction projects. A PLA is a "job-site constitution" that establishes safe working conditions and rules, project accountability, and protocols for resolving labor disputes without resorting to stoppages such as strikes or lockouts. The purpose of a PLA is to promote stability through uniform compensation and work rules and to boost productivity by including "no strike" provisions. PLAs help ensure that projects are completed on-time and on-budget. A PLA may also sometimes be referred to as a **Community Workforce Agreement (CWA)**.

Responsible Bidder Ordinance (RBO) is a policy that sets minimal requirements for all contractors bidding on publicly-funded projects in a given political jurisdiction. Typically, these requirements include proof of participation in an apprenticeship training program, proof of certificates of insurance, prequalification surveys, and compliance with all local, state, and federal laws. An RBO is a qualifications-based approach to construction contracting for public entities. The policy is a kind of "insurance policy" for taxpayers, acknowledging that governments should consider benefits, quality, and value in addition to cost. An RBO establishes clear, objective standards that contractors must meet in order to win bids on projects funded by taxpayers. By working within the low-bid system to provide the highest possible quality at the lowest possible cost, RBOs ensure that governments hire only professional, competent contractors that complete projects safely, on time, and on budget.

Appendix I: Relative Salaries in Solar and Wind Power Sectors

Employee compensation in Illinois' wind and solar power sector trails comparable sectors. Figure 2 presents information from the 2016 *County Business Patterns* dataset from the U.S. Census Bureau. In 2016, there were 21 business establishments engaged in either wind electric power generation or solar electric power generation. These private entities employed 290 total workers and had a total payroll cost– including all forms of compensation, such as salaries, wages, bonuses, and employee retirement contributions– of $25.0 million over the year. Accordingly, the average payroll cost (i.e., total compensation) was about $86,000 per employee. Note that this includes both white-collar professionals and blue-collar operations workers.

By contrast, average employee compensation was nearly $103,000 in the fossil fuel electric power generation sector, about $94,000 at natural gas distribution establishments, and just under $100,000 in heavy and civil engineering construction such as highway and bridge construction, power line construction, and oil and gas pipeline construction. In general, workers are paid between 9% and 19% more in traditional energy industries than they are in the wind and solar energy sector. By adopting prevailing wage standards, clean energy companies would attract, develop, and retain experienced and skilled workers– who currently are more likely to be employed at their high-carbon competitors.

Figure 5: Employee Compensation in Illinois Wind and Solar Electric Power Generation vs. Similar Sectors, 2016

Industry	Establishments	Paid Employees	Annual Payroll	Employees Per Establishment	Payroll Per Employee	Compensation Difference
Wind and solar electric power generation	**21**	**290**	**$25,018,000**	**13.8**	**$86,269**	**--**
Fossil fuel electric power generation	40	2,378	$244,462,000	59.5	$102,802	**+19.2%**
Natural gas distribution	83	5,436	$511,252,000	65.5	$94,049	**+9.0%**
Heavy and civil engineering construction	1,378	24,405	$2,431,678,000	17.7	$99,639	**+15.5%**
● *Oil and gas pipeline and related structures construction*	● *38*	● *2,168*	● *$191,845,000*	● *57.1*	● *$88,489*	● **+2.6%**
● *Power and communication line and related structures construction*	● *190*	● *7,602*	● *$686,003,000*	● *40.0*	● *$90,240*	● **+4.6%**
● *Highway, street, and bridge construction*	● *431*	● *6,528*	● *$870,336,000*	● *15.1*	● *$133,324*	● **+54.5%**

*Source: 2016 County Business Patterns (CBP), U.S. Census Bureau: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

Figure 5 uses a different dataset, the May 2017 *Occupation Employment Statistics* (OES) from the Bureau of Labor Statistics (BLS), to look specifically at blue-collar construction workers in Illinois' electric power generation, transmission, and distribution sector. As a result, this analysis includes fossil fuel power generation and other dirtier energy sources with the wind and solar electric power generation sector. Nevertheless, the BLS data show that construction and extraction workers earn a median wage of $34.84 per hour in Illinois' electric power generation sector. While this is a good middle-class wage, their counterparts in natural gas distribution earn 12% more per hour ($38.99) and the median construction and extraction worker in the heavy and civil engineering construction sector earns 9% more ($38.03). Once again, it is clear that employees are earning less in clean energy jobs than they are in comparable high-carbon jobs. To be competitive in the labor market for productive, highly-trained construction and extraction workers, it is recommended that firms in the wind and solar power industry adopt prevailing wage standards.

Figure 6: Employment and Wages of Construction and Extraction Occupations in Illinois by Sector, May 2017

Industry	Employment	Average Hourly Wage	Wage Difference	Median Hourly Wage	Wage Difference
Electric power generation, transmission, and distribution	**450**	**$32.85**	--	**$34.84**	--
Natural gas distribution	200	$35.01	+6.6%	$38.99	+11.9%
Heavy and civil engineering construction	17,010	$35.60	+8.4%	$38.03	+9.2%
● *Power and communication line and related structures construction*	● 2,720	● *$37.93*	● *+15.5%*	● *$38.69*	● *+11.1%*
● *Highway, street, and bridge construction*	● 8,780	● *$35.33*	● *+7.5%*	● *$37.73*	● *+8.3%*

*Source: May 2017 Occupational Employment Statistics (OES), Bureau of Labor Statistics (BLS) at the U.S. Department of Labor: https://www.bls.gov/oes/current/oes_research_estimates.htm

Figure 6 uses yet another data source, the 2012 *Economic Census* by the U.S. Census Bureau, to investigate labor costs across the United States. Research has found that labor costs are a low and historically declining percentage of total costs in the construction industry. While the *Economic Census* includes both wage and fringe benefits data for construction and breaks the industry down into blue-collar construction workers and white-collar employees, it does not provide this level of detail for other sectors such as wind and solar electric power generation.[154] Accordingly, the only metric available to compare labor costs is to divide total annual payroll by total revenue. For the United States in 2012, this metric reveals that payroll cost accounted for just 11% of total revenue in the wind and solar electric power generation sector. Labor costs are 10% of revenue for the fossil fuel electric power generation sector, 7% for the natural gas distribution sector, and about 21% for the heavy and civil engineering construction sector.

The key takeaway is that construction labor– which is only a portion of the overall workforce– accounts for a very small share of the total operating cost of wind and solar electric power generation companies. Thus, including prevailing wage standards would only have a marginal impact on the bottom line of clean energy companies. Moreover, because prevailing wage standards increase apprenticeship training, boost worker productivity, reduce workplace

[154] U.S. Census Bureau, "2012 Economic Census."

injuries, and encourage materials and equipment cost efficiencies, they would not have a discernible impact on total costs in the clean power industry.

Figure 7: Labor Costs in the U.S. Wind and Solar Electric Power Generation Sector vs. Similar Sectors, 2012[155]

Industry	Establishments	Revenue or Value of Business Done	Annual Payroll	Payroll Cost Share
Wind and solar electric power generation	**546**	**$5,485,838,000**	**$628,148,000**	**11.5%**
Fossil fuel electric power generation	1,416	$81,473,633,000	$7,997,908,000	9.8%
Natural gas distribution	2,419	$89,568,130,000	$6,681,677,000	7.5%
Heavy and civil engineering construction	32,619	$256,314,687,000	$54,713,628,000	21.3%
● *Oil and gas pipeline and related structures construction*	● *2,101*	● *$41,452,362,000*	● *$10,808,120,000*	● *26.1%*
● *Power and communication line and related structures construction*	● *5,707*	● *$44,410,158,000*	● *12,315,651,000*	● *27.7%*
● *Highway, street, and bridge construction*	● *8,854*	● *$99,289,053,000*	● *$16,997,750,000*	● *17.1%*

[155] U.S. Census Bureau.

Appendix II: Responsible Bidder Ordinances

Responsible Bidder Ordinances are a powerful tool to require contractors to adhere to certain workforce development criteria. There are hundreds of responsible contracting policies in at least 20 states, including over 90 in Illinois.[156] The most common characteristics of RBOs include an apprenticeship requirement, certificates of insurance such as liability insurance or workers' compensation insurance, the payment of health and retirement benefits, and compliance with a state-level prevailing wage act or payment of local prevailing wages. Many RBOs and similar policies apply to subcontractors or require bidders to submit a list of their subcontractors at the time of the letting. Other common characteristics require contractors to identify prior contract performance, debarments, or previous labor violations, respond to a questionnaire or submit an official statement for the public record, and include a safety requirement or rating system. Importantly, many of the recommendations included in this report would pre-empt the need for RBOs on clean energy projects such as including RECs, energy efficiency monies, and other public supports for clean energy as "public works" under Illinois code so that prevailing wage applies. This standard will already preclude many contractors that fail to meet important labor standards.

Nevertheless, RBOs are an important part of the Illinois construction and procurement landscape. There are 82 local RBOs in Illinois including 23 in counties or townships (28% of total), 48 in cities, towns, and villages (59% of total); and 11 are in other jurisdictions (13% of total) – such as school districts or park districts. Of these Ordinances, 63% have contract thresholds with a median threshold of $20,000. A contract threshold is the minimum cost of a public project at which point it is covered under the Responsible Bidder Ordinance or other responsible contracting policy. A lower contract threshold indicates that more taxpayer-funded projects are covered by the responsible contracting standards. A threshold of $0 indicates that all projects in the jurisdiction are subject to the lowest responsible bidder requirements.

Responsible bidder ordinances improve infrastructure quality and boost worker skills and earnings at no additional cost to taxpayers. Research on construction owners in the United States and United Kingdom has found that while only 60%-70% of all construction owners are satisfied with their construction performance, 98% of construction owners using a qualifications-based procurement model report to being satisfied with project quality.[157] In addition, public works construction workers in Indiana counties with RBOs earn 8% more and are more likely to participate in U.S. Department of Labor-approved apprenticeship training

[156] Responsible Bidder Ordinances are also known as Responsible Contractor Policies (RCPs), Responsible Contracting Requirements (RCRs), and can also be included as part of Community Workforce Agreements (CWAs). For list of those in Illinois see: Indiana-Illinois-Iowa Foundation for Fair Contracting, "Illinois Ordinances," 2018, https://iiiffc.org/resource-category/illinois-ordinances/.

[157] D. Kashiwagi et al., "Is Performance Based Procurement a Solution to Construction Performance?" (11th Joint CIB International Symposium – Combining Forces - Advancing Facilities Management and Construction through Innovation, Helsinki, 2005), http://nrl.northumbria.ac.uk/32145/.

programs than their counterparts without local RBOs,[158] contributing to important co-benefits of worker training through public investment. Because infrastructure quality and worker skills improve, RBOs have no statistical impact on total project costs. A peer-reviewed, academic study investigating the bid costs of over 300 elementary schools in Ohio from 1997 to 2008 and found that responsible contracting policies "exert no discernible statistical impact on construction bid costs" after controlling for geographic location.[159] The authors conclude that responsible bidding "may be an effective way to improve employment conditions and living standards of construction workers without significantly raising costs."[160]

[158] Frank Manzo and Jill Manzo, "Responsible Bidder Ordinances Promote Local Construction Standards: Evidence from Indiana" (Midwest Economic Policy Institute, May 22, 2018), https://midwestepi.files.wordpress.com/2018/05/mepi-responsible-bidder-ordinances-report-final1.pdf.

[159] C. Jeffrey Waddoups and David C. May, "Do Responsible Contractor Policies Increase Construction Bid Costs?," *Industrial Relations: A Journal of Economy and Society* 53, no. 2 (April 2014): 273, https://doi.org/10.1111/irel.12056.

[160] Waddoups and May, 290.

Notes