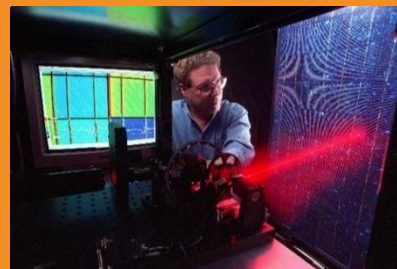




Office of ENERGY EFFICIENCY  
& RENEWABLE ENERGY

SOLAR ENERGY TECHNOLOGIES OFFICE



# Advancing an Equitable Solar Workforce

August 16, 2022

*Solar Energy Technologies Office (SETO)*

*U.S. Department of Energy (DOE)*

[energy.gov/solar-office](https://energy.gov/solar-office)

# Webinar Logistics

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**Please mute your phones and we will begin momentarily**

Time	Title	Presenter(s)
1:00 PM	Welcome	<b>Nicole Steele</b> , <i>Workforce and Equitable Access Program Manager, DOE Solar Energy Technologies Office (SETO)</i>
1:05 PM	Opening Remarks	<b>Jahi Wise</b> , <i>Special Assistant to the President for Climate Policy and Finance, White House Office of Domestic Climate Policy</i> <b>Betony Jones</b> , <i>Director, DOE Office of Energy Jobs</i> <b>Andrew Ridgeway</b> , <i>Division Director, Registered Apprenticeship and Policy, U.S. Department of Labor Office of Apprenticeship</i>
1:20 PM	SETO Workforce Goals and Program Updates	<b>Nicole Steele</b> , <i>Workforce and Equitable Access Program Manager, DOE SETO</i> <b>Sarah Wilder</b> , <i>Workforce Program Analyst, DOE SETO</i> <b>Tomiwa Olufolabi</b> , <i>Fellow, DOE SETO</i> <b>Andrew Graves</b> , <i>Technology Manager, DOE SETO</i>
1:35 PM	Solar Industry Update: Workforce Needs and DEIA Efforts	<b>Erika Symmonds</b> , <i>Vice President, Workforce and Equity, Solar Energy Industries Association (SEIA)</i>
1:55 PM	Benefits of Working with Labor Unions and How to Get Started	<b>Amy Peterson</b> , <i>Senior Advisor, Industry Relations, DOE Loan Programs Office</i> <b>Steve Crum</b> , <i>International Representative, International Brotherhood of Electrical Workers (IBEW), Fourth District</i> <b>Jon Rosenberger</b> , <i>Business Development Representative, IBEW</i>
2:25 PM	Conclusion	<b>Nicole Steele</b> , <i>Workforce and Equitable Access Program Manager, DOE SETO</i>

# Opening Remarks

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## Jahi Wise

*Special Assistant to the President for Climate  
Policy and Finance*

*White House Office of Domestic Climate Policy*

# Opening Remarks

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## Betony Jones

*Director, DOE Office of Energy Jobs*

# Opening Remarks

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## Andrew Ridgeway

*Division Director, Registered Apprenticeship  
and Policy*

*U.S. Department of Labor Office of  
Apprenticeship*

# Workforce Development is Critical To SETO's Mission

SETO's mission is to **accelerate the deployment of solar technology** in support of an **equitable transition to a decarbonized economy** no later than 2050, starting with a decarbonized power sector by 2035.



SETO's workforce activities enable the accelerated deployment of solar technologies, while advancing priorities around equity, job quality, and union participation.

# SETO Workforce Team

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**Nicole Steele**

*Workforce and  
Equitable Access  
Program Manager*



**Sarah Wilder**

*Workforce Program  
Analyst*



**Tomiwa Olufolabi**

*Science and Technology  
Policy Fellow*



**Andrew Graves**

*Technology Manager*



# SETO Workforce Goals and Priorities

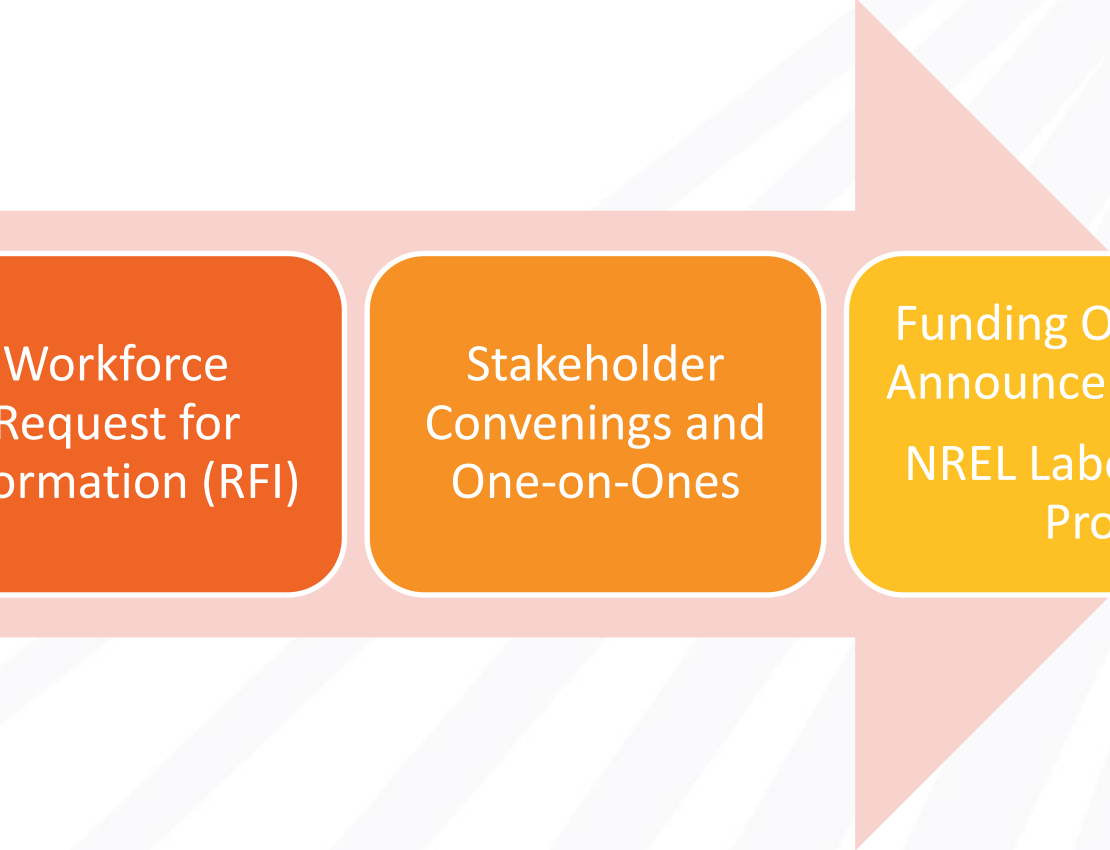
**Workforce Program Goal:** Enable the continued growth of the solar industry by supporting workforce programs that foster a **well-trained and inclusive workforce** with **opportunities for career advancement**, including through union membership.

## Workforce Program Priorities:

<b>Demand-Driven</b>	Align employers and training providers to ensure training and career pathways for the skills and jobs that are most in-demand
<b>Worker-Centered</b>	Support quality jobs that provide family-sustaining wages, affordable benefits, safe working conditions, and agency and respect for workers
<b>Equity-Focused</b>	Foster inclusive economic opportunities and ensure participation of under-represented workers and disadvantaged communities

# SETO Workforce Stakeholder Engagement

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Workforce  
Request for  
Information (RFI)

Stakeholder  
Convenings and  
One-on-Ones

Funding Opportunity  
Announcement (FOA)  
NREL Labor Analysis  
Project

# SETO FY22 Workforce Funding Opportunity Announcement (FOA)

The **Advancing Equity through Workforce Partnerships FOA** will advance the goals of the Biden Administration by supporting workforce programs that enable the growth of the solar industry, while fostering an inclusive workforce and improving job quality.



FOA Issue	July 27, 2022
Informational Webinar	August 4, 2022
<b>Mandatory Letters of Intent</b>	<b>September 13, 2022</b>
Concept Papers Due	September 20, 2022
Full Applications	December 6, 2022
Replies to Comments	January 26, 2023
Selection Notifications	Late February 2023

Total Funding	\$10 M
Number of awards	8-16
Award Size	\$250k - 1.5M
Award Period	24-36 months

# FOA Topic Description

- **Areas of Interest Include:**

- Pre-apprenticeship/apprenticeship programs
- Community-led training partnerships
- Clean energy sector partnerships

- **Key Elements of a Successful Application:**

- Multi-stakeholder teams
- Demand-driven and worker-centric
- Leverages existing infrastructure and resources
- Sustainable and replicable
- Equity focused

## **Designed to Support Opportunities for:**

- Disadvantaged or LMI communities
- Communities of Color
- Tribal communities
- Young people with disadvantaged backgrounds
- Previously incarcerated individuals
- Transitioning fossil fuel communities
- Rural communities
- People with disabilities
- Women

➤ All questions on the FOA should be submitted to:

**[seto.workforceFOA22@ee.doe.gov](mailto:seto.workforceFOA22@ee.doe.gov)**

# NREL Workforce Analysis Project

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- In the RFI and convenings, both industry and labor representatives indicated they would welcome DOE **analysis on the costs and benefits of using unionized labor for solar deployment**
- SETO initiated a project with the National Renewable Energy Laboratory (NREL) to assess impacts of labor structure, union participation, and prevailing wage on:
  - Solar installation costs, deployment timelines, and system performance
  - Socio-economic well-being of industry workforce

## July 2022

- Complete literature review
- Establish Advisory Committee with solar industry, labor unions, training providers, and other experts



## August 2022-August 2023

- Implement analysis that integrates modeled outputs using NREL tools and regional case studies



## September 2023

- Publish full report
- Host public webinar

# Solar Industry Update: Workforce Needs and DEIA Efforts

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## Erika Symmonds

*Vice President of Equity and  
Workforce Development*

*Solar Energy Industries Association*



# SEIA Perspective: Industry Needs

Advancing an Equitable  
Solar Workforce

June 16, 2022



*Powering the Solar+ Decade*



# About SEIA

*Building a strong solar industry to power America*



Federal, State &  
Local Policy



Climate &  
Equity



Managing  
Growth



Trade, Technology  
& Manufacturing





**Manufacturers, Suppliers  
& Distributors**



**Contractors  
& Installers**

**SEIA represents hundreds of solar companies across the value chain in all 50 states**



**Project Developers  
& EPCs**

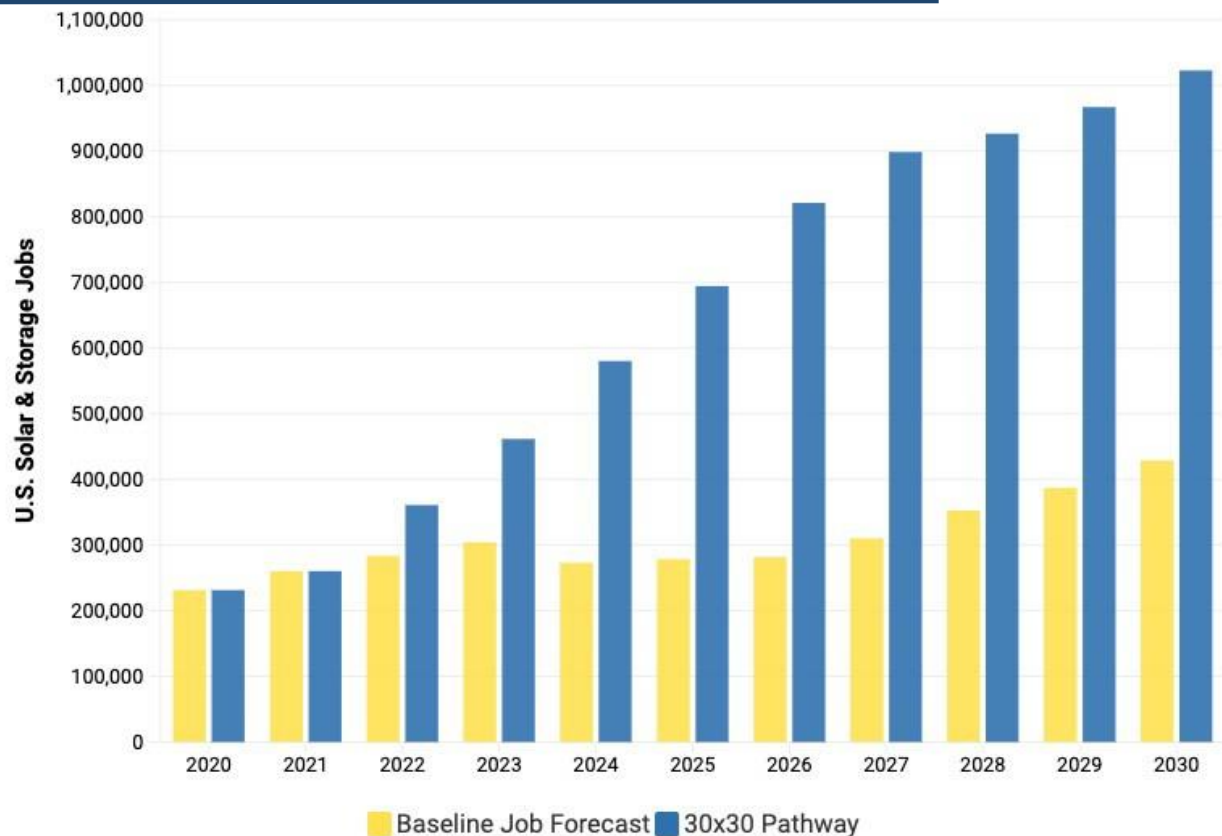


**Service Providers, Non-  
Profits & Others**

# Unprecedented Job Growth on the Horizon

## SEIA's Solar+ Decade Vision:

For solar to reach 30% of electricity generation by 2030, the solar and storage industries' **workforce will need to grow rapidly** (at least triple) in order to keep pace with the industry's growth.



# Key Solar Workforce Statistics

- 255,037 solar workers in 2021, a 9.2% increase from 231,474 workers in 2020
- 89% percent of solar employers reported difficulty finding qualified applicants in 2021
- Less than 1/3<sup>rd</sup> of entry-level solar jobs (31%) require a bachelor's degree; Less than 20% require previous experience.
- 10.1% of solar workers are unionized, above the national average and comparable with similar construction trades
- Wages for solar workers are similar to, or higher than, wages for U.S. workers in similar occupations



# Inflation Reduction Act Highlights

- Investment Tax Credit (ITC) extended at 30% through 2032 and then a step down.
- Prevailing wage and apprenticeship requirements for full tax credits on projects over 1 MW.
- Additional tax credits by meeting domestic content requirements or investing in underserved areas.
- New credits for standalone energy storage and domestic manufacturing.
- Domestic production incentives will create 40,000 direct solar manufacturing jobs by the end of the decade, more than doubling today's solar manufacturing workforce.

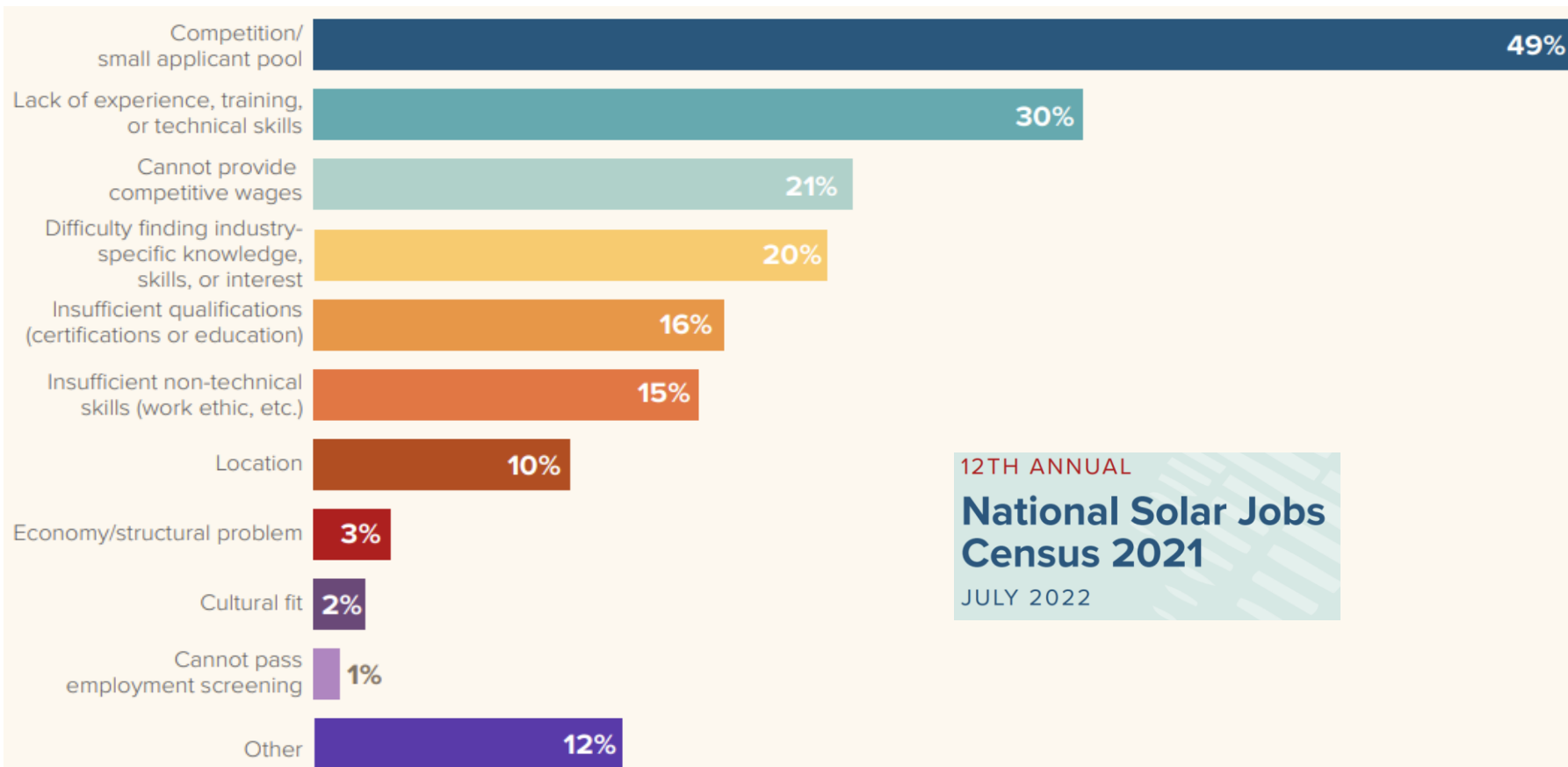




# Apprentice and Training Needs to Reach 2030 Goal

- Solar employers **need more options** to build a consistent pipeline of trained workers to meet the solar demand.
- Partnerships with union shops, non-union shops and workforce organizations are needed.
- The greatest need will be for **solar installers, O&M technicians, electricians, and general construction staff** - this is achievable with apprenticeship programs and technical training.
- SEIA sees opportunities for medium and longer-term development of occupation programs, education, training, pre-apprenticeships and apprenticeships to continue to grow the workforce.

# Reasons for Difficulty Hiring at Solar Companies





# Member Feedback: Residential

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- We need workers with basic construction skills who are not afraid to work on a roof. We can teach the rest in-house.
- Not clear if unions are interested in working with rooftop solar contractors.
- Journey-level electricians often are not trained specifically in rooftop solar and most are not interested climbing up on a roof to install solar panels.
- Compensation for installers should be determined based on compensation for roles with job duties-- Financially impractical to pay journey-level electrician/licensed electrician wages for installer work.

# Member Feedback: Utility-Scale

- Want to prepare to take full advantage of new clean energy tax credits that require a percentage of construction related labor hours to be performed by registered apprentices
- Many states don't have strong union infrastructure, especially in more rural areas. How can we find apprentices and talent overall in these communities?
- In certain regions where union presence is not strong, we experience stakeholder tension on the topic of using traveling union labor versus using local labor.
- There is not a standardized job task analysis for utility-scale solar installers (i.e. nothing like NABCEP), and there is not a standardized curriculum.





# Member Feedback on Workforce Challenges – Both Residential & Utility-Scale

- Installer/laborer roles are hard to find trained talent for. Need more tools to help us attract, train and retain talent, especially for construction/field roles.
- Shortage of electricians who are experienced with, available for, and interested in working in solar.
- Need pipeline of local/regional talent to keep up with hiring needs as we grow rapidly.
- Need high quality, standardized training for installers to ensure consistent and safe project outcomes.



# What Factors Impact Workforce Needs?

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- ❖ COMPANY TYPE
- ❖ LOCATION
- ❖ TYPE OF PROJECT(S)
- ❖ LABOR AGREEMENTS
- ❖ COMMUNITY BENEFIT AGREEMENTS
- ❖ IN-HOUSE STAFF CAPACITY
- ❖ LOCAL PIPELINE OF TRAINED WORKERS
- ❖ IN-HOUSE TRAINING SYSTEMS AND CAPACITY
- ❖ PROJECT TIMING
- ❖ FUNDING/INCENTIVE DETERMINED LABOR REQUIREMENTS
- ❖ CROSS INDUSTRY COMPETITION FOR WORKFORCE
- ❖ WORK CONDITIONS
- ❖ RETENTION
- ❖ COMPENSATION AND BENEFITS
- ❖ POPULATION DENSITY
- ❖ INDUSTRY AWARENESS
- ❖ TRADE UNION PRECENCE
- ❖ WORKER EXPERIENCE
- ❖ TRAINING/EDUCATION AVAILABILITY AND ALIGNMENT

With the variety of factors that impact workforce needs, we will need a variety of solutions!

# U.S. Solar Workforce Demographics, 2019 - 2021

- Demographic makeup of solar industry largely unchanged from 2020.
- Much work to do to reflect the diversity of the overall workforce and provide more equitable and inclusive work experiences.
- Women just under 30% of solar employees in 2021, (47% of overall U.S. workforce).
- Black employees at 8% of the solar workforce in 2021 (12% of national workforce).
- Hispanic or Latino workers at 20% of the solar workforce compared to 18% nationwide.

	2019 % of Workforce	2020 % of Workforce	2021 % of Workforce	2021 Jobs
Women	26.0%	29.9%	29.6%	75,491
Hispanic or Latino	17.2%	19.6%	19.8%	50,497
American Indian or Alaska Native	1.2%	1.2%	1.2%	3,060
Asian	8.5%	9.2%	9.2%	23,463
Black or African American	7.7%	7.9%	8.2%	20,913
Native Hawaiian or other Pacific Islander	1.2%	1.3%	1.3%	3,315
White	73.2%	67.9%	72.0%	183,626
Two or more races	8.2%	8.7%	8.2%	20,913
Veterans	7.6%	8.7%	7.9%	20,148
55 and over	10.4%	11.4%	10.9%	27,799
Represented by a Union	-	-	10.1%	25,759

Source: National Solar Jobs Census 2021



“We won’t just naturally get a more diverse [and equitable] clean energy workforce. It is going to require active [long-lasting] effort.” -- Mark Muro



## Diversity Best Practices Guide for the Solar Industry

A recent study by the Brookings Institution puts into context what is at play and why it's important. The study concludes that employment in low-carbon energy fields is better-paid than average jobs and is widely available to workers without college degrees. These jobs are “dominated” by men and some lack racial diversity, the study finds.

“This is a very accessible blue/green collar sector in many respects — widely distributed in both red and blue places, accessible to an inordinate number of people who don’t have a college degree, and a genuine opportunity for all kinds of workers,” co-author Mark Muro said.

But Muro, an expert in industrial transitions told Axios: “We won’t just naturally get a more diverse clean energy workforce. It is going to require active effort.”

## EEOC Shines Spotlight on Discrimination and Opportunities in Construction

### Agency Examines Mistreatment of Women and People of Color in Construction

Press Release  
05-17-2022

WASHINGTON -- The U.S. Equal Employment Opportunity Commission (EEOC) today held a hearing which examined the **severe and pervasive discrimination in the construction sector, especially against women and people of color**. It also examined how to expand opportunities for historically marginalized workers in the industry.

"Melissa Wells, special assistant to the president for diversity and inclusion of North America's Building Trades Union (NABTU), said, "I'm sure we can agree that **the responsibility to increase diversity in construction is shared by all stakeholders in the industry – from the C suite to the jobsite**. NABTU and our 14 affiliates are changing lives. We are doing our part, and we will continue to lead the way in fostering a truly diverse building trades future."

"Janel Bailey, co-executive director of organizing and programs of the Los Angeles Black Workers Center, said, "It isn't mysterious that the EEOC called for a hearing regarding the trades specifically. **The current situation didn't fall from the sky**. This is the result of exclusive policies that have shaped the cultures of the industries and their unions. **The good news is that we can choose to move away from that legacy, and it must be in partnership with Black workers and other workers who have been left out.**"

"Dr. Trevor Griffey, lecturer in U.S. History at the University of California at Irvine, said, "The history of attempts to desegregate skilled construction trades demonstrates that there's more to the desegregation of an industry than simply being hired: **workplace culture also has to change**. Today, as the federal government is substantially reinvesting in U.S. infrastructure projects, is an important time to revisit the lessons of this history to ensure that federal government spending continues the work of providing equal opportunity for all workers."

Source: <https://www.eeoc.gov/newsroom/eeoc-shines-spotlight-discrimination-and-opportunities-construction>



POWER 52

HOMEBOY  
INDUSTRIES

Red Cloud  
Renewable  
Energy Center

Efforts exist  
-AND-  
More are needed.

WOMEN IN  
SOLAR  
(VARIOUS)

GRID  
ALTERNATIVES

ELEVATE ENERGY

DOL Apprenticeship  
Inclusion Model  
Demonstration  
Projects

Chicago Women  
In the Trades

Environmental  
Justice  
Ambassador  
Fellowship

Supplier Diversity  
Programs

Company and  
industry level DEI  
Training and  
Campaigns

# ALL of us are needed



# Benefits of Working with Labor Unions and How to Get Started

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**Amy Peterson**

*Senior Advisor, Industry Relations  
DOE Loan Programs Office*



**Steve Crum**

*International Representative  
International Brotherhood of  
Electrical Workers  
Fourth District*

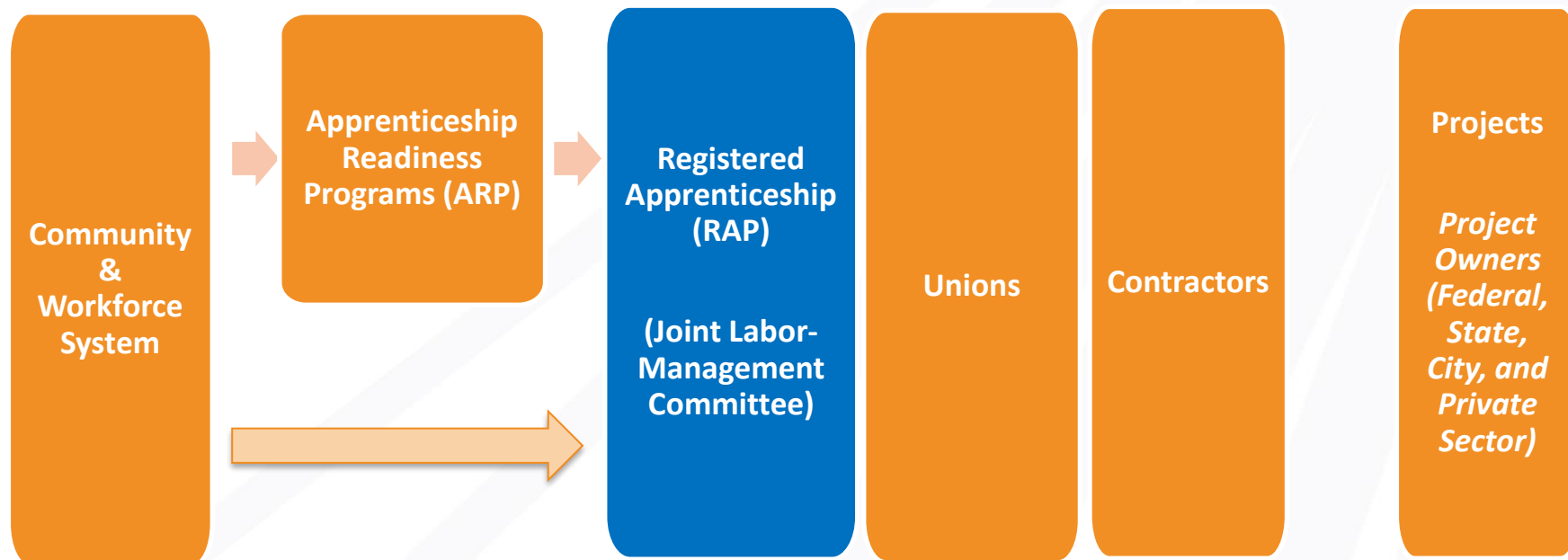


**Jon Rosenberger**

*Business Development  
Representative  
International Brotherhood of  
Electrical Workers*



# Community Partnerships to Expand Skilled Workforce



# Benefits to Partnering with Labor

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## Registered Apprenticeship Programs

- North America's Building Trades Unions' (NABTU) affiliated craft unions have 1,650 joint labor-management apprentice training committees across the U.S.
- Apprentices - NABTU's affiliated craft unions have 200,000 plus apprentices across the U.S.
- Since 2017, NABTU's affiliated unions and partner contractors registered an average of 75,000 new apprentices annually

# Benefits to Partnering with Labor

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- High quality, consistent training - NABTU affiliates' national guideline standards for registered apprenticeship means that an electrician or laborer hired in Nebraska has received the same high-quality training as an electrician hired in California. This gives contractors uniformity and consistency in the workforce.

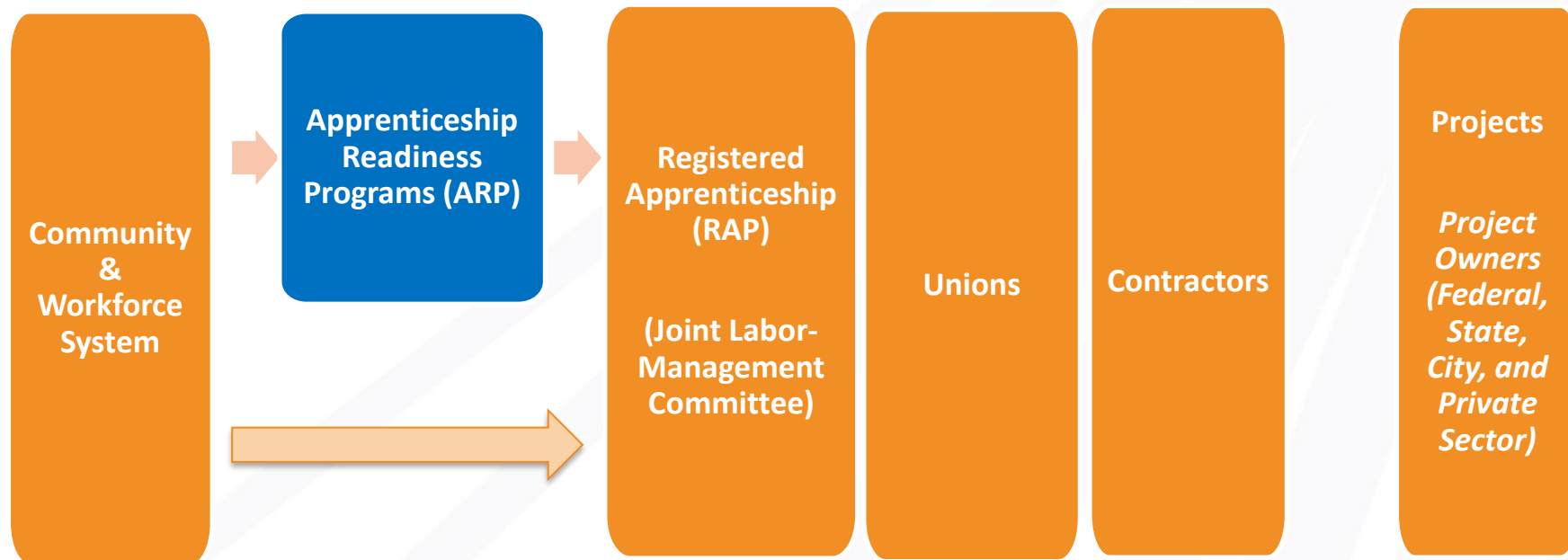
# Benefits to Partnering with Labor

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## Access to skilled workers at every level

- Sufficient supply of skilled workers to complete the project efficiently
- Helps address any expected skilled labor shortage in the area
- Skilled workers when you want them, with flexibility during slow seasons
- Improved workmanship
- Certainty around costs of wages and benefits
- HR support, including portable benefits for workers

# Community Partnerships to Expand Skilled Workforce



# Benefits to Partnering with Labor

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## Apprenticeship Readiness Programs

- Proven model to prioritize community hiring, equity, and inclusion
- 200 Apprenticeship Readiness Programs in 29 States across the U.S.
- NABTU's nationally recognized Multi-Craft Core Curriculum (MC3)
  - since 2017, 12,000 men and women completed MC3 programs
    - 78% communities of color (79.5% in 2021)
    - 22% women (24% in 2021)
- Opportunities for veterans - Helmets to Hardhats
  - 36,000 veterans placed into Registered Apprenticeship

# Community Partnerships to Expand Skilled Workforce

## COMMUNITY WORKFORCE AGREEMENT

Community  
&  
Workforce  
System

Apprenticeship  
Readiness  
Programs (ARP)

## PROJECT LABOR AGREEMENT (PLA)

Registered  
Apprenticeship  
(RAP)

(Joint Labor-  
Management  
Committee)

Unions

Contractors

Projects

*Project  
Owners  
(Federal,  
State,  
City, and  
Private  
Sector)*

# Benefits to Partnering with Labor

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- Ensure labor harmony, avoid workplace tension when union and non-union employees work side-by-side, avoid work stoppages
- Coordination of multiple trades on a project
- Safety and quality
- Improved compliance with prevailing wage requirements



# Ways to expand access to skilled labor

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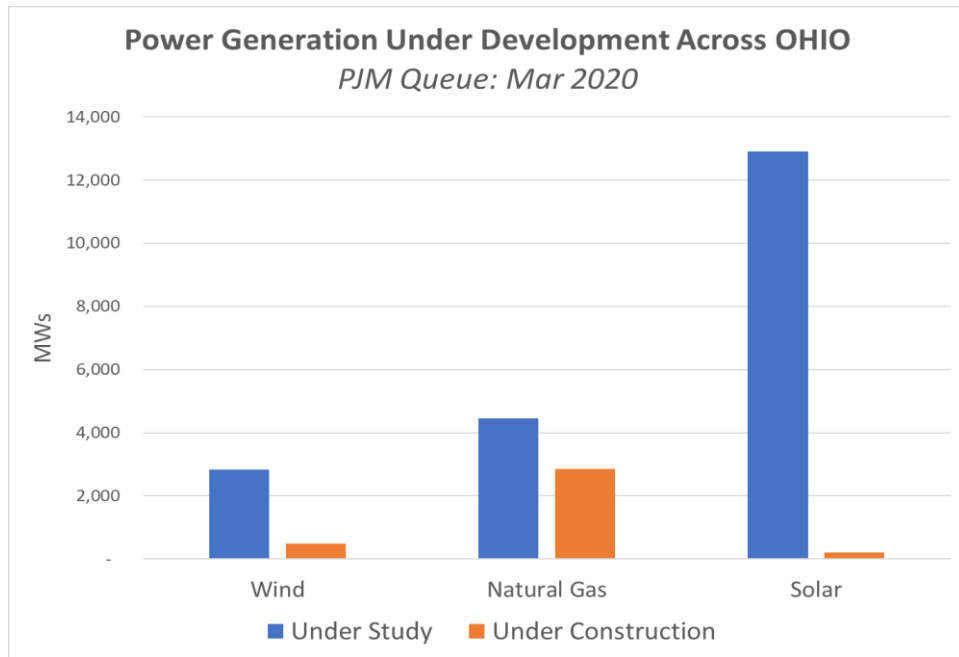
- Negotiate a Collective Bargaining Agreement
- Join a Contractor Association such as National Electrical Contractor Association (NECA) with an existing collective bargaining agreement
- Project Labor Agreement (PLA) – sign on to an existing PLA or negotiate a new PLA

# How it can work – Two examples

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- IBEW Ohio
- New York City Housing Recovery

# Utility Scale Solar Potential in Ohio



- Significant potential for utility scale solar growth
- Ohio's PILOT Statute requires 80% Ohio-domiciled workers
- Solar farm construction can launch a career for IBEW members

- IBEW is the largest energy union in the world
- 775,000 active members and retirees across the US and Canada working in utilities, construction, telecom, broadcasting, manufacturing and government
- 20,000 workers across Ohio
- Politically active at the local, state and federal levels of government
- Strong relationships with Ohio utilities and other key stakeholders

# Ohio Training Centers



**Training Center Locations:** Toledo, Lima, Cleveland, Youngstown, Dayton, Lorain, Cincinnati, Steubenville, Akron, Canton, Warren, Portsmouth, Hamilton, Painesville, Columbus, Mansfield, Marietta, Zanesville and Wheeling and Huntington, WV.

# Modernizing the IBEW for Ohio Solar

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- IBEW partnership with EPC contractors building solar across the U.S.
- IBEW's NEW Ohio Solar Agreement
  - New classification for IBEW membership
  - Lower-cost staffing solution
- An Ohio Example
  - Data Centers
  - JobsOhio Partnership/Job Fairs

# NYC Hurricane Sandy Housing Recovery



## Need for more contractors

- Wage floor provided level playing field and opportunity for more contractors

## Need for jobs for impacted community

- Interest in creating jobs for Sandy impacted residents + training
- Call for apprenticeship from the community

# NYC Hurricane Sandy Housing Recovery

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- PLA
  - Used existing Residential PLA + Sandy rider
  - Established wages above minimum wage
  - Ability for union and non-union contractors to bid
  - Increased access to workers within union workforce for all contractors – union and non-union



# NYC Hurricane Sandy Housing Recovery

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- Apprenticeship Readiness Program funding
- Recruitment directly in communities in partnership with local Workforce System
- Encourage hiring of 20% Sandy impacted residents



# What does each party want to know?

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## Labor

- What are the jobs
- What is the work
- How much work is there
- Time frame
- Where is the work
- Work schedule
- How are workers scheduled and sent to job sites
- Wages – pay and benefit schedules

## Contractors

- Availability of workers
- How do you get access to workers
- What if worker is not acceptable
- Wages – pay and benefit schedules
- Community hiring opportunities
- How does my existing workforce get integrated? Ratio of workers
- What about foremen/supervision?
- Need to sign onto union for all work or just covered work?

# Terms to Negotiate

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- Composite crews
- Apprentice ratios
- Working forepersons
- Uniform job conditions, such as start-times, workday, workweek and work rules, for all contractors and subcontractors on the project
- How (or if) “core employees” (i.e., employees who have previously worked for the contractor for a specified period of time) can be used for the project
- Contributions to the health and welfare benefits funds
- Alternate Dispute Resolution Processes
- Each contractor and subcontractor is required to sign the PLA or a Letter of Assent

# How to Start

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- Set up a meeting!
- Tour a Training Center
- Reach out to the local Contractor Association such as the local NECA chapter
- Reach out to the local unions
- Start with an MOU
- Project Labor Agreements
  - Sign on to an existing one
    - Letter of Assent
  - Negotiate a Project Labor Agreement

# Resources

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- [Using the NMA | NMAPC](#)
- [3-26-18-Guidelines-for-Negotiating-PLAs combined.pdf \(nabtu.org\)](#)
- [The Dos and Don'ts of Negotiating a PLA - NYS Building Trades Council](#)
- [https://nabtu.org/apprenticeship-and-training/apprenticeship-readiness-programs/](#)

# Questions?

# Thank you for joining!

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- Submit Workforce FOA mandatory letters of intent by **Sep 13**
  - Concept papers due Sep 20
- Stay tuned for future DOE/DOL collaborative webinars on workforce topics, including Inflation Reduction Act labor provisions
- View all upcoming SETO events at [energy.gov/seto-events](https://energy.gov/seto-events)



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& RENEWABLE ENERGY

SOLAR ENERGY TECHNOLOGIES OFFICE

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