

# Solar Workforce Development in Wisconsin

## *Status and MREA 'Solar Ready Wisconsin' Initiative*



**Nick Hyla, Executive Director**  
**Midwest Renewable Energy Association**  
*Powering Local Leadership Summit, 1/24/19*



- **Founded in 1990**
- **3,000 members**
- **Offices in Custer, Milwaukee, and Minneapolis**
- **Professional Training**
- **Consumer Education**
- **PV Technical Assistance**
- **The Energy Fair**





# SOLAR GROUP BUY SUCCESS!

Since 2013, we've been helping communities go solar through Group Buy "Solarize" programs.

## Bring solar to your community!

Submit a community application to bring a Solar Group Buy to your neighborhood.  
[midwestrenew.org/solargroupbuy](http://midwestrenew.org/solargroupbuy)

- **22 Solar Group Buys** have been facilitated with Midwest community partners since 2013.
- **6,000 people** learned about going solar at "Solar Power Hour" information sessions.
- **7 Megawatts** of clean solar energy have been contracted through the programs.
- **1,000+ properties** have gone solar!



## OUR 2018 PROGRAMS TARGETED EIGHT MIDWEST COMMUNITIES

### WISCONSIN

- **Sauk County**  
448 kW on 67 properties
- **Jefferson County**  
139 kW on 18 properties
- **Central WI 2.0**  
223 kW on 40 properties  
Supported by Community Foundation of Central WI

### ILLINOIS

- **Metro East**  
480 kW on 47 properties
- **Urbana-Champaign 3.0**  
481 kW on 40 properties
- **Bloomington-Normal 2.0**  
424 kW on 31 properties

### IOWA

- **Johnson County**  
1155 kW on 181 properties

*"We thought it's a great opportunity to take advantage of expert guidance and bring this solar opportunity to Johnson County."*

- Becky Soglin, Johnson County Sustainability Coordinator

### MINNESOTA

- **Twin Cities**  
100.8 kW on 14 properties  
Supported by CERTs Seed Grant



## **GOLD DESIGNATIONS**

Johnson County, IA  
City of Eau Claire, WI  
City of Wisconsin  
Rapids, WI



## **SILVER DESIGNATIONS**

City of Ashland, WI  
Ashland County, WI



## **BRONZE DESIGNATIONS**

City of Bayfield, WI  
Bayfield County, WI



# TRAINING CATALOG

MOVING RENEWABLE ENERGY EDUCATION FORWARD SINCE 1990.



FEATURING:

- CLASSROOM & ONLINE TRAINING OPTIONS
- NABCEP PV ASSOCIATE TRAINING
- NEW COURSES
- CONTINUING EDUCATION
- THE 30<sup>TH</sup> ANNIVERSARY ENERGY FAIR
- AND MORE!

## 1,172 STUDENTS

received renewable  
energy training with  
MREA from July  
2017 to November  
2018.



## 119



Students took our classroom and hands-on lab courses offered at our headquarters in Custer, WI and at industry events across the U.S.



## 495



Students took online courses, offering a convenient way to break into the clean energy workforce and build upon current credentials. Courses range from novice to expert.



## 58



Students participated in our 2018 Solar Training Academy from January - March 2018. Held in five Midwest locations and spanning four states, students learn from a series of weekend classes preparing them for careers in the solar industry.



## 500



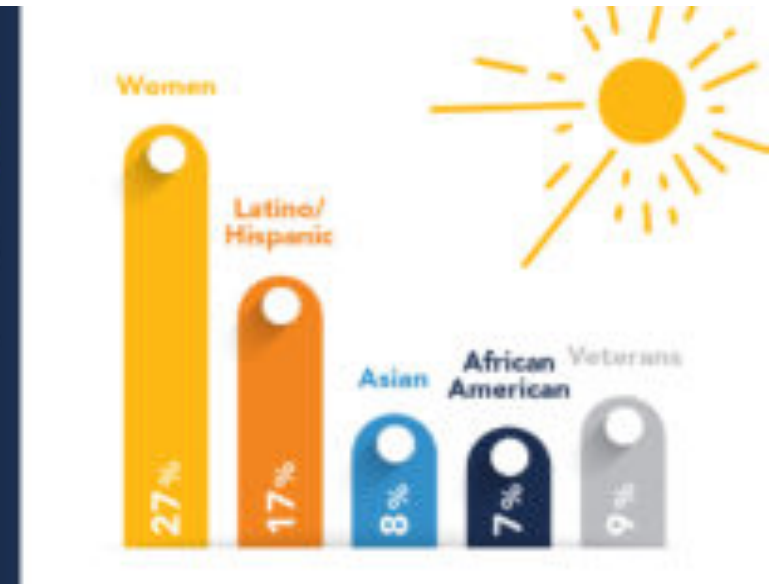
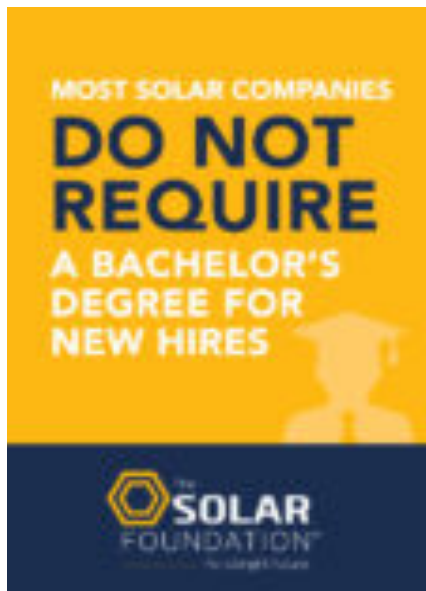
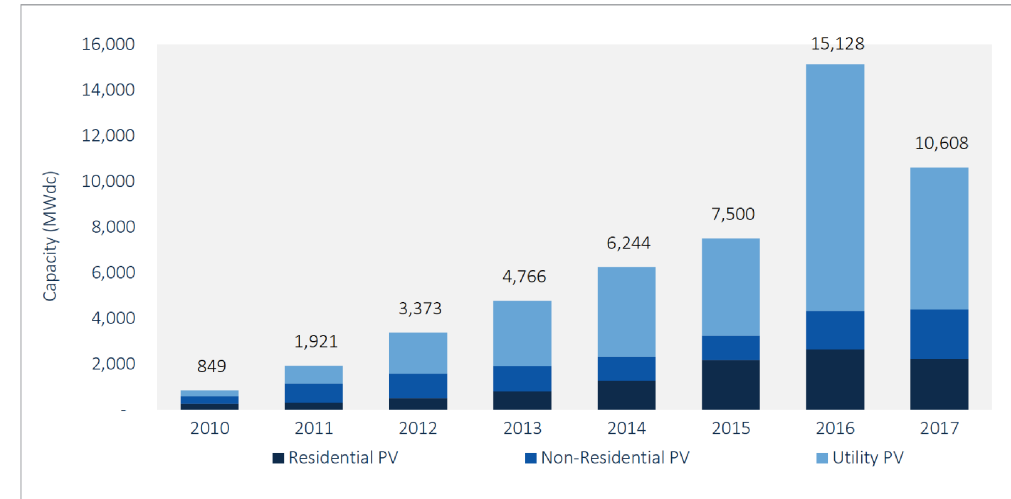
Students participated in customized solar training through a total of 14 business and educational partners. MREA provides curriculum based on each group's needs.



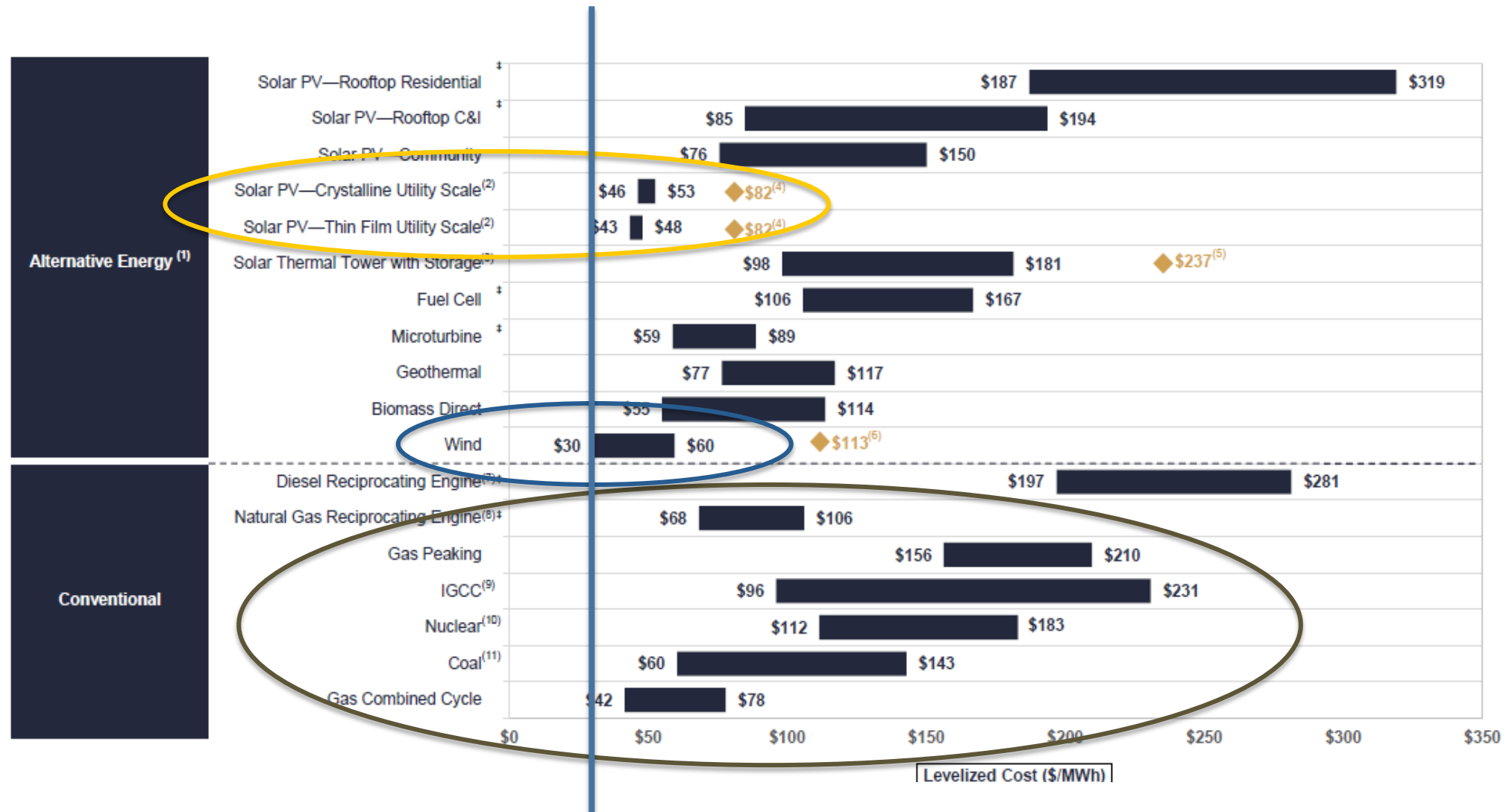
# Solar Workforce Development: A National View



Figure 1.1 U.S. Annual PV Installations, 2010-2017



# PV and Wind Are Winning on Price



Source: Lazard. LCOE Analysis Version 11.0, November, 2017

# Planned for WI...

- >7GW proposed
- 69% PV
- 20% Wind
- 9% Gas
- 2% Battery Storage

89 % of all new electricity generation in WI will be solar and wind.

MISO QUEUE - Wisconsin, April 2018

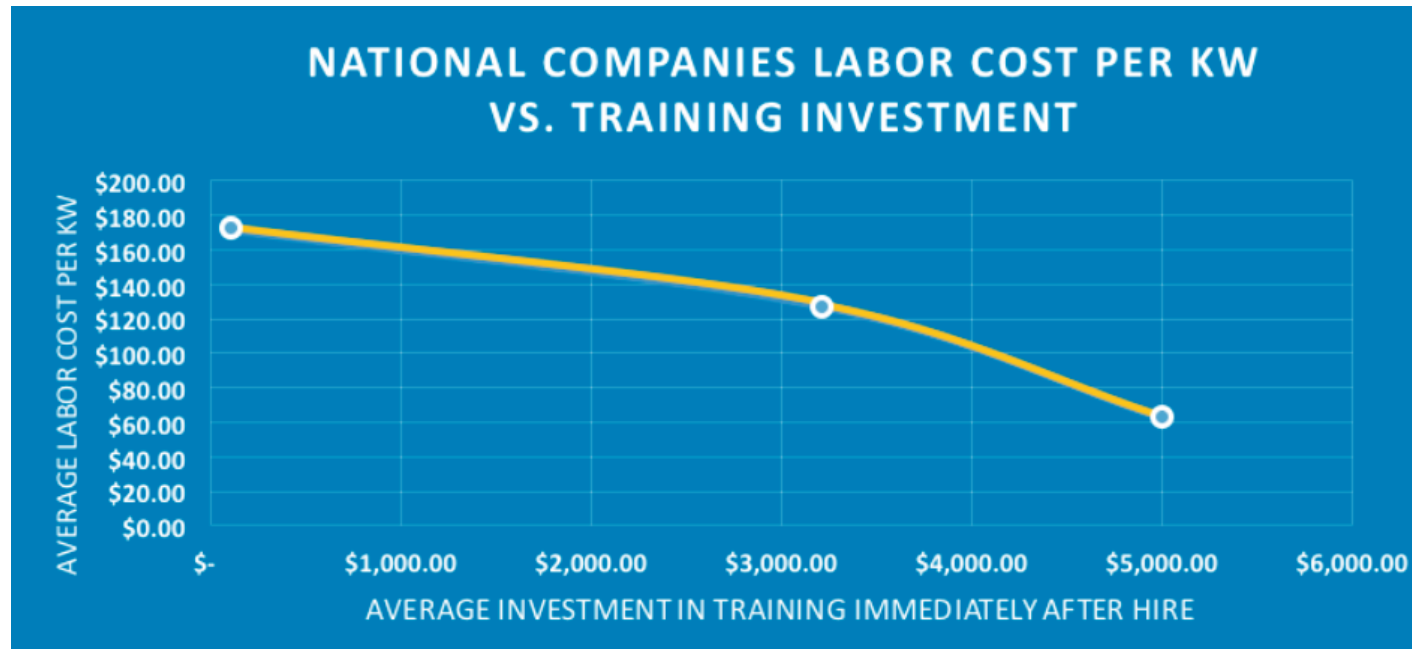
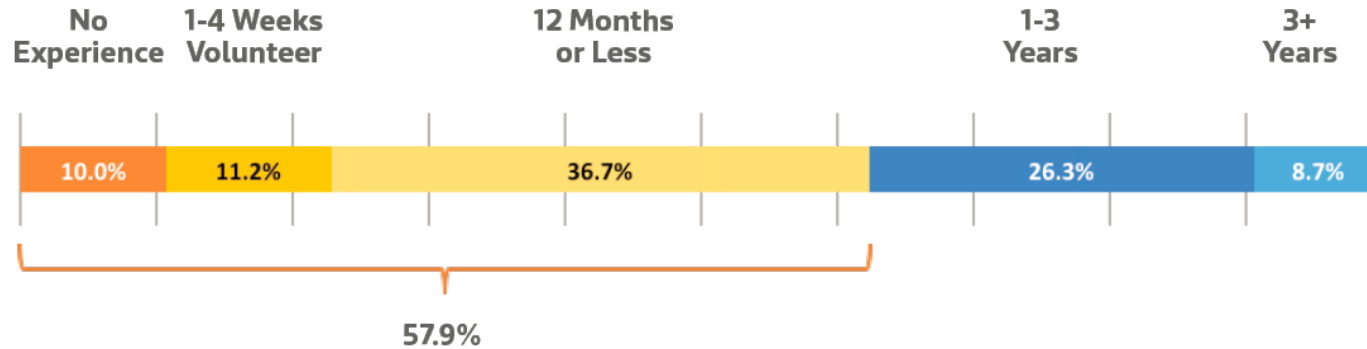
#	Queue Date	In Service	Transmission Owner	County	POI Name	Winter MW	Fuel
J1003	3/12/2018	#####	American Transmission Co. LLC	Dodge County	North Beaver Dam 69kV Sub 698222	50.00	Solar
J1171	3/12/2018	8/1/2020	American Transmission Co. LLC	Dodge County	Butternut 138 kV Substation	100.00	Solar
J1000	3/12/2018	#####	American Transmission Co. LLC	Grant County	Nelson Dewey 138kV Switchyard - 699020	50.00	Solar
J947	6/16/2017	#####	American Transmission Co. LLC	Grant County	Potosi - Hillman 138kV Line	200.00	Solar
J870	6/16/2017	#####	American Transmission Co. LLC	Grant County, Iowa County	Eden 138kV Substation	200.00	Solar
J871	6/16/2017	#####	American Transmission Co. LLC	Grant County, Iowa County	Eden 138kV Substation	100.00	Solar
J1127	3/12/2018	1/2/2021	American Transmission Co. LLC	Green County	Albany - Bass Creek 138 kV Line Tap	49.90	Solar
J1053	3/12/2018	#####	American Transmission Co. LLC	Jefferson County	Concord SW YD 138 kV Substation	300.00	Solar
J1154	3/12/2018	4/1/2021	American Transmission Co. LLC	Jefferson County	Jefferson 138 kV Substation	200.00	Solar
J818	6/16/2017	9/1/2019	American Transmission Co. LLC	Jefferson County	Jefferson 138kV Substation	149.00	Solar
J1160	3/12/2018	#####	American Transmission Co. LLC	Jefferson County	Lakehead Cambridge 138 kV Substation	100.23	Solar
J878	6/16/2017	#####	American Transmission Co. LLC	Kenosha County	Paris 138kV Substation	200.00	Solar
J1010	3/12/2018	9/1/2020	American Transmission Co. LLC	Kenosha County, Racine County	Arcadian - Zion 345kV Line - 699247-270942	400.00	Solar
J1011	3/12/2018	9/1/2020	American Transmission Co. LLC	Kenosha County, Racine County	Arcadian - Zion 345kV Line - 699247-270942	400.00	Solar
J1009	3/12/2018	9/1/2020	American Transmission Co. LLC	Kenosha County, Racine County	Pleasant Prairie - Racine 345kV Line- 699432-6	400.00	Solar
J505	11/13/2015	5/1/2021	American Transmission Co. LLC	Manitowoc County	138kV Mishicot-Kewaunee line	99.00	Solar
J886	6/16/2017	#####	American Transmission Co. LLC	Manitowoc County	Kewaunee 138 kV Substation	150.00	Solar
J1121	3/12/2018	9/1/2020	American Transmission Co. LLC	Marathon County	Stone Lake - (Pershing) - Gardner Park 345 kV	200.00	Solar
J801	6/16/2017	9/1/2019	Northern States Power (Xcel Energy)	Pierce County	Crystal Cave 161kV Substation	74.00	Solar
J864	6/16/2017	9/1/2019	American Transmission Co. LLC	Richland County	Lone Rock 69kV Substation	49.98	Solar
J1129	3/12/2018	1/2/2021	American Transmission Co. LLC	Rock County	Paddock - Townline Rd 138 kV Line Tap	65.00	Solar
J850	6/16/2017	#####	American Transmission Co. LLC	Rock County	RCEC La Prairie - RCEC Bradford 138kV Line	250.00	Solar
J1188	3/12/2018	#####	American Transmission Co. LLC	Rock County	Sheepskin 69 kV Substation	50.00	Solar
J1092	3/12/2018	#####	Xcel Energy	Saint Croix County	Three Lakes 115 kV Substation	100.00	Solar
J1153	3/12/2018	4/1/2021	American Transmission Co. LLC	Sheboygan County	Holland 138 kV Substation	150.00	Solar
J1044	3/12/2018	9/1/2020	American Transmission Co. LLC	Walworth County	North Lake Geneva - North Lake Geneva Tap -	200.00	Solar
J1047	3/12/2018	9/1/2020	American Transmission Co. LLC	Walworth County	North Lake Geneva - North Lake Geneva Tap -	200.00	Solar
J1042	3/9/2018	9/1/2020	American Transmission Co. LLC	Walworth County	North Lake Geneva 138kV Substation	200.00	Solar
J798	6/16/2017	9/1/2019	American Transmission Co. LLC	Walworth County	University - Mukwanago UNIG52 Line Tap	124.00	Solar
J1002	3/12/2018	#####	American Transmission Co. LLC	Waushara County	Wautoma 138kV Switchyard 699235	99.00	Solar
Solar Total:						4,910.11	68.96%
J814	6/16/2017	#####	Northern States Power (Xcel Energy)	Clark County	Eau Claire - Arpin 345kV Line	99.90	Wind
J855	6/16/2017	8/1/2019	American Transmission Co. LLC	Grant County, Iowa County	Lancaster - Eden 138 kV Line Tap	100.00	Wind
J584	5/9/2016	#####	American Transmission Co. LLC	Green County	Blacksmith Tap - Spring Grove 69kV Line	60.00	Wind
J825	6/16/2017	#####	American Transmission Co. LLC	Green County	North Monroe - Albany 138kV Line	99.90	Wind
J712	9/9/2016	#####	American Transmission Co. LLC	Iowa County	Hill Valley 138kV Substation	200.00	Wind
J652	7/5/2016	9/1/2018	American Transmission Co. LLC	Lafayette County	Darlington - Hillman 138kV	98.00	Wind
J807	6/16/2017	#####	American Transmission Co. LLC	Lafayette County	Darlington - Hillman 138kV Line (Falcon Substa	41.40	Wind
J819	6/16/2017	#####	American Transmission Co. LLC	Lafayette County	Darlington 138kV Substation	99.90	Wind
J657	7/8/2016	9/1/2019	American Transmission Co. LLC	Manitowoc County	Kewaunee - Shoto 138kV Line (at the existing f	100.80	Wind
J821	6/16/2017	#####	American Transmission Co. LLC	Marathon County	Stratford 115 kV Substation	99.90	Wind
J1085	3/12/2018	9/1/2020	American Transmission Co. LLC	Marathon County, Taylor County	Gardner Park - J821 POI - Stone Lake 345 kV Li	300.00	Wind
J926	6/16/2017	9/1/2019	Northern States Power (Xcel Energy)	Saint Croix County	Pine Lake - Apple River 161 kV Line	101.28	Wind
Wind Total:						1,401.08	19.68%
J732	6/16/2017	6/8/2021	American Transmission Co. LLC	Douglas County	Arrowhead - Stone Lake 345kV Line	561.50	Combined Cycl
J831	6/16/2017	#####	American Transmission Co. LLC	Ozaukee County	Port Washington Generating Switchyard 138 k	48.00	Combined Cycl
J760	11/14/2016	4/8/2019	American Transmission Co. LLC	Rock County	New Kitty Hawk 345kV substation	30.00	CT Combustion Turbine (Simple Cycle)
Gas Total:						639.50	8.98%
J1051	3/12/2018	#####	American Transmission Co. LLC	Jefferson County	Concord 161kV Substation	50.00	Battery Storage
J1101	3/12/2018	9/1/2020	American Transmission Co. LLC	Manitowoc County	Kewaunee 138kV Substation	20.00	Battery Storage
J1104	3/12/2018	9/1/2020	American Transmission Co. LLC	Washington, Waushara County	Germantown Power Plant 138kV Substation	100.00	Battery Storage
Battery Total:						170.00	2.39%

Total Proposed Generation: 7,120.69 100.00%



# Solar Workforce Development: A National View

## LEVEL OF EXPERIENCE EXPECTED FOR ENTRY-LEVEL CANDIDATES



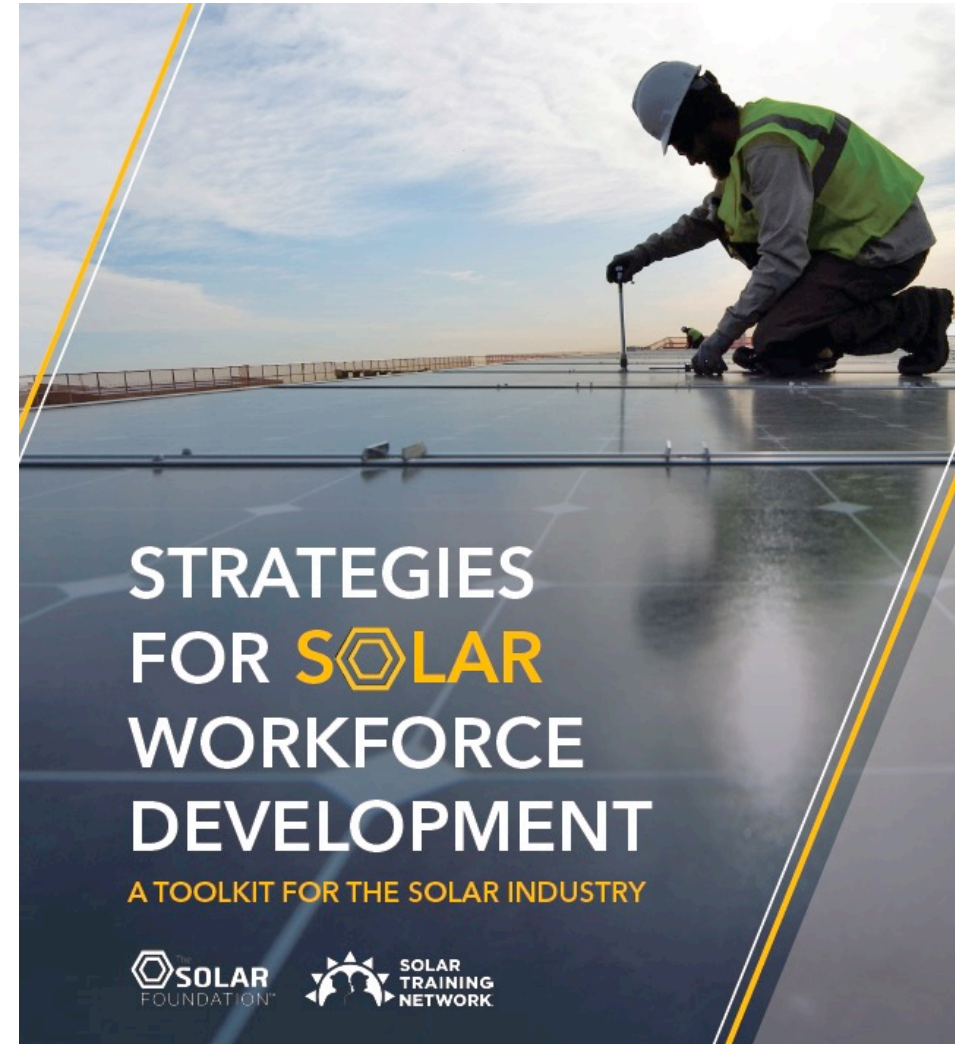
<https://www.americansolarworkforce.org/>

The cover of the 2017 Solar Training and Hiring Insights report. It features a background image of a person wearing a hard hat and safety vest, holding a solar panel. The text includes the year '2017', the logo for 'The SOLAR FOUNDATION™ for a bright future', the title 'SOLAR TRAINING AND HIRING INSIGHTS', and the subtitle 'A Solar Training Network Research Report'. At the bottom, it features the 'SOLAR TRAINING NETWORK' logo with the tagline 'POSITIVE CONNECTIONS. POWERFUL CAREERS.' and the 'SunShot' logo, 'Powered by U.S. Department of Energy'.

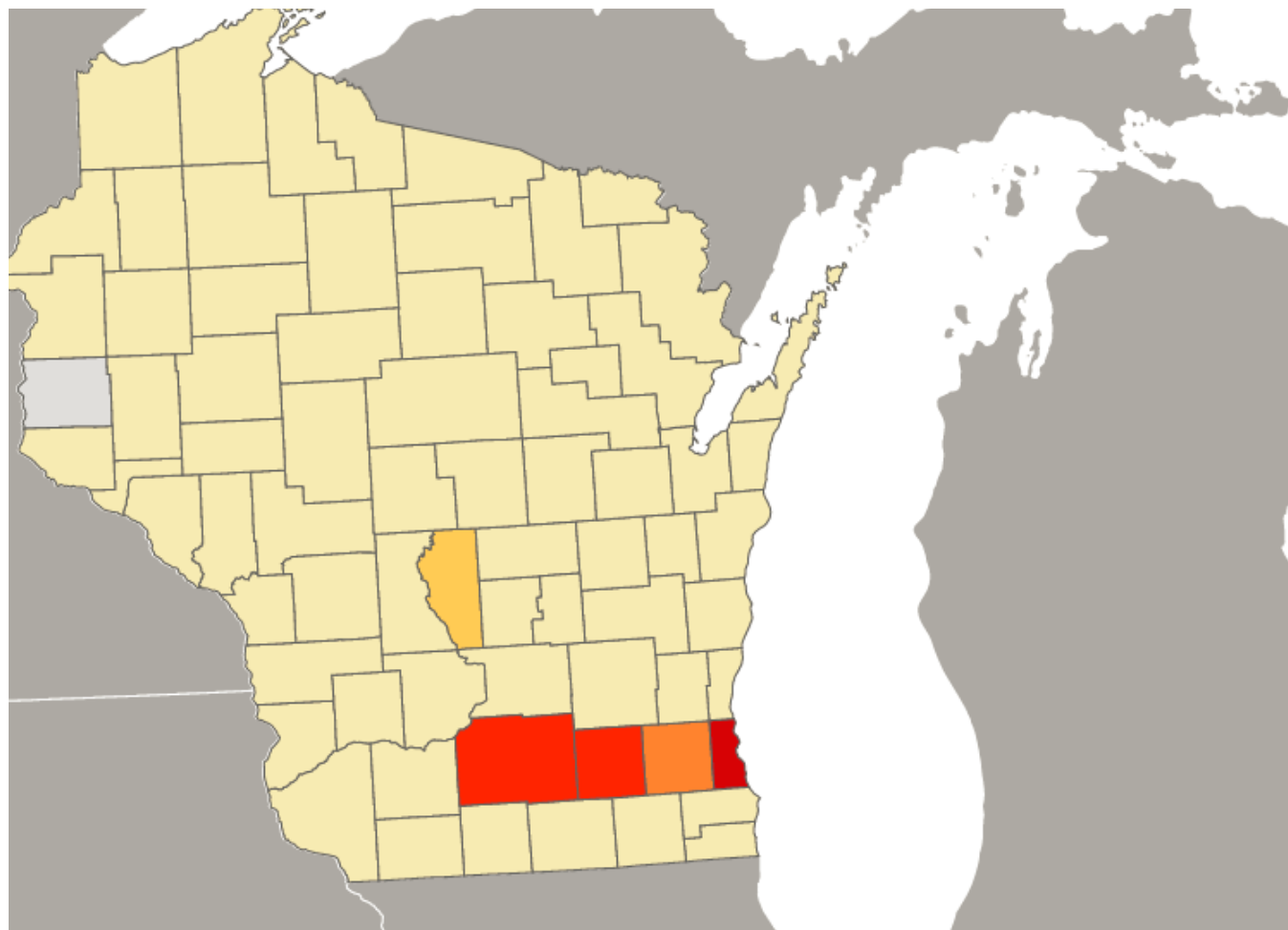
# Solar Workforce Development: A National View

- The Workforce Development System
- Services for Hiring and Recruitment
- Public Resources for Training
- Career Pathways
- Sector Partnerships
- Workforce Development Action Plans

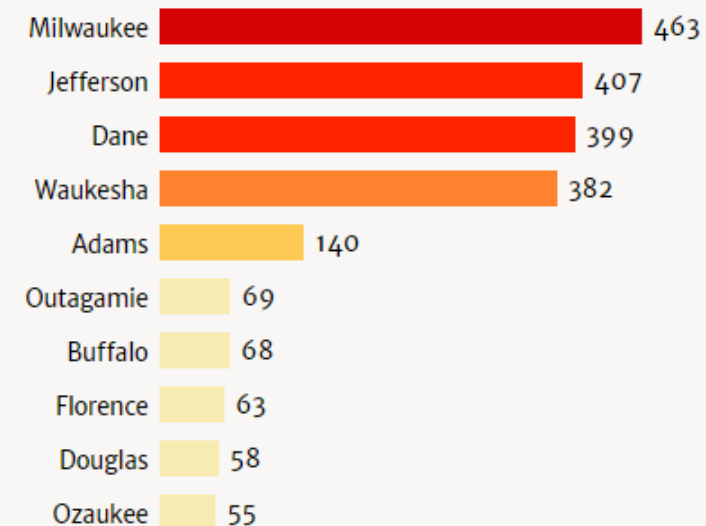
<https://www.americansolarworkforce.org/>



# Wisconsin's Clean Energy Workforce



## Top Ten Counties



## Wisconsin

[Wisconsin Fact Sheet](#)

	rank among states
2,921 Solar jobs	23/51
1,426 Installation jobs	26/51
604 Manufacturing jobs	17/51
415 Sales and distribution jobs	18/51
360 Project development jobs	24/51
117 Other solar jobs	27/51

Source: <https://www.solarstates.org/#state/wisconsin/counties/solar-jobs/2017>



# Wisconsin Solar Policy



## SOLAR POLICY CONTEXT

**D**

Net Metering  
Policy Grade<sup>5</sup>

**D**

Interconnection  
Policy Grade<sup>5</sup>

**Community Solar:**<sup>6</sup>

No Legislation Enacted

**Renewable  
Portfolio Standard:**<sup>7</sup>

**10%**  
by 2015

**Legal Status of Third-Party Ownership:**<sup>7</sup>

Status Unclear or Unknown

**15** State Ranking for  
Average Electricity Price  
(Highest to Lowest)<sup>3</sup>

**Renewable Portfolio  
Standard Solar Carveout:**<sup>7</sup>

**N/A**

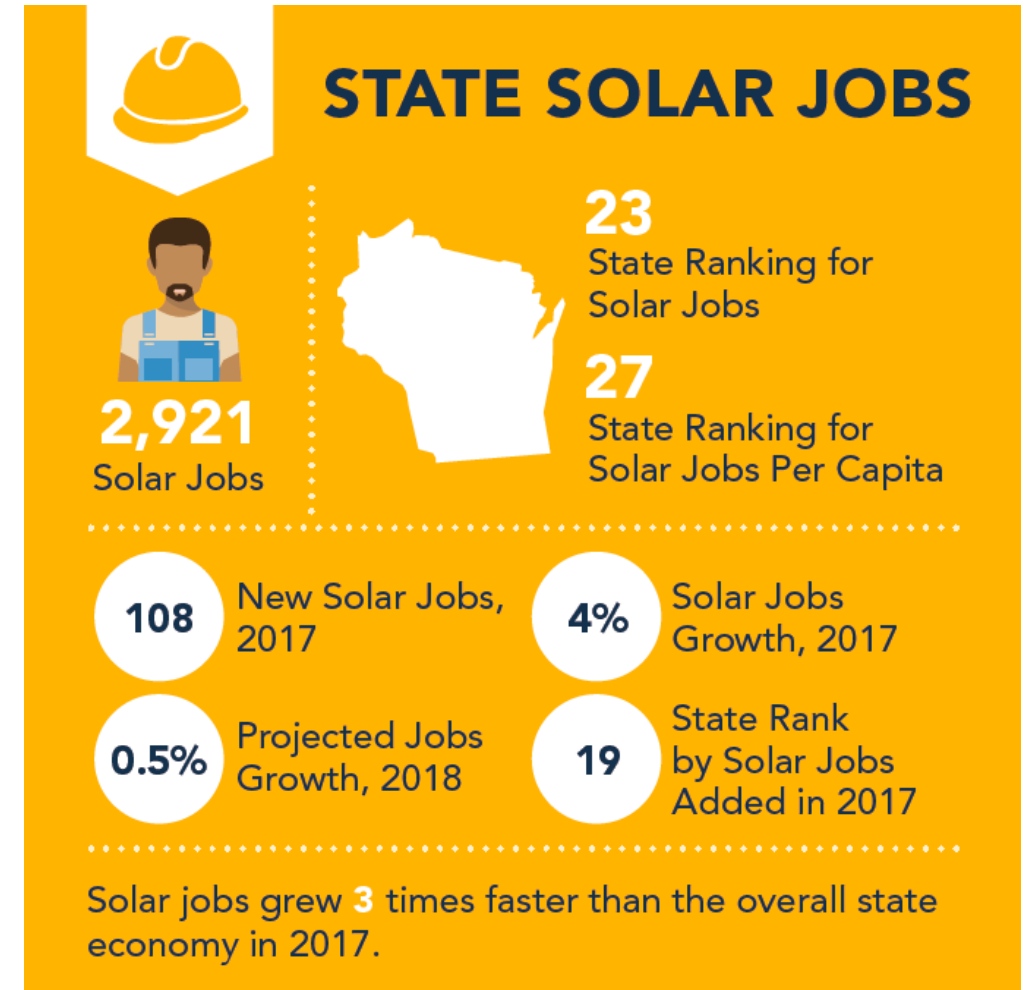
**Property Assessed Clean Energy  
Financing (PACE) Status:**<sup>8</sup>

PACE-enabling Legislation;  
Active Commercial PACE Program

**11.05 cents/kWh**  
Average Electricity Price<sup>3</sup>

# WI Solar Workforce Development Needs

- Detailed, statewide development plan
- Scaffolded approach from secondary school to technical college
- Enabling state policy including interconnection, financing, and distribution system planning
- Supportive consumer protection approach
- Statewide jurisdiction leadership in permitting, planning, zoning, deployment and consumer engagement (SolSmart)
- Recognition of PV installer as a desirable profession



# MREA: Training for Equality of Opportunity

- The Chicago Urban League (IL)
- The Aurora Urban League (IL)
- The SAFER Foundation (IL)
- National Latino Ed. Inst. (IL)
- The MN Dept. of Corrections (MN)





# MREA 'Solar Ready Wisconsin' Initiative

- Technical College Partnership: Madison College, MSTC, NWTC, CVTC
- Advanced PV Training
- Job-site Experience
- Jurisdiction Partnerships
- Statewide Contractor Partnerships
- The Wisconsin Solar Corps
  - Module Donations to Communities, Schools, and Non-Profit Organizations
  - High-impact, High-visibility Installations
- Beginning February 2019

Source: <https://www.midwestrenew.org>



# Questions?

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**Midwest Renewable  
Energy Association**

[www.midwestrenew.org](http://www.midwestrenew.org)