



# The Solar and Wind Energy Supply Chain in Wisconsin

Good for Manufacturing Jobs • Good for Economic Growth  
Good for Our Environment



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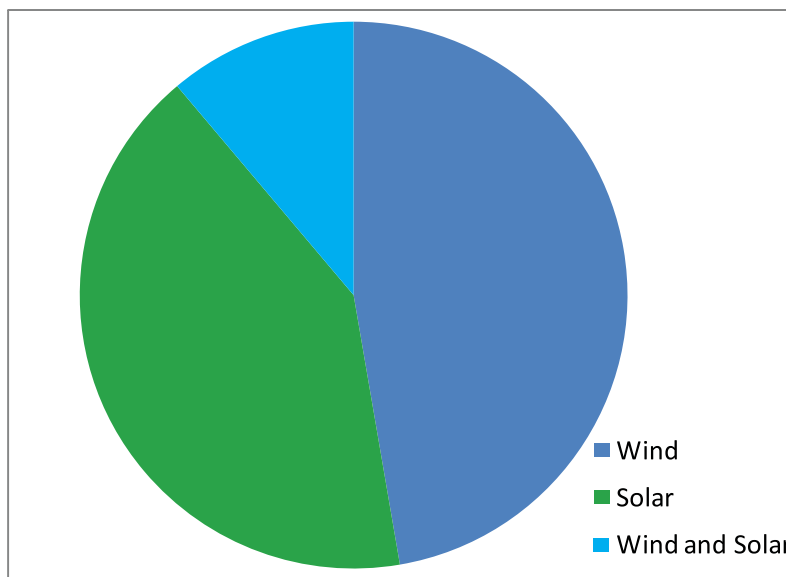


## At a Glance:

### Solar and Wind Energy Supply Chain in Wisconsin

- 135 solar power supply chain businesses
- 171 wind power supply chain businesses
- Over 12,000 Wisconsin jobs tied to solar and wind power
- Old-line manufacturing companies are re-tooling to supply growing markets for clean energy equipment.

#### Renewable Energy Companies in Wisconsin by Technology



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#### PHOTO CREDITS:

Cover: Monfort, WI wind farm, courtesy of National Renewable Energy Laboratory (NREL), (top); Solar installation on state capitol, courtesy of H&H Electric, (left); wind turbine construction, courtesy of Michels Corp, (center); wind turbine gear production courtesy of Merit Gear, (right); P.7: Solar installation on Milwaukee firehouse, courtesy of NREL (left), solar thermal array at rapid car wash, Wisconsin Rapids, courtesy of Greensky Energetics (right); P. 8 Helios solar factory in Milwaukee, courtesy of Helios (left), solar installation on state capitol, courtesy of H&H Solar (right); P.10 wind turbine construction, courtesy of Michels Corp; P. 12: Solar installer, courtesy of Wayne National Forest; P.13 wind technician courtesy of Farnsworth Group; Back Cover: Milwaukee solar factory, courtesy of Helios (left).

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# Powering Manufacturing Jobs and Economic Growth in Wisconsin —

Wisconsin is home to more than 300 companies serving wind and solar energy markets. These businesses include old-line manufacturers that are expanding and entrepreneurial new firms focused on the clean energy sector. Businesses in the wind and solar energy sectors in Wisconsin employ approximately 6,000 and there are an additional 6,000 employees whose jobs are at least 50% tied to the renewable energy sector.

These businesses operate throughout the entire supply chain, from manufacturing and systems design, to site planning, engineering, construction and installation. They include startups and long-established companies. Wisconsin is ranked fifth nationwide for solar job employment according to the annual National Solar Job Census Report. Renewable energy creates opportunities for job creation and Wisconsin businesses.

For many years, Wisconsin created policies that supported renewable energy business growth with bipartisan support, as summarized below. However, some of those policies have been undermined recently by political pressures.

- **Renewable Portfolio Standard.** In 2005, Wisconsin enacted a Renewable Portfolio Standard, which set a goal that 10% of statewide energy come from renewable sources by 2015. This policy sparked significant development in Wisconsin, but the standard has been weakened by recent state legislation that allowed including hydropower generated out-of-state.

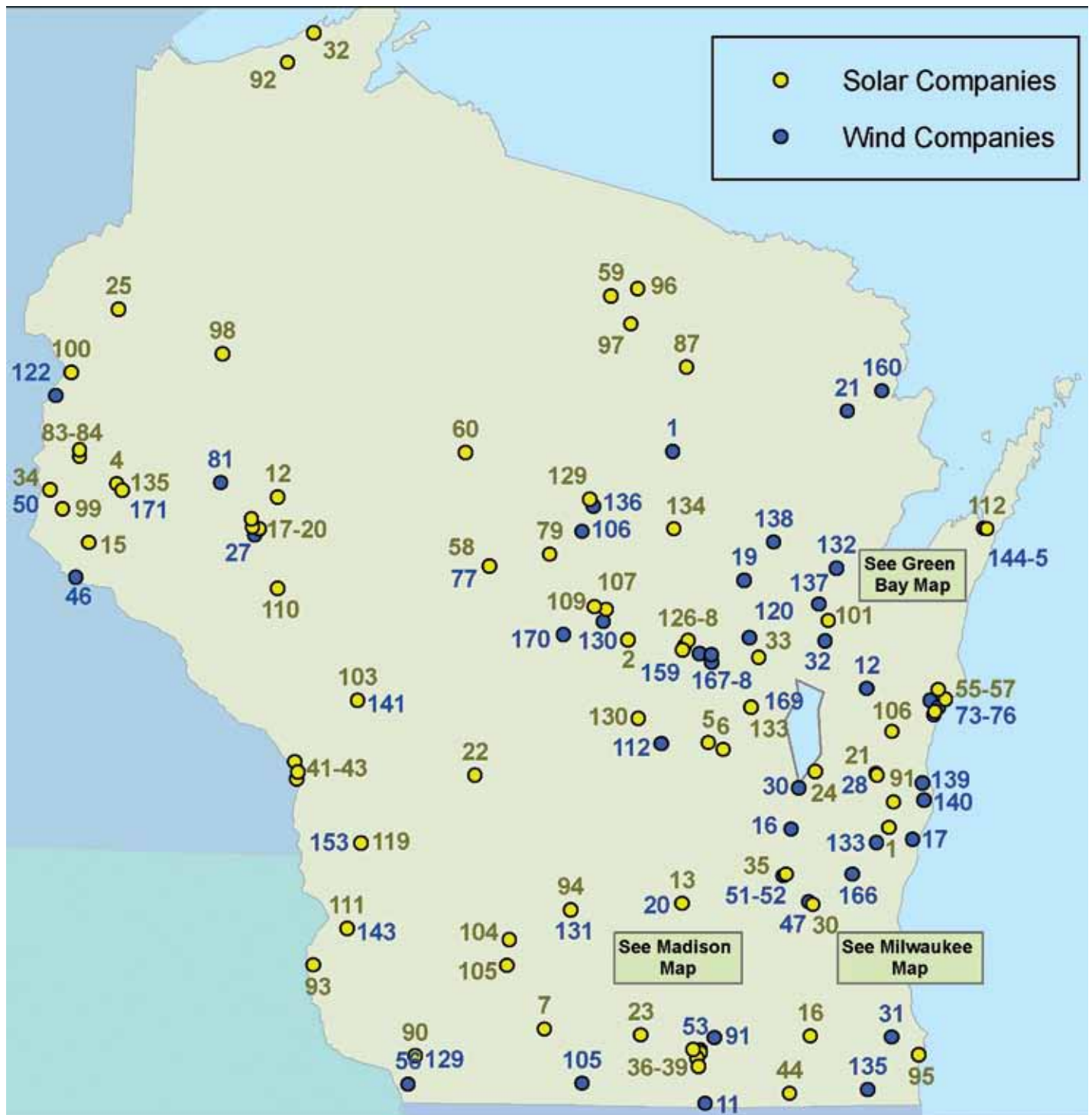
- **Focus On Energy Program.** Wisconsin's award-winning Focus on Energy program has provided planning and construction grants for a wide range of renewable energy projects. The program has helped Wisconsin residents and businesses manage rising energy costs and promoted in-state economic development, while encouraging renewable energy development. Focus on Energy provides for each electric and natural gas investor-owned utility to spend 1.2% of its latest 3-year average of gross operating revenue on energy efficiency programs and renewable energy programs. As of July 1, 2011, the Wisconsin Public Service Commission cancelled support for non-residential renewable energy projects, including agricultural projects.

- **Supportive Utility Programs.** Most Wisconsin utilities have historically been supportive of renewable energy, providing loans, rebates and grants to renewable projects, as well as production-based incentives for residential and commercial customers who install solar energy projects. Some utilities have also provided special incentives under buyback contracts. Unfortunately, We Energies recently retracted its innovative renewable energy development program.

- **"Milwaukee Shines" Solar Project Financing.** In July 2011, the City of Milwaukee began offering low-interest loans for residential solar energy projects under its Milwaukee Shines solar financing program.

# Solar and Wind Industry Supply Chain Companies in Wisconsin

The growing market for wind and solar power has spurred business growth and job creation across Wisconsin. The state's skilled workforce and strong manufacturing base have enabled Wisconsin companies to become major suppliers to the expanding global markets for wind and solar energy equipment.







# Wisconsin Solar Supply Chain Companies

Company Name	City	Company Name	City
1. Eberhardt Plumbing & Heating	Adell	64. Magnetek	Menomonee Falls
2. Photovoltaic Systems	Amherst	65. American Renewable Power	Mequon
3. Appleton Solar	Appleton	66. American Superconductor	Middleton
4. Helgeson Electric	Baldwin	67. Crescent Electric Supply	Middleton
5. Sunny Solutions	Berlin	68. Caleffi	Milwaukee
6. Solar Heating Services	Berlin	69. Heiden Plumbing Company	Milwaukee
7. Engineering Services	Blanchardville	70. Helios USA	Milwaukee
8. Alpine Plumbing	Brookfield	71. Heston Wind	Milwaukee
9. Current Electric	Brookfield	72. Hot Water Products	Milwaukee
10. Kf Engineering & Consulting	Brookfield	73. Illingworth- Kilgust Mechanical	Milwaukee
11. Dairyland Electric	Butler	74. Murphy Energy Systems	Milwaukee
12. Chippewa Valley Alternative Energy	Chippewa Falls	75. Pieper Electric	Milwaukee
13. Sunstation Electric Wind & Solar	Columbus	76. Roman Electric	Milwaukee
14. Action Heating & Cooling Services	E. De Pere	77. Siemens Industry	Milwaukee
15. Freier Electric & Heating	East Ellsworth	78. UrbanRe Vitalization Group	Milwaukee
16. O'Leary Plumbing & Heating	East Troy	79. Mike Massey Construction	Mosinee
17. Apex Engineering	Eau Claire	80. ABB	New Berlin
18. Badger State	Eau Claire	81. Magaw Electric	New Berlin
19. Next Step Energy	Eau Claire	82. W A Roosevelt Company	New Berlin
20. RSTC Enterprises	Eau Claire	83. Derrick Building Solutions	New Richmond
21. Ecomanity	Elkhart Lake	84. Simon Electric	New Richmond
22. Building Energy Controls	Elroy	85. Futuresave Energy	Oconomowoc
23. Under The Sun Solar	Evansville	86. Wisconsin Solar Installations	Oconomowoc
24. Area Mechanical	Fond du Lac	87. Palubicki Electric	Pelican Lake
25. Legacy Solar	Frederic	88. MidWest Energy Solutions	Pewaukee
26. Johnson Controls	Glendale	89. Total Mechanical	Pewaukee
27. Johnson & Jonet Mechanical	Green Bay	90. Timmerman's Talents	Platteville
28. Current Electrical Services	Green Bay	91. Arch Electric	Plymouth
29. Eland Electric Corporation	Green Bay	92. Great Northern Solar	Port Wing
30. Renewable Energy Solutions	Hartford	93. DH Solar	Prairie Du Chien
31. Solar Systems	Heartland	94. Unlimited Renewable Energies	Prairie Du Sac
32. Active Solar	Herbster	95. Keystone Heating & Air Conditioning	Racine
33. LifeTime Structures	Hortonville	96. Sun & Daughters Renewables	Rhineland
34. Energy Concepts	Hudson	97. T.J. De Witt & Company	Rhineland
35. Wind Energy Systems	Iron Ridge	98. Pauls Sheet Metal	Rice Lake
36. AgSun Corporation	Janesville	99. Able Energy	River Falls
37. American Power	Janesville	100. Comfort Systems Plumbing Heat & AC	Saint Croix Falls
38. Carroll Electric	Janesville	101. New Solar	Seymour
39. Lloyd's Plumbing & Heating	Janesville	102. Brighter Concepts	Shorewood
40. Orion Engineered Systems of Wisconsin	Kaukauna	103. Pipkin Electric	Sparta
41. Cary Heating & Air Conditioning	La Crosse	104. Cardinal Solar Technologies	Spring Green
42. Viking Electric Supply	La Crosse	105. Driftless Solar	Spring Green
43. Planet Earth Solar	La Crosse	106. Reindl Plumbing & Heating	St. Nazianz
44. Convergence Energy	Lake Geneva	107. Chets Plumbing & Heating	Stevens Point
45. CBT Solar	Madison	109. North Wind Renewable Energy	Stevens Point
46. Cedar Corporation	Madison	108. Energy Efficient Solutions	Stoughton
47. Crescent Electric Supply	Madison	110. Bear Paw Design	Strum
48. Full Spectrum Solar	Madison	111. Prairie Solar Power & Light	Stueben
49. H&H Solar Energy Services	Madison	112. Lake Michigan Wind & Sun	Sturgeon Bay
50. Henneman Engineering Services	Madison	113. Cardinal Heating & Air Conditioning	Sun Prairie
51. Hooper Corp	Madison	114. Energy Law Wisconsin	Sun Prairie
52. McKinstry Company	Madison	115. Alt Energy	Sussex
53. Resource Solar	Madison	116. Interstate Heating	Sussex
54. Walker Energy Systems	Madison	117. Krantz Electric	Verona
55. GreenSky Energetics	Manitowoc	118. Silica Solar	Verona
56. Jindra Plumbing & Heating	Manitowoc	119. E3 Coalition	Viroqua
57. Orion Energy Systems	Manitowoc	120. Access Solar	Waukesha
58. Total Electric Service	Marshfield	121. Solar Innovations	Waukesha
59. MMK Solar Thermal	Mc Naughton	122. SunVest Solar	Waukesha
60. Way & Way	Medford		
61. Faith Technologies	Menasha		
62. Accurate Lighting	Menomonee Falls		
63. Circle Electric	Menomonee Falls		

# Wisconsin Solar Supply Chain Companies (cont'd)

Company Name	City	Company Name	City
123. Teko Mechanical	Waukesha	130. Affordable Solar Energy	Wautoma
124. Venture Electrical Contractors	Waukesha	131. SolaRain	Wauwatosa
125. RG Heating & Air Conditioning	Waunakee	132. Best Electric Service	West Allis
126. Citizens Energy Cooperative of WI	Waupaca	133. Energize	Winneconne
127. Colden Plumbing & Heating	Waupaca	134. IMC Instruments	Wittenberg
128. Mitchell's Heating & Cooling	Waupaca	135. Carr Creek Electrical Services	Woodville
129. Performance Energy	Wausau		

# Wisconsin Wind Supply Chain Companies

Company Name	City	Company Name	City
1. Merit Gear	Antigo	47. Helgesen Industries	Hartford
2. Ambassador Steel Corporation	Appleton	48. Price Engineering	Hartland
3. Applied Industrial Technologies	Appleton	49. Emerging Energies of Wisconsin	Hubertus
4. Coalesce	Appleton	50. Energy Concepts	Hudson
5. Faith Technologies	Appleton	51. Wind Energy Systems	Iron Ridge
6. Larson Engineering	Appleton	52. Wondra Construction	Iron Ridge
7. OMNNI Associates	Appleton	53. Mansur Trucking	Janesville
8. Orion Construction Group	Appleton	54. Bassett Mechanical	Kaukauna
9. Oscar J Boldt Company	Appleton	55. Profile Finishing Systems	Kaukauna
10. SEH	Appleton	56. ACTERRA GROUP	Kieler
11. EcoEnergy	Beloit	57. Alliant Energy	Madison
12. Brillion Iron Works	Brillion	58. Baker Tilly Virchow Krause	Madison
13. Acuren Inspection	Brookfield	59. Cullen Weston Pines & Bach	Madison
14. KF Engineering & Consulting	Brookfield	60. FNR Services	Madison
15. Trace-a-Matic Corporation	Brookfield	61. GDS Associates	Madison
16. Michels Corporation	Brownsville	62. Gerdau Ameristeel	Madison
17. Willman Industries	Cedar Grove	63. H&H Solar Energy Services	Madison
18. Cedarburg Science	Cedarburg	64. Henneman Engineering Services	Madison
19. Badger Transport	Clintonville	65. IMC DataWorks	Madison
20. Sunsation Electric Wind & Solar	Columbus	66. McKinstry Company	Madison
21. Bonestroo Engineering	Crivits	67. Michael Best & Friedrich	Madison
22. Ayres Associates	De Pere	68. Power System Engineering	Madison
23. C. A. Lawton Company	De Pere	69. RMT	Madison
24. De Pere Foundry	De Pere	70. Seventh Generation Energy Systems	Madison
25. Holtger Brothers	De Pere	71. WES Engineering	Madison
26. New North	De Pere	72. Wind Capital Group	Madison
27. Xcel Energy	Eau Claire	73. Manitowoc Cranes	Manitowoc
28. Ecomanity	Elkhart Lake	74. Machine Building Specialists	Manitowoc
29. EMJ Company	Elm Grove	75. Orion Energy Systems	Manitowoc
30. MAG	Fond du Lac	76. Broadwind Towers	Manitowoc
31. Fiber-Tech	Franksville	77. Total Electric Services	Marshfield
32. Horizon Industries	Freedom	78. Faith Technologies	Menasha
33. American Power & Communications Gp	Grafton	79. Natural Resources Consulting	Menasha
34. Melitron Corporation	Grafton	80. Stantec	Menasha
35. AECOM	Green Bay	81. KK Integrated Logistics	Menominee
36. Cineviz	Green Bay	82. Bushman Equipment	Menominee Falls
37. Energis High Voltage Resources	Green Bay	83. Magnetek	Menomonee Falls
38. Faith Technologies	Green Bay	84. GenMet	Mequon
39. Foth Infrastructure & Environment	Green Bay	85. Jorgensen Conveyors	Mequon
40. GRAEF	Green Bay	86. Sullivan Manufacturing	Mequon
41. Lindquist Machine	Green Bay	87. American Renewable Power	Mequon
42. Metals Engineering	Green Bay	88. Uriel Wind	Mequon
43. Robert E. Lee & Associates	Green Bay	89. American Superconductor	Middleton
44. Synchrotek	Green Bay	90. Crescent Electric Supply	Middleton
45. Velocity Machine	Green Bay		
46. Thomas & Betts	Hager City		

# Wisconsin Wind Supply Chain Companies (cont'd)

Company Name	City	Company Name	City
91. R&M Manufacturing	Milton	132. MCL Industries	Pulaski
92. Accurate Metal Products	Milwaukee	133. Kettle View Renewable Energy	Random Lake
93. Carpenter Brothers	Milwaukee	134. Strohwig Industries	Richfield
94. DRS - PCT	Milwaukee	135. Toba Energy Resources	Salem
95. Enerpac	Milwaukee	136. GPI	Schofield
96. Half Moon Power	Milwaukee	137. Elexco	Seymour
97. Heston Wind	Milwaukee	138. Arrowcast	Shawano
98. Milwaukee Machine Works	Milwaukee	139. Aero-Metric	Sheboygan
99. Milwaukee Resistor	Milwaukee	140. Cardinal Environmental	Sheboygan
100. Murphy Energy Systems	Milwaukee	141. Pipkin Electric	Sparta
101. Pieper Electric	Milwaukee	142. Business Transportation Solutions	Stoughton
102. Ryerson	Milwaukee	143. Prairie Solar Power & Light	Stueben
103. Siemens Industry	Milwaukee	144. Lake Michigan Wind & Sun	Sturgeon Bay
104. Zeman Tool & Manufacturing	Milwaukee	145. Shuttlelift	Sturgeon Bay
105. Orchid Monroe	Monroe	146. Continental Mapping Consultants	Sun Prairie
106. G3 Industries	Mosinee	147. Energy Law Wisconsin	Sun Prairie
107. Precision Screw Thread	Muskego	148. JK Hackl Transportation Services	Sun Prairie
108. Miron Construction	Neenah	149. Wave Wind	Sun Prairie
109. Sanderfoot Wind & Excavating	Neenah	150. Alt Energy	Sussex
110. URS Corporation	Neenah	151. Evans Associates	Thiensville
111. VAL-FAB	Neenah	152. JFNEW	Verona
112. North American Hydro	Neshkoro	153. E3 Coalition	Viroqua
113. ABB	New Berlin	154. American Transmission	Waukesha
114. Artech PQ	New Berlin	155. Cooper Power Systems	Waukesha
115. AVANTI Wind Systems	New Berlin	156. FESCO Direct	Waukesha
116. Kurz Electric Solutions	New Berlin	157. Superior Crane Corporation	Waukesha
117. Qgrid Technologies	New Berlin	158. Venture Electrical Contractors	Waukesha
118. Rexnord Industries	New Berlin	159. Alliance Industries	Waupaca
119. WIS Logistics	New Berlin	160. Wausaukee Composites	Wausaukee
120. Neumetal Corporation	New London	161. SolaRain	Wauwatosa
121. Applied Plastics	Oak Creek	162. Amalga Composites	West Allis
122. Northwire	Osceola	163. Paresources	West Allis
123. Jay Manufacturing Oshkosh	Oshkosh	164. Safway Services	West Allis
124. Muza Metal Products	Oshkosh	165. Unit Drop Forge Company	West Allis
125. Renewegy	Oshkosh	166. Matanaer Corp	West Bend
126. Shallbetter	Oshkosh	167. Custom Fiberglass Molding	Weyauwega
127. MidWest Energy Solutions	Pewaukee	168. Performance Industrial Products	Weyauwega
128. Prime Coatings	Pewaukee	169. Energize	Winneconne
129. Timmerman's Talents	Platteville	170. Energy Composites Corporation	Wisconsin Rapids
130. West Winds Renewable Resources	Plover	171. Carr Creek Electrical Services	Woodville
131. Unlimited Renewable Energies	Prairie Du Sac		



# Wisconsin: A Leading Supplier to the Solar Industry

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ELPC identified 135 companies in the Wisconsin solar power supply chain, including a variety of component manufacturers and installers. The state's first solar panel manufacturer began production this year.



**Cardinal Solar Technologies,** Mazomanie, designs and produces glass products for the solar industry. Cardinal is a subsidiary of Cardinal Glass Industries, Inc., a leading glass and thin film manufacturer. Cardinal began supplying to the solar industry in 2007 and employs more than 75 people in its solar division. Cardinal's 180,000 sq ft. facility is designed to grind, drill and heat strengthen or "temper" the glass for use in the manufacturing of solar modules.

**Caleffi,** Milwaukee, sells components and complete systems for the solar thermal market. Caleffi has been in business for 50 years overseas and for close to 10 years in the U.S. Caleffi has approximately 1,000 employees worldwide, 20 of whom are in Wisconsin, and most of its business is in hydronic heating and cooling products. The company is now expanding into geothermal, introducing thermal products from Europe into the U.S. market. "Solar is a real job creator in Wisconsin and across the United States and one of the biggest generators of growth for Caleffi," stated Rex Gillespie, Director of Marketing, "and by using renewable energy sources, we are making the right choices for the future."

**DH Solar,** Prairie Du Chien, manufactures fixed and tracking solar systems. The company's fixed single pole system can be adjusted for seasonal changes in sun positioning and can also be used to avoid obstructions to sunlight. The two-axis tracking system is designed with a controller that tracks the arc of the sun, adjusting automatically for the seasonal changes in the arc. Solar tracking systems can improve system efficiency by as much as 40%, greatly increasing return on investment. DH Solar also manufactures a weighted modular system that does not pierce roof surfaces and can be ground mounted, as well as complete installed solar systems to retail and commercial customers. The company has supplied more than 200 systems over the past four years. DH Solar employs 35 people and is owned by Design Homes, one of the Midwest's largest builders of custom homes.



**GreenSky Energetics,** Manitowoc, founded in 2007, is one of the largest solar heating installers in Wisconsin and has recently begun installing solar PV systems for residential and commercial customers. The company has now completed over 100 thermal installations.

GreenSky's projects include 60 solar collectors to supply hot water and building space heating at the University of Wisconsin-Oshkosh academic building and a system to supply almost 600 gallons of hot water daily to the Outagamie County Regional Airport for its restaurants and rest rooms. "GreenSky Energetics is committed to advancing the solar industry and is an industry member of the Utility Solar Water Heating Initiative, which is working with utilities to increase the use of solar thermal technologies on a large scale," stated Brad Johnson, Director of Business Development.



**Helios Solar Works**, Milwaukee, is Wisconsin's first solar photovoltaic module manufacturer and has been operating since February 2011. Helios manufactures a high efficiency, monocrystalline panel, which is considered one of the most efficient solar

electric technologies. The company currently has 30 employees and plans to add a third shift to its production line by the end of the year. "Our value proposition is that, as a small operation, we are positioned to be nimble, which allows us to choose components that best suit our customers," commented Brent Brucker, General Manager of Helios. The company evaluated several places around the country before choosing to locate in Wisconsin, in part due to low-interest loans provided by the state and the City of Milwaukee. "The Midwest is getting closer to being a real solar hotspot; a little more foresight on the part of a few state legislatures and this region could really take off," said Brucker.

**Orion Energy Systems**, Manitowoc, is a power technology enterprise that designs, manufactures and deploys energy management systems - high-performance, energy-efficient lighting platforms, intelligent wireless control systems and direct renewable solar technology - for commercial and industrial customers. The company has 240 employees nationwide. Since 2001, Orion's engineered solutions have displaced over 658 megawatts at more than 7,000 facilities across North America, saving customers more than \$1.3 billion and reducing carbon dioxide emissions by 11 million tons.



# Wisconsin: A Leading Supplier to the Wind Industry

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ELPC identified 171 companies in the Wisconsin wind power supply chain, including longstanding companies that have retooled to supply the growing wind equipment market, and new companies seizing opportunities created by the growing demand for wind power.



**Applied Plastics**, Oak Creek, has 85 employees and manufactures custom plastic extrusions, tubing and shapes. The company was founded in 1955 and has been supplying the wind industry for the past five years by manufacturing a part that helps dispense the solution used to mold wind turbine blades. The wind sector has been steadily growing for the company and currently accounts for 12% to 15% of its business.

**Broadwind Towers (formerly Tower Tech)**, Manitowoc, has been producing wind towers since 2004. Broadwind has manufactured more than 800 wind turbine towers to date and was one of the first producers of large 100-meter towers in the U.S.

Broadwind's Wisconsin plant encompasses about 200,000 square feet, employs almost 350 people and has a deep water port, allowing it to ship towers and other heavy weldments around the country and overseas.

**Emerging Energies of Wisconsin**, Hubertus, established in 2003, is a wind developer of small to mid-size renewable energy projects in Wisconsin. The company has developed 3 projects to date and holds 30-year options to develop wind on more than 6,000 acres of high wind resource land.

Emerging Energies developed the Shirley Wind Farm, which has 2.5 MW turbines on 100-meter towers with 100-meter rotors. Emerging Energies is now beginning to assess development opportunities in other parts of the Midwest.

**Merit Gear**, Antigo, was founded in 1951 by two gear makers from Chicago. Merit started as a wind supplier seven years ago when another company was unable to fulfill its order to a wind turbine gear box manufacturer. Until now, wind has not accounted for more than 5% of Merit's business, but the company has its first significant production order for the complete array of wind turbine gearing and expects wind-related business to increase in 2012.

Merit has 125 employees and manufactures gears and gearboxes for the oil, mining, and transportation industry, including the New York City subway system and Chicago's Metra. The company's gearing machines can achieve tight tolerances on gear teeth, which allows the gearing to withstand greater loads; that means the gearbox and the wind turbine nacelle can be smaller and lighter.

"Merit is proud to be associated with environmentally friendly technologies that are driving us closer to a more sustainable future," commented Larry Steffens, Vice President of Sales and Marketing.

**Michels Corporation**, Brownsville, is one of the largest utility contractors in North America with more than 4,000 employees and 9,000 pieces of construction equipment. Michels is an engineering, procurement and construction contractor that has engaged with over 3,800 MW of installed capacity at wind farms.

Michels offers turnkey wind power construction services and can perform all operations of building a wind farm from access roads to foundations and tower erection, to the substation and high-voltage transmission lines.

**Renewegy**, Oshkosh, was founded in 2008 and designs and manufactures a 20 kW wind turbine designed for the light commercial market, primarily businesses, schools, municipal facilities and farms. Renewegy currently employs 17 people and over the course of the next several years plans to add approximately 50 more employees. The company has developed wind installations of up to 200 kW to date. Renewegy offers a mounting system using a hydraulic tip-up, which reduces the installation cost since no crane or man lift is required. The company recently signed a distribution agreement with ConneXion in Illinois. "Not only do we manufacture and employ workers here in Oshkosh, but 90 percent of our components are sourced from our Midwestern partners. As we grow, they grow," stated Dana Enz, Vice President of Sales.

### ***The Shirley Wind Farm: Clean Energy made in Wisconsin***

The tower shown below is part of the Shirley Wind Farm, a project that demonstrates the depth of Wisconsin's wind supply chain. The 20-megawatt wind farm is located just south of Green Bay. The 100-meter towers were constructed by Broadwind (Manitowoc) and erected by Michels Corporation (Brownsville). Emerging Energies of Wisconsin developed the project and Wisconsin-based Bonestroo provided engineering expertise.





# Businesses Working in Both the Wind and Solar Industries

Some Wisconsin companies apply expertise across multiple renewable energy technologies. ELPC identified more than 30 companies that supply both the wind and solar energy industries.

**EcoManity**, Elkhart Lake, is an energy consulting firm offering renewable energy and energy efficiency solutions that help small to mid-sized companies save money by reducing their energy costs. EcoManity has successfully utilized Wisconsin's Focus on Energy program, which doubled the renewable energy financial incentives for companies that implemented energy efficiency initiatives, to support installing several solar PV systems. However, Focus on Energy's commercial incentive component for renewable energy was suspended earlier this year. In the past two years, EcoManity has completed 24 solar electric and solar hot water installations, and wind site assessments. EcoManity was founded in 2008 and has four full-time employees.

**Faith Technologies**, Menasha, is an employee-owned, full-service electrical and specialty systems contractor operating in Georgia, Kansas, Missouri, Oklahoma and Wisconsin. With nearly 1,500 employees, Faith Technologies is one of the largest privately held electrical contractors in the United States, providing solar, wind and other energy-saving solutions. In 2008, Faith Technologies completed installation of one of the largest solar power projects in Wisconsin. Working for SunEdison, Faith Technologies installed 800 panels at Kohl's locations in Menomonee Falls, Milwaukee, Sussex, and Waukesha.

**H&H Solar Energy Services**, Madison, is a subsidiary of H&H Group, which has been in business for over 100 years, providing renewable energy solutions since 2000. H&H designs and installs wind, photovoltaic and

solar thermal projects for both residential and commercial customers. H&H Solar has 20 employees and completed solar installations totaling 500 kW in capacity in 2009 and 600 kW in 2010. The company has designed systems ranging from battery-based, grid independent installations for cabins in rural locations to 60Kw commercial projects. "H&H has been providing contracting services in Wisconsin since 1901, so customers feel comfortable turning to us for their wind and solar projects" commented Chris Collins, Marketing Director, "Renewable energy has given H&H a new economy growth platform."

**Magnetek**, Menomonee Falls, manufactures high-efficiency solar and wind inverters that turn DC power into distributed AC power. Magnetek can also provide a full balance of systems solutions for solar, including switchgear, and its wind platform is scalable to 5 MW installations. The company has been supplying power control technology to the renewable energy industry for 20 years and has 270 employees in Wisconsin.



# Policy Makes the Difference

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Federal and state policies are key to encouraging investment that can grow the wind power and solar energy industries, thereby creating more jobs and economic growth.

## Federal Policies

### **Federal Renewable Electricity Standard:**

This proposed federal legislation would require all electric utilities, which act as collective power purchasing agents for consumers, to buy a growing percentage of their electricity from renewable energy resources. Creating a federal renewable electricity floor would drive more demand nationally and in Wisconsin for wind and solar generated electricity. Wisconsin would benefit through more job creation and economic growth for its supply chain businesses.

**Production Tax Credit (PTC), Investment Tax Credit (ITC) & Section 1603 Tax Credit/Cash Grant:** The PTC, ITC and Section 1603 cash grant have been significant drivers of renewable energy development over the past several years. The PTC offers a credit of 2.1 cents per kilowatt hour for wind projects put in service before the end of 2012. Wind and solar developers have also been able to utilize the 30% ITC and the Section 1603 Treasury Grant Program. The ITC is convertible into a cash grant that helps developers to more effectively utilize the tax credit. The cash grant expires at the end of 2011, and ELPC encourages extending or removing the expiration for the ITC and PTC. More than 11,000 megawatts of renewable energy capacity were developed through the Section 1603 cash grant program as of June 2011.

**Qualifying Advanced Energy Manufacturing Investment Tax Credit:** Through ARRA, renewable energy manufacturers were able to take a 30% Federal Investment Tax Credit. The program expired in 2009 and should be considered for renewal.

**Accelerated Depreciation:** Allowing wind and solar generation assets to be depreciated over six years can create additional value if developers achieve significant income.

**Residential Renewable Energy Tax Credit:** Homeowners can receive a personal income tax credit for up to 30% of the cost of a solar thermal, photovoltaic or wind system installed on their primary residence. The credit expires in 2016 and is limited to \$500 per 0.5 kilowatt of power capacity.

**Rural Energy for America Program:** REAP is a program under the Farm Bill that provides grants (up to 25%) and loan guarantees to agricultural producers and rural small businesses to develop energy efficiency and renewable energy. The program has helped create over 200 clean energy projects on Wisconsin farms and rural small businesses including solar, wind and farm digesters.



## Wisconsin Programs & Policies

**Renewable Portfolio Standard:** In 2005, Wisconsin enacted a Renewable Portfolio Standard, which set a goal that 10% of statewide energy come from renewable sources by 2015. This standard spurred wind and solar power development, and created jobs and economic growth in Wisconsin. However, this standard was weakened by recent state legislation that allowed the inclusion of hydropower generated outside the state. The City of Madison also has a green power purchasing program, which requires that 25% of the city's energy be purchased from renewable sources by the year 2025.

**Net Metering:** Owners of renewable energy systems of less than 20 kW of generating capacity can sell power back to the grid at the retail rate. This helps offset some of the investment required for distributed energy systems. Rural electric cooperatives are generally exempt, but Dairyland Power Cooperative has implemented a more aggressive program. Raising the net metering cap to 2 MW would help Wisconsin attract more commercial-scale solar installations and would signal to national residential solar developers that Wisconsin is serious about becoming a leader in rooftop solar installations.

**Interconnection Standards:** In February 2004, the Wisconsin Public Service Commission adopted interconnection standards for distributed generation systems up to 15 MW in capacity.

**Solar and Wind Energy Equipment Exemption:** In Wisconsin, any value added by a solar energy system or a wind energy system is exempt from general property taxes.

**Wind Siting Standards:** Uniform statewide siting standards passed in 2010 that allow for a fair and uniform process to address local concerns. However, the Wisconsin Assembly has now suspended those standards, resulting in several cancelled development projects.





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## Environmental Law & Policy Center

The Environmental Law & Policy Center is the Midwest's leading public interest environmental legal advocacy and eco-business innovation organization. We develop and lead successful strategic advocacy campaigns to improve environmental quality and protect our natural resources. We are public interest environmental entrepreneurs who engage in creative business dealmaking with diverse interests to put into practice our belief that environmental progress and economic development can be achieved together. ELPC's multidisciplinary staff of talented and experienced public interest attorneys, environmental business specialists, public policy advocates and communications specialists brings a strong and effective combination of skills to solve environmental problems.

ELPC's vision embraces both smart, persuasive advocacy and sustainable development principles to win the most important environmental cases and create positive solutions to protect the environment. ELPC's teamwork approach uses legal, economic, scientific and public policy analysis, and communications advocacy tools to produce successes. ELPC's strategic advocacy and business dealmaking involves proposing solutions when we oppose threats to the Midwest environment. We say "yes" to better solutions; we don't just say "no."

ELPC was founded in 1993 and has achieved a strong track record of successes on national and regional clean energy development and pollution reduction, transportation and land use reform, and natural resources protection issues. ELPC's creative public advocacy effectively links environmental progress and economic development together and improves the quality of life in our Midwestern communities.

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