

Minnesota Solar Guide



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Solar Works in Minnesota

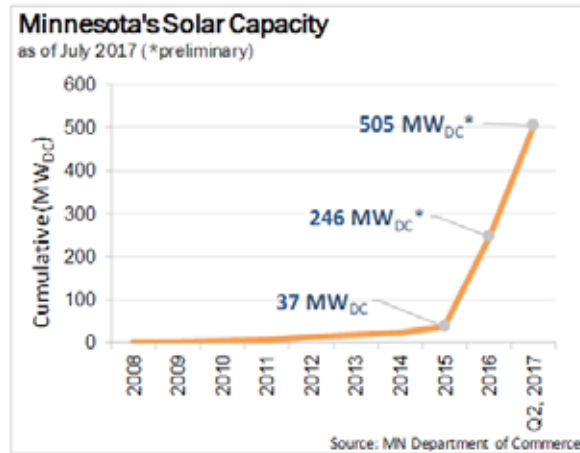
Minnesota is increasing the generation of solar energy and reducing its dependence on imported fuels.

Minnesota reached a milestone of 505 megawatts (MW) of known grid-tied solar photovoltaic (PV) capacity on July 1, 2017, more than double the state's total capacity of 246 MW on Dec. 31, 2016 and up from just 37 MW in 2015 and up from less than 1 MW in 2009. In the first half of 2017, Minnesota added 259 MW of solar capacity. About 300 MW of added capacity is projected for the rest of 2017.

In 2007, Minnesota adopted bipartisan legislation called the Next Generation Energy Act. The bill established one of the first in the nation Renewable Energy Standards, calling for 25% of Minnesota's electricity to come from renewable energy sources by 2025. In 2013, Minnesota passed the Solar Energy Standard that requires investor-owned utilities (Xcel Energy, Minnesota



Photo courtesy of Minnesota Department of Commerce



Power, and Otter Tail Power) to obtain 1.5% of their electric power from solar by 2020, with a goal of 10% by 2030. Minnesota's solar market also benefited from state incentive programs such as Xcel Energy's Solar*Rewards Program and the Made in Minnesota Solar Incentive Program (2014-2017).

The bulk of new solar in 2016 came from large utility-scale projects installed mainly in Xcel Energy territory—including the 100 MW_{AC} North Star solar project, 36.4 MW_{AC} of community solar, and the first 6.5 MW_{AC} of the 100 MW_{AC} Aurora Distributed Solar project site in Chisago County. A 10 MW_{AC} solar array was completed by Minnesota Power at Camp Ripley in Little Falls in November 2016.

Minnesota is projected to have more than 800 MW of solar capacity in 2017

By the end of 2017, Minnesota is expected to have more than 800 MW of solar capacity. If projections prove true, Minnesota will likely become a top-10 state for solar capacity (it ranked 12th in 2016, according to the SEIA Solar Market Insight Report 2016 Year in Review). The new 2017 solar generation is expected to come mainly from community solar gardens built in Xcel territory. A 62 MW_{AC} solar farm for Xcel Energy in Lyon County was completed in January 2017 and the remaining 14 sites from the Aurora Distributed Solar project, totaling about 94 MW_{AC}, came on line in the second quarter of 2017. More than



Photo courtesy of Itek Energy

Minnesota employed nearly 3,000 people in the solar industry in 2016.

10 MW_{DC} of rooftop solar is expected to be installed on Minnesota homes and businesses supported by rooftop solar incentive programs. If projections are met, Xcel Energy will exceed its 1.5% Solar Energy Standard by year's end.

The rooftop solar market has thrived thanks largely to incentive programs such as Made in Minnesota and Xcel Energy's Solar*Rewards. The price to install a solar array in Minnesota decreased 60% from 2010 to 2017.

Growing Minnesota solar jobs

Solar jobs in Minnesota increased 44% from November 2015 to November 2016, according to the 2016 National Solar Jobs Census conducted by The Solar Foundation. Minnesota employed 2,872 people in the solar industry as of December 31, 2016, up from 1,995 the year before. Over the last three years, state solar jobs have increased by 253%, from 814 in 2013 compared with the 2016 total.

Minnesota solar-related jobs—covering manufacturing, sales and distribution, and project development and installation—have expanded significantly over the last five years:

- 1,131 solar jobs were created from 2013-2015, a 131% increase over 2012 totals.
- An estimated 500 Minnesota companies conduct solar manufacturing, sales, distribution, and installation functions.
- Each MW of solar PV installed in Minnesota supports 13 installation jobs.
- Based on the funding committed by the Minnesota Department of Commerce through the Made in Minnesota Solar Incentive Program from 2013-2017, an estimated 495 jobs were supported or created in the solar industry in Minnesota.

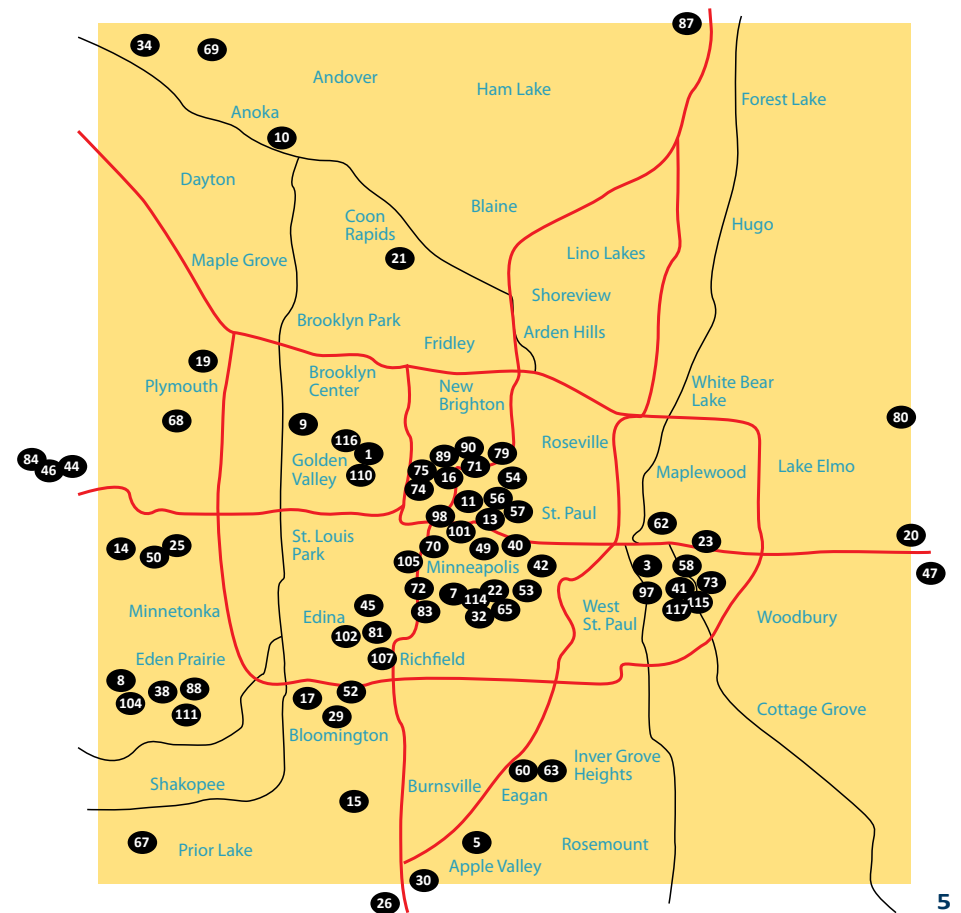
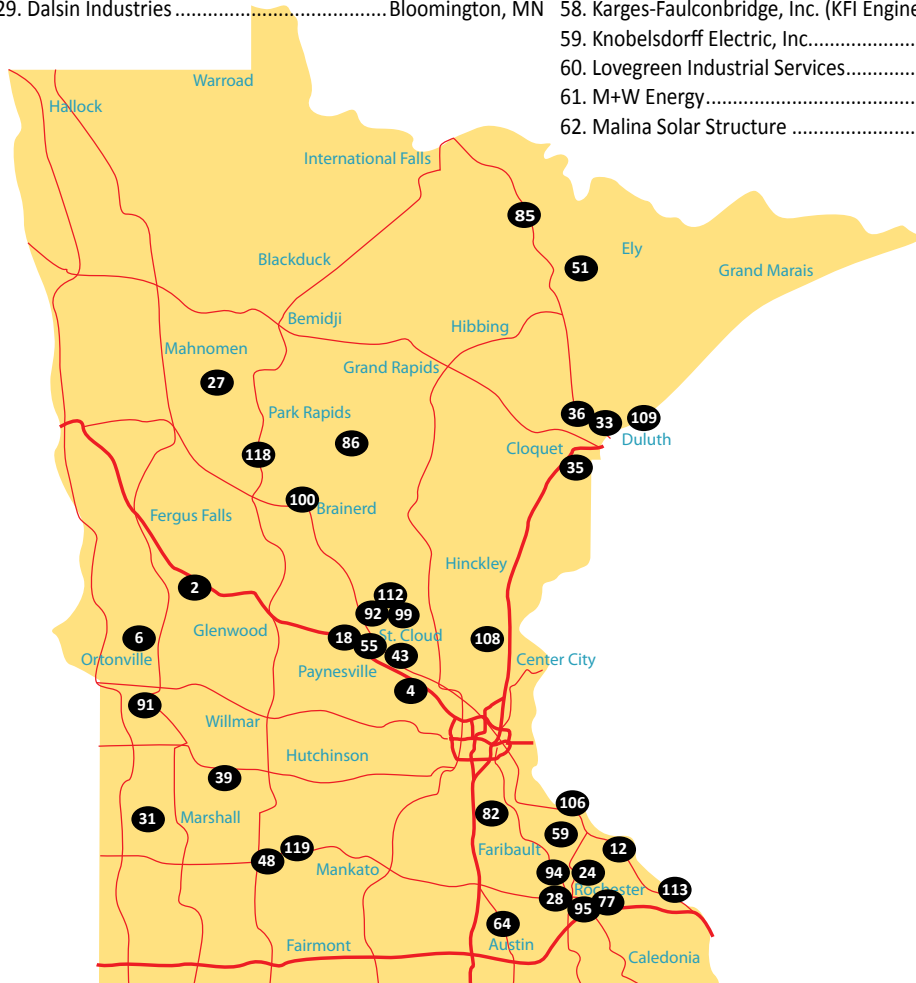
Says Mark Turley of Alexandria Industries in Alexandria, Minnesota:

"We manufacture products and parts for the solar industry, and incentive programs like Made in Minnesota have increased demand for these parts. We did \$12 million in renewable energy parts business last year; two years ago we did zero dollars."

Solar Service & Supply Companies in Minnesota

1. Aerotek Energy Services Golden Valley, MN
2. Alexandria Industries Alexandria, MN
3. All Energy Solar, Inc St. Paul, MN
4. Allied Graphics St. Michael, MN
5. Alswager Strategies Apple Valley, MN
6. Amberg Renewable Energy Alberta, MN
7. Amec Foster Wheeler Minneapolis, MN
8. Ameresco Eden Prairie, MN
9. Apadana Solar Technologies Golden Valley, MN
10. Apex Efficiency Solutions, SBC Anoka, MN
11. Applied Energy Innovations Minneapolis, MN
12. Aquilla Solar Corp Wabasha, MN
13. A-Sharp Energy Minneapolis, MN
14. Associated Benefits & Risk Consulting Minnetonka, MN
15. Automated Control Systems Savage, MN
16. Avant Energy, Inc. Minneapolis, MN
17. Barr Engineering Co Bloomington, MN
18. Blattner Energy, Inc. Avon, MN
19. Borrego Solar Systems Inc Plymouth, MN
20. Carr Creek Electric Service LLC Hudson, WI
21. Cedar Creek Energy Coon Rapids, MN
22. Clean Energy Economy Minnesota Minneapolis, MN
23. Clean Energy Resource Teams Saint Paul, MN
24. Common Sense Energy Plainview, MN
25. Compar, Inc Minnetonka, MN
26. Consulting Engineers Group, Inc. Lakeville, MN
27. Cosmos Enterprises, Inc. Elbow Lake, MN
28. Crenlo Cab Products Rochester, MN
29. Dalsin Industries Bloomington, MN
30. Despatch Industries Lakeville, MN
31. Development Services, Inc Ivanhoe, MN
32. Dunham Associates, Inc Minneapolis, MN
33. Ecolibrium3 Duluth, MN
34. Electrical Solutions & Design Inc Elk River, MN
35. Energy Conservation Products & Services, Inc ... Carlton, MN
36. Energy Plus DBA Conservation Technologies Duluth, MN
37. Energy Wise Solutions Bessemer City, NC
38. EVS, Inc Eden Prairie, MN
39. Fagen, Inc Granite Falls, MN
40. Forteva Solar Minneapolis, MN
41. Frattalone Companies, Inc St Paul, MN
42. Fredrikson & Byron, P.A. Minneapolis, MN
43. Gary Hammer Electric Becker, MN
44. Genie Solar Support Services Excelsior, MN
45. Geronimo Energy Edina, MN
46. Go Green Energy Orono, MN
47. Green Circuit Hudson, WI
48. Green Energy Products Springfield, MN
49. Green Financing Solutions Minneapolis, MN
50. Green Home Doctors Minnetonka, MN
51. Heliene Inc Mountain Iron, MN
52. Hunt Electric Corporation Bloomington, MN
53. IBEW Local Union 292 Minneapolis, MN
54. iDEAL Energies Minneapolis, MN
55. International Precision Machining, Inc Waite Park, MN
56. Itek Energy Minneapolis, MN
57. Kandiyi Consulting, LLC Minneapolis, MN
58. Karges-Faulconbridge, Inc. (KFI Engineers) St. Paul, MN
59. Knobelsdorff Electric, Inc Goodhue, MN
60. Lovegreen Industrial Services Eagan, MN
61. M+W Energy Chandler, AZ
62. Malina Solar Structure Saint Paul, MN

63. Matheson Tri Gas Eagan, MN
64. Metal Services of Blooming Prairie, Inc Blooming Prairie, MN
65. Meyer Borgman Johnson, Inc Minneapolis, MN
66. Midwest Solar Expo, LLC Brooklyn, NY
67. MiLo Electric, LLC Prior lake, MN
68. Minnesota Municipal Utilities Association Plymouth, MN
69. Minnesota Native Landscapes Otsego, MN
70. Minnesota Renewable Energy Society (MRES) Minneapolis, MN
71. Minnesota Solar Energy Industries Assoc Minneapolis, MN
72. Minnesota Solar Sales LLC Minneapolis, MN
73. MinnPACE Saint Paul, MN
74. Mortenson Minneapolis, MN
75. Mortenson Construction Minneapolis, MN
76. New Energy Equity, LLC Annapolis, MD
77. Novel Energy Solutions St. Charles, MN
78. Nu Energy Tech Solutions Devlin, Ontario
79. Olson Energy Corporation Minneapolis, MN
80. Oxbow Sunworks Stillwater, MN
81. Paulson Law Office, Ltd. Edina, MN
82. Poly-Tex Inc Castle Rock, MN
83. Power System Engineering, Inc. Minneapolis, MN
84. Powerfully Green Orono, MN
85. Purdy Electric Orr, MN
86. REAL Solar, Inc Backus, MN
87. Red Rock Energy North Branch, MN
88. RedWind Consulting, LLC Eden Prairie, MN
89. Renewable Energy Services Minneapolis, MN
90. Robert A Olson JD, Attorney At Law, PA Minneapolis, MN
91. SGB Group Transformers Appleton, MN
92. Simple Solar Designs Rice, MN
93. SoCore Energy Chicago, IL
94. Solar Connection Rochester, MN
95. Solar Connection Inc. Rochester, MN
96. Solar Design Studio Platte City, MO
97. Solar Farm, LLC St. Paul, MN
98. SolarStone Partners Minneapolis, MN
99. St. Cloud Heating and Air Conditioning Inc. St. Cloud, MN
100. Stern Companies, Inc Baxter, MN
101. Straub Design Company Minneapolis, MN
102. Sundial Solar Energy Edina, MN
103. SunPeak Madison, WI
104. TechKnowledge, LLC Eden Prairie, MN
105. The Great Plains Institute for Sustainable Development Minneapolis, MN
106. The Sun's Warmth Red Wing, MN
107. TruNorth Solar Edina, MN
108. U.S. Renewable Energy Credit Exchange Cambridge, MN
109. Wagner Zaun Architecture Inc Duluth, MN
110. Wenck Golden Valley, MN
111. Westwood Professional Services, Inc. Eden Prairie, MN
112. Winkelman Energy Group St. Cloud, MN
113. Winona Renewable Energy LLC Winona, MN
114. Winthrop & Weinstine Minneapolis, MN
115. Writing for the Workplace, LLC Saint Paul, MN
116. WSB Golden Valley, MN
117. Yucatan Solar LLC St Paul, MN
118. Zenergy, LLC Sebeka, MN
119. Zinniel Electric Co Sleepy Eye, MN



Overview

The purpose of this guide is to inform the solar industry in Minnesota by helping Minnesota businesses connect with one another, establish supply chain efficiencies, and build a stronger local industry. Consumers may gain a better understanding of the depth of the solar industry in Minnesota and may find the directory useful in their journey to install solar on their home or business.

The companies are listed in alphabetical order with contact information, website, and a brief description provided by the entity of the products and services they provide. Accompanying each listing is a graphic indicating the industry sectors that each company serves.

- M** **Manufacturers** are companies located in Minnesota that are either Original Equipment Manufacturers (OEMs) or those that supply components for the manufacturing process. These listings are primarily for business-to-business sales, as most manufacturers do not sell directly to the consumer.
- D** **Distribution** companies provide sourced equipment to installers or end users. They may source all the components for a solar array or specialize in specific areas, such as electrical components or racking.
- I** **Installation** companies listed are typically the first contact for someone interested in solar. Along with their company information and the services they provide is an indicator of the markets they serve: Residential (10-kW sized systems), Commercial/Utility/Multi-Family, or Community Solar Gardens.
- PS** **Project Services** listings represent engineering, legal, and finance companies that offer specialized services needed to support individual solar projects. These are companies that installers and developers will use to bring some projects to completion.
- EO** There are also **Education and Outreach** entities that provide education and training focused on solar and other renewables. Manufacturers and installers can use this section to find and train qualified workers. Consumers will find courses or seminars to learn more about solar energy. Advocates will find organizations to join and support. Educators can find materials and course outlines for their classrooms.

Alexandria Industries **M**

401 Country Rd 22 NW Alexandria, MN
www.alexandriaindustries.com

Mark W Turley

623-565-3356

mturley@alexandriaindustries.com

We are a full-service aluminum extruder with complete fabrication capabilities. We also have capabilities in plastic injection molding, casting machining, sub-assembly, assembly, and kitting. Our fabrication facility includes equipment for CNC machining, lineal processing fabrication, punching, and full-service fabrication requirements. We offer program management services for small and large scale requirements.

Allied Graphics **M**

16290 54th Street NE St. Michael, MN

www.allied-graphics.com

Steve Paskach

763-428-8365

sales@allied-graphics.com

Allied Graphics is an industry leading screen printing manufacturer of durable, high-quality custom graphics for equipment manufacturers that are looking for product labels that will last for several years in direct sunlight without fading or color washout. We specialize in printing and finishing overlays, decals, stickers, labels, tags, and more. We service all of North and South America.

Automated Control Systems **M PS**

3951 W. 143rd Street Savage, MN

www.autocontrols.net

Bradley Tutch

952-895-1222

btutch@autocontrols.net

ACS is a product development firm that provides engineering services for many local and national companies. We have extensive experience in electronic systems that manage battery charging for both solar and wind power sources.

Crenlo Cab Products **M**

1600 4th Ave NW Rochester, MN

www.crenlo.com/emcor/enclosures/

Steve Leidig

507-289-3371

sleidig@crenlo.com

Sensitive electronic equipment comes in many shapes and sizes. Safely housing and protecting it can be a challenge. Before you settle for something that kind of works, come to us with your request. We can help with everything from a simple modification to one of our standard products to a completely custom solution. We provide a wide range of services from design consulting services to supply chain management solutions. With over 60 years of experience to draw from, Crenlo is prepared to meet any challenge.

Dalsin Industries **M**

9111 Grand Avenue South
 Bloomington, MN

www.dalsinind.com

Jayson Olson

952-881-2260

jolson@dalsinind.com

Dalsin Industries, with high rate production facilities in Minnesota and Arizona, delivers precision metal product contract manufacturing, as well as automated fabrication from sheet and plate materials (carbon steel, stainless steel, aluminum, and others), progressive stamping 660T from 48" wide coils in aluminum, stainless steel, galvalume, galvanized, and galvaneal.

Despatch Industries **M**

8860 207th St West Lakeville, MN

www.despatch.com

Erik Anderson

952-469-8273

erik.anderson@despatch.com

Despatch Industries manufactures capital equipment for the metallization process of manufacturing PV solar cells.

Energy Conservation Products & Services, Inc **M I**

PO Box 393 Carlton, MN

Google Solarway6000

Ronald Anderson

218-390-6688

ronaldandsueanderson@msn.com

We manufacture Solarway 6000 space heating solar air panels that are certified by the Solar Rating and Certification Corporation. We provide solar site analysis, installation, and maintenance services. • Residential • Commercial

Directory Key

M Manufacturers **D** Distributors **I** Installers **PS** Project Services **EO** Education/Outreach

Installers are further broken down by:

Residential • Commercial (includes Utility and Multi-family) • Community Solar Garden

Heliene Inc. M

8787 Silicon Way Mountain Iron, MN

www.heliene.ca**Zach Marconett**

763-334-2994

zmarconett@heliene.com

With an innovative team and a proven track record, Heliene is a manufacturer of high quality, high efficiency solar photovoltaic modules in Canada and the USA with its products installed in North America, Europe, Asia, and the Caribbean. We successfully manufacture and sell a bankable product for the solar infrastructure industry.

International Precision Machining, Inc M

511 Sundial Drive Waite Park, MN

www.ipminc.com**Daniel Meyer**

320-656-1241

dmeyer@ipminc.com

IPM, Inc. is an ISO certified job and contract precision machining provider located in Waite Park, Minn. Our manufacturing facility consists of over 30,000 square feet and utilizes modern CNC milling, turning, gear cutting and grinding equipment to manufacture precision parts to your exact specifications. The gear cutting services we can provide are hobbing, shaping, shaving, and broaching.

Itek Energy M

2746 31st Ave S. Minneapolis, MN

itekenergy.com**Margot Fleming**

612-318-6384

margot.fleming@spye.co

We are a Made in America solar module manufacturer.

Lovegreen Industrial Services M I

2280 Sibley Court Eagan, MN

lovegreen@lovegreen.com**Mark Bednarchuk**

651-707-9571

mbednarchuk@lovegreen.com

Our crews are skilled, union-trained Millwrights for field installation and we have a 40,000 sq ft fabrication & machine shop that is MN-SHARP certified. We have a fantastic record for job safety and over 65 years in business. We provide field erection of frames and supports (bolted and welded) • Commercial

Malina Solar Structure M D

2327 Wycliff St #3 Saint Paul, MN.

www.malinasolar.com**Patrick Holt**

612-388-0505

patrick.holt@malinasolar.com

Distributed throughout the U.S. from St. Paul Minn., Malina Solar Structure's time efficient racking system is an excellent option for your solar projects. Made of structural steel with industrial grade coating, our compact, easy and quick install products and ground anchoring lines offer an attractive, finished look that will also endure exposure to the toughest seasonal elements of Minnesota.

Matheson Tri Gas M D

3191 Mike Collins Drive Eagan, MN

www.mathesongas.com**David Becker**

320-212-2402

dbecker@mathesongas.com

We are a manufacturer and supplier of industrial and medical gases and supplies.

Metal Services of Blooming Prairie, Inc. M

605 5th Street NE Blooming Prairie, MN

www.metal-services.com**Lowell Meyer**

507-583-2144

lowellm@metal-services.com

Metal Services is a custom metal fabrication facility that specializes in the following: sawing, sheet & plate laser & plasma cutting, forming, welding of all types, and tube & pipe bending.

Poly-Tex Inc. M

27725 Danville Avenue Castle Rock, MN

www.poly-tex.com**John Frederick**

612-670-8309

jfrederick@frederickconsult.com

Poly-Tex has been providing canopy systems to the industry for over 30 years. Our original market targeted the passive solar greenhouse industry, and we have provided greenhouse canopy systems nationwide, including large systems in excess of five acres.

Red Rock Energy M EO

12181 375th St. North Branch, MN

www.redrok.com/main.htm**Duane C. Johnson**

651-583-2265

redrok@redrok.com

We are an all-around solar tracking expert, providing solar trackers and electronic parts.

SGB Group Transformers M

P.O. Box 122 Appleton, MN

smitusa.com**Larry Rebman**

320-289-2840

larryemls@hotmail.com

We provide transformers for step up, grounding, reactors and coils, main power transformer (MPT) 1000-15,000,000 kVA 208 through 800,000 volts.

Stern Companies, Inc. M

7756 College Road Baxter, MN

www.sternindustries.com**Jen Ahonen**

218-824-8924

jahonen@sternindustries.com

SCI is a quality driven global sourcing and manufacturing specialist for polymer products and assemblies. Our capabilities include: Rotational, injection, blow and rubber molding, thermoforming, extrusions, and die cutting. Through these entities we provide our customers with an honest and unbiased solution to their component needs. We are a single source of supply, generating savings in customer procurement, quality management, and engineering activities.

Straub Design Company M

2238 Florida Ave S.

Minneapolis, MN

www.straubdesign.com**Paul Ebnet**

952-546-6686

pebnet@straubdesign.com

Straub Design is a leading supplier of industrial automation equipment that is focused on tape application. We provide a variety of systems for the solar industry including solar cell and frame taping. If your production process includes the application of tape, please consider Straub Design. Straub Design—solutions that stick since 1972.

TechKnowledge, LLC M

15366 W Sunrise Circle Eden Prairie, MN

www.TechUsOut.net**Lane Woodland**

612-709-9038

lwoodland@TechUsOut.net

TechKnowledge, LLC designs, develops, manufactures and sells its technical know-how and capabilities to produce custom innovative solutions for renewable energy (wind and solar) and industrial, automotive, and defense applications. One of our specialties is grid-tie and off-grid inverters and chargers.

Apadana Solar Technologies D I PS

2360 Nevada Ave N. Golden Valley, MN
www.apadanatech.com

John Ehresmann

763-203-2106

Solar@ApadanaTech.com

Apadana Solar Technologies is a full-service solar energy system designer and installer of commercial and residential solar systems. We are a company founded and staffed by engineers, supply chain professionals, and solar energy experts, with a mission to help our customers achieve their social, environmental, and financial goals via clean energy.

- Residential • Commercial

Electrical Solutions & Design Inc D

12777 Meadowvale Rd Suite B
 Elk River, MN

www.electricalsolutionsdesign.com

Rick Ryan (Principal)

763-567-3839

rickryan@electricalsolutionsdesign.com

We are a manufacturers rep bringing solutions to customers in sustainable energy, electrical & energy efficiency LED lighting, new LED fixtures, and/or LED retrofit lighting modules, saving energy and bringing better lighting.

Green Energy Products D I PS

1315 W Central St Springfield, MN
www.SolarGEP.com

Tim

507-723-4885

info@SolarGEP.com

Green Energy Products provides customized renewable energy services and installations featuring SunPower solar. • Residential

- Commercial • Community Solar Garden

Malina Solar Structure M D

2327 Wycliff St #3 Saint Paul, MN.
www.malinasolar.com

Patrick Holt

612-388-0505

patrick.holt@malinasolar.com

Distributed throughout the U.S. from St. Paul Minn., Malina Solar Structure's time efficient racking system is an excellent option for your solar projects. Made of structural steel with industrial grade coating, our compact, easy and quick install products and ground anchoring lines offer an attractive, finished look that will also endure exposure to the toughest seasonal elements of Minnesota.

Matheson Tri Gas M D

3191 Mike Collins Drive Eagan, MN
www.mathesongas.com

David Becker

320-212-2402

dbecker@mathesongas.com

We are a manufacturer and supplier of industrial and medical gases and supplies.

Simple Solar Designs D I PS EO

2610 119th St NW Rice, MN

[facebook- Simple Solar Designs](https://www.facebook.com/SimpleSolarDesigns)

Gary Court

320-493-9775

SimpleSolarDesigns@aol.com

We provide solar hot water thermal heat systems. • Residential • Commercial
 • Community Solar Garden

All Energy Solar, Inc I

1642 Carroll Ave St. Paul, MN
allenergysolar.com

Belle Gerhard, Office Manager

800-620-3370

info@allenergysolar.com

We are a solar electric installer dedicated to serving our customers with the highest quality solar panel installations. We provide clean, green solar energy solutions for residential, commercial and government clients in Iowa, Massachusetts, Minnesota, and Wisconsin. Our team of industry professionals have been focused on providing long term, trusted relationships since 2009.

- Residential • Commercial

Amberg Renewable Energy I

53972 Hwy 28 Alberta, MN

ambergrenewableenergy.com

Roy Amberg

320-324-2566 cell 320-760-0448

ramberg1962@gmail.com

We provide sales, service, and installation of solar and wind equipment.

- Residential • Commercial

Amec Foster Wheeler I PS

800 Marquette Ave Minneapolis, MN
www.amecfw.com

Iain McNerlin

651-323-8704

iain.mcnerlin@amecfw.com

We are an engineering, procurement, and construction full-service provider to the commercial solar industry. • Commercial

Ameresco I PS

9855 West 78th Street Eden Prairie, MN
www.ameresco.com

John Neville, Regional Director

952-315-6941

jnville@ameresco.com

Ameresco helps organizations meet energy saving and energy management challenges with an integrated comprehensive approach to energy efficiency and renewable energy. Leveraging budget neutral solutions like energy savings performance contracts (ESPCs) and power purchase agreements, Ameresco (NYSE: AMRC) is a leading publicly traded energy services company specializing in the development and implementation of energy services including energy generation, energy efficiency solutions, and renewable energy systems.

- Commercial • Community Solar Garden

Apadana Solar Technologies D I PS

2360 Nevada Ave N. Golden Valley, MN
www.apadanatech.com

John Ehresmann

763-203-2106

Solar@ApadanaTech.com

Apadana Solar Technologies is a full-service solar energy system designer and installer of commercial and residential solar systems. We are a company founded and staffed by engineers, supply chain professionals, and solar energy experts, with a mission to help our customers achieve their social, environmental, and financial goals via clean energy.

- Residential • Commercial

Apex Efficiency Solutions, SBC I PS

403 Jackson St, Suite 308 Anoka, MN
www.apex-co.us

Greg Ackerson

763-355-7336

grega@apex-co.us

We are an organization dedicated to improving the community and world. We develop and implement energy efficiency improvements and renewable energy projects for our clients. Ten percent of our profits are returned to the community through donations to other nonprofit organizations. • Commercial

- Community Solar Garden

Applied Energy Innovations I PS

4000 Minnehaha Ave S. Minneapolis, MN
www.AEExpertise.com

Jill Spanitz-Marckel

612-532-0384

jill@appliedenergyinnovations.org

AEI is a HVAC heating/cooling, electrical, solar, and weatherization/insulation general contractor, with an emphasis in energy efficiency/renewable energy and property improvement. Our services, combined or separate, encompass complete building energy performance, with a respect to replacing dirty/wasted energy with clean energy, in a responsible way that benefits all of our community.

- Residential • Commercial

Aquilla Solar Corp I

207 Second Street West Wabasha, MN

aquillasolar.com

Aquilla Solar Corp

651-560-4950

info@aquillasolar.com

Aquilla Solar was founded to help promote environmental stewardship with clean energy, help cut electrical costs for customers, and strengthen the economy by providing quality jobs and services to our local Wabasha area.

We strive to assist our customers with the best solar experience we can provide. Give us a call for a free quote.

- Residential • Commercial

Blattner Energy, Inc. I PS

392 County Road 50 Avon, MN 56310

www.blattnerenergy.com

Matt Dankers

320-356-7351

matt@blattnerenergy.com

Blattner Energy is a premier EPC contractor in renewable energy construction with more than a century of large-scale project experience and over 30,000 megawatts of renewable energy installations across North America. Blattner provides complete engineering, procurement, and construction services for commercial and utility-scale PV, CPV, and CSP solar projects, delivering the highest levels of safety, quality, schedule and productivity on every solar project. • Commercial

Borrego Solar Systems Inc. I

9900 13th Ave N Plymouth, MN

www.borregosolar.com

Jason Askins

415-827-1942

jaskins@borregosolar.com

With over 1,100 successfully completed projects and more than 500 MWs of solar capacity under management, we are the third largest commercial solar EPC in the United States.

- Commercial • Community Solar Garden

Carr Creek Electric Service LLC I

209 Sommers Street North Hudson, WI

www.energyexperts.solar

Christopher Jarosch

715-760-0071

chris@energyexperts.solar

Carr Creek Electric Service provides comprehensive services including solar PV, energy storage systems, and generators. So whether you are looking to peak shave your company's energy demand, provide power for a cabin, or simply provide clean energy to your home, you can depend on us to have the knowledge and experience to provide a solution.

- Residential • Commercial

Cedar Creek Energy I PS

1285 114th Avenue NW Suite 100

Coon Rapids, MN

www.cedarcreekenergy.com

Rob Appelhof

763-432-5261

info@cedarcreekenergy.com

Cedar Creek Energy is a full-service electrical contractor specializing in turnkey solar energy and energy efficiency projects. Cedar Creek has been a leader in this space since 2007. Cedar Creek offers solutions for commercial, municipal, government, nonprofit, educational, and residential clients.

- Residential • Commercial • Community Solar Garden

Common Sense Energy I PS

412 West Broadway Plainview, MN

www.csdlc.solar

Amy Lorentz

507-710-4120

amy@csdlc.solar

Common Sense Energy prides itself in creating custom solutions for those seeking energy self-reliance. At CSE, your concerns are heard; whether it be environmental concerns or the increasing impact of the cost of energy on your wallet, we do our best to meet the goals and priorities of the customer. • Residential

- Commercial • Community Solar Garden

Development Services, Inc I PS

402 N Harold, PO Box 48 Ivanhoe, MN

dsi-services.com

Vince Robinson

507-530-1756

vince@dsi-services.com

DSI is a multifaceted consulting firm in the areas of: community and economic development; housing development and management; grant writing and administration; and renewable energy development. We have substantial experience with solar project development from conception, to entity organization, to financing, to implementation. One of our specialties is creative organizational structure and investor identification. We have assisted in the development of entities with membership from one to hundreds. • Residential • Commercial

- Community Solar Garden

Energy Conservation Products & Services, Inc M I

PO Box 393 Carlton, MN

[Google Solarway6000](http://GoogleSolarway6000)

Ronald Anderson

218-390-6688

ronaldandsueanderson@msn.com

We manufacture Solarway 6000 space heating solar air panels that are certified by the Solar Rating and Certification Corporation. We provide solar site analysis, installation, and maintenance services. • Residential • Commercial

Energy Plus DBA Conservation Technologies I

4811 Miller Trunk Highway Duluth, MN

www.conservtech.com

Damian Pennings

218-722-7818

damian@energy-plus.com

We provide sales and installation of PV solar and woodstoves. • Residential • Commercial

Energy Wise Solutions I PS

130 Kiser St Bessemer City, NC

www.energywisesolutions.net

Kevin Smith

704-281-7022

ksmith@energywisesolutions.net

Our team is NABCEP certified and able to provide expert consulting, design, and installation. Most of the products we use come with a 25-year manufacturer's warranty. The best part is that solar electric (PV) is virtually maintenance free! We feature the SolarEdge StorEdge HV Hybrid Inverter including battery backup, LG Chem 9.8kWh 63Ah 400V Lithium Ion Battery RESU10H. • Residential

Fagen, Inc. I

501 W Hwy 212 Granite Falls, MN

www.fageninc.com

William Stark

320-564-3324

wstark@fageninc.com

Fagen, Inc. is a full-service industrial contractor headquartered in Granite Falls, Minn. Utilizing a database of over 25,000 direct-hire employees, Fagen, Inc. has constructed a variety of successful projects including solar power, wind power, and other industrial process facilities.

- Commercial

Forteva Solar I

3948 W 49th 1/2 St, #24713

Minneapolis, MN

www.fortevasolar.com

Andrew Root

612-361-7861

solar@forteva.com

Forteva Solar specializes in designing and installing custom solar, electric vehicle (EV) charging, energy storage, and LED lighting solutions for commercial building owners, real estate developers and custom home builders to help them incorporate sustainable energy into their developments and projects. • Residential

- Commercial • Community Solar Garden

Frattalone Companies, Inc. I

3205 Spruce Street Saint Paul, MN

www.frattaloneco.com

Scott A. Spisak

651-484-0448

scotts@frattaloneco.com

Frattonone Companies is an experienced civil site contractor providing full turnkey solar site construction services including erosion control, site clearing, grading, permanent fencing, access roads, laydown areas, foundation installation, and turf establishment. Our in-house staff develops GPS models that allow us to integrate total machine control, both for grading and 3 axis foundation post driving. • Commercial

- Community Solar Garden

Gary Hammer Electric I PS

PO Box 394 Becker, MN

Gary Hammer

320-250-1447

ghammer@izoom.net

Gary Hammer is a full-service electrical company that works with solar installation companies to connect their solar systems to the grid.

- Residential • Commercial

Geronimo Energy I PS

7650 Edinborough Way, Suite 725
Edina, MN

www.geronimoenergy.com

Lindsay T. Smith

952-988-9000

marketing@geronimoenergy.com

Geronimo Energy is a utility-scale, full-service renewable energy development company headquartered in Minneapolis. We have developed over 1,600 megawatts of wind and solar projects that are either operational or currently under construction throughout the United States. • Commercial • Community Solar Garden

Go Green Energy I

1386 Rest Point Road Orono, MN

gogreenenergyonline.com

Jay Nygard

952-334-6400

jtn@gogreenenergyonline.com

GGE designs and installs grid-tied and off-grid wind and solar systems.

- Residential • Commercial

Green Circuit I PS EO

901 4th street #101 Hudson, WI

rhinogreencircuit.com

Brett Robinson

651-343-8477

brett@green-circuit.com

Green Circuit provides engineering, procurement, and construction (EPC) project design, consulting, and construction management financing. • Commercial • Community Solar Garden

Green Energy Products D I PS

1315 W Central St Springfield, MN

www.SolarGEP.com

Tim

507-723-4885

info@SolarGEP.com

Green Energy Products provides customized renewable energy services and installations featuring SunPower solar. • Residential

- Commercial • Community Solar Garden

Green Home Doctors I PS

4737 County Road 101, #163
Minnetonka, MN

www.greenhomedr.com

Matt Danielson

612-216-1640

info@greenhomedr.com

We specialize in energy conservation services. This starts with energy audits and follows through with insulation and air sealing services. Before a client installs a photovoltaic system, their home should be energy efficient. We have established relationships with many satisfied customers.

- Residential

Hunt Electric Corporation I

7900 Chicago Avenue South

Bloomington, MN

www.huntelec.com

Dawn Eimers

651-643-6520

deimers@huntelec.com

We are a full-service electrical contractor with 100 MW+ of experience in design and construction of commercial, utility, and CSG solar PV arrays.

- Commercial • Community Solar Garden

IBEW Local Union 292 I PS EO

312 Central Ave. SE, Suite 292
Minneapolis, MN

ibew292.org

Chris Kohn

612-617-4240

ckohn@ibew292.org

Our members provide installation, operation, maintenance, and repair of all electrical wiring and electrical equipment used in the construction of photovoltaic solar arrays. • Residential

- Commercial • Community Solar Garden

iDEAL Energies I PS

5810 Nicollet Ave Minneapolis, MN

www.idealenergies.com

Braden Solum

952-836-8524

braden.solum@idealenergies.com

iDEAL Energies is the premier Minneapolis-based commercial solar energy developer with over 160 commercial systems currently in operation. We design, install, finance, and operate turnkey solar energy systems for commercial for-profit businesses, nonprofit businesses, school districts, government entities, REITs, and ESOPs. • Commercial

Knobelsdorff Electric, Inc. I PS

25701 370th Street Goodhue, MN

www.knobelsdorffelectric.com

Jeff Olsen

651-923-4970

jeffo@knobelsdorffelectric.com

Knobelsdorff Electric provides complete services for the solar industry, including all work from low voltage up to 35,000 volt systems, riser poles and point of interconnect. We know string and central inverter systems and handle all AC underground installations, DC installations of racking, modules and inverters. We can perform work as an EPC contractor or work as a sub to other EPC contractors.

- Commercial • Community Solar Garden

Lovegreen Industrial Services M I

2280 Sibley Court Eagan, MN

lovegreen@lovegreen.com

Mark Bednarchuk

651-707-9571

mbednarchuk@lovegreen.com

Our crews are skilled, union-trained Millwrights for field installation and we have a 40,000 sq ft fabrication & machine shop that is MN-SHARP certified. We have a fantastic record for job safety and over 65 years in business. We provide field erection of frames and supports (bolted and welded). • Commercial

M+W Energy I PS

570 N. 54th St., Ste 100 Chandler, AZ

www.mwgroup.net

Robert Wanless

602-402-3638

Robert.Wanless@mwgroup.net

M+W Energy is a turnkey engineering, procurement & construction (EPC) provider of solar photovoltaic power plants. We operate nationwide and have installed over 1 gigawatt of projects in the U.S. market. M+W's services begin on projects that are under development and span into the period of operations and maintenance. With our office in Edina, Minn., we will have installed over 160 MWs by the end of 2017 within the state.

- Commercial • Community Solar Garden

MiLo Electric, LLC I

15220 Oak Ridge Circle SE Prior lake, MN

Michael T. Pettit

952-956-4528

mondune1@msn.com

We provide residential and commercial solar installations.

- Residential • Commercial

Mortenson Construction I PS

700 Meadow Lane North Minneapolis, MN

www.mortenson.com/solar

Robert Ed

763-287-5658

robert.ed@mortenson.com

Mortenson has proven to be a reliable and bankable EPC partner. Our expertise in energy modeling tools combined with our self-perform capabilities keep us focused on delivering the lowest cost of energy over the life cycle of our projects. • Commercial • Community Solar Garden

New Energy Equity, LLC | PS

705 Melvin Avenue, Suite 100
Annapolis, MD

www.newenergyequity.com

Jake Dashiell

443-616-2188

jdashiell@newenergyequity.com

New Energy Equity sources financing from private, public and institutional investors with established long-term, successful relationships. As an end-to-end project team with experience handling all aspects of the development process, we work with the most reputable solar construction companies to complete engineering, permitting, construction and commissioning of solar transactions. • Commercial • Community Solar Garden

Novel Energy Solutions | PS EO

23913 Co Rd 39 St. Charles, MN

www.novelenergysolutions.com

Cliff Kaehler, CEO

507-272-5401

cliff.kaehler@novelenergy.biz

Novel Energy Solutions (NES) offers a turnkey solar installation service with 100% financing to qualified businesses. NES also develops community solar gardens and has over 70 MW in queue in the MN solar rewards program. • Residential • Commercial • Community Solar Garden

Nu Energy Tech Solutions | PS EO

49 Hwy 613 Devlin, Ontario

netscanada.ca

Jeremy Nussbaumer

807-276-3245

Jeremy@netscanada.ca

We provide renewable energy installations and consultations and energy conservation services. • Residential • Commercial • Community Solar Garden

Olson Energy Corporation | PS

Suite 900 IDS Center, 80 South 8th Street
Minneapolis, MN

olsonenergycorporation.com

Robert A. Olson, JD, President

612-349-5271

rao@robertaolson.net

Olson Energy develops solar and wind commercial and utility scale facilities including storage facilities in association with experienced EPC contractors, structuring financing for eventual ownership by for-profit entities, but also especially for nonprofit and tax-exempt entities, such as cities, counties, and municipal power companies with the project donated to that entity, after five years. • Commercial • Community Solar Garden

Oxbow Sunworks | PS

5633 Memorial Ave N Stillwater, MN

www.oxbow-solar.com

Morgan Southard

651-408-3962

Morgan@oxbow-solar.com

Oxbow Sunworks is a full-service solar installation contractor serving the Minnesota and Wisconsin industries. We are an elite group of electricians, installers, operators, and managers with unparalleled collective experience. We pride ourselves in providing expert system integration on behalf of the Midwest's finest developers, EPCs and clients of all kinds. With over 65 MW installed since our origination, we have a depth of understanding and adaptability unlike any others around. • Residential • Commercial • Community Solar Garden

Powerfully Green |

20 Crystal Creek Rd. Orono, MN

www.powerfullygreen.com

Steve Gagne

763-438-1976

info@powerfullygreen.com

For nearly a decade, Powerfully Green has enhanced residential and commercial properties throughout Minnesota with solar energy solutions. As a full-service NABCEP-certified installer, we ensure the success of your solar project by managing system design, engineering, permits, utility interconnect, incentives, performance monitoring, training, and ongoing support. • Residential • Commercial • Community Solar Garden

Purdy Electric |

10641 Hillcrest Dr Orr, MN

Jeff Purdy

218-780-6437

jeffpurdy@centurytel.net

As the owner of Purdy Electric, I have been an electrician for over 30 years. For more than 20 years I have lived off the grid with both solar PV and wind. I started Purdy Electric in 2002 and perform all types of electrical work. I install both grid-tied and off-grid PV systems. Systems have ranged from .75 kW to as large as 35 kW.

• Residential • Commercial

REAL Solar, Inc. | PS

3963 8th St SW Backus, MN

www.rreal.org

Jan Hubbard

218-947-3779

jan@rreal.org

REAL Solar is a Minnesota and North Dakota licensed electrical and general contractor providing design-build engineering, procurement, and construction services in residential, commercial, municipal, and utility solar energy installation markets. • Residential • Commercial • Community Solar Garden

Simple Solar Designs | PS EO

2610 119th St NW Rice, MN

[facebook- Simple Solar Designs](https://facebook.com/SimpleSolarDesigns)

Gary Court

320-493-9775

SimpleSolarDesigns@aol.com

We provide solar hot water thermal heat systems.

• Residential • Commercial • Community Solar Garden

SoCore Energy | PS

225 W Hubbard, Suite 200 Chicago, IL

www.socoreenergy.com

Laura Caspari

312-859-3951

Laura.Caspari@socoreenergy.com

SoCore Energy develops solar energy installations for commercial, industrial, utility, and public sector customers throughout the United States—with a client list that includes Fortune 500 retailers, industrial operators, municipalities, and academic institutions. We are a full-service clean energy developer, providing site identification, project development, engineering, construction management, operations & maintenance, and incentive application services in-house.

Solar Connection |

6524 34th Ave NW, Suite A Rochester, MN

www.solarconnectioninc.com

Rachael Howe

507-292-8400

rhowe@solarconnectioninc.com

Solar Connection is a solar installation company specializing in customer-owned commercial and residential systems. We offer turnkey design and installation. • Residential • Commercial

Solar Farm, LLC |

2355 Fairview Ave #101 St. Paul, MN

www.solarfarm.com

James Darabi

651-271-8410

james.darabi@solarfarm.com

Solar Farm provides solar electric (PV) system design, sales & installation. • Residential • Commercial • Community Solar Garden

SolarStone Partners | PS

3944 Xerxes Avenue South
Minneapolis, MN

solarstonepartners.com

Gordon Simanton

612-801-2000

gordy@solarstonepartners.com

SolarStone's executive team has been involved with over \$3 billion of currently operational wind, solar, and hydro projects across the U.S. and Europe. Development experience includes project development, land acquisition, project management, transmission and distribution interconnection, energy policy, project finance, construction, operations, and maintenance. • Community Solar Garden

St. Cloud Heating and Air Conditioning Inc. | PS

1545 Hwy 23 East St. Cloud, MN

stcloudheating.net

Gary Anderson

320-253-0657

gary@stcloudheating.net

We provide residential and small commercial HVAC service and installations, new construction and remodeling, and solar PV systems and solar thermal heating and hot water.

• Residential • Commercial

Sundial Solar Energy | PS

3209 W 76th St #305 Edina, MN
www.sundialsolarenergy.com

Jon Kramer

240-463-3688

sundialsolarenergy@gmail.com

Sundial Solar is one of Minnesota's oldest and leading solar companies. We specialize in development and financing of commercial and industrial businesses, municipal entities, schools districts, and pioneering creative projects. • Commercial

SunPeak | PS

440 Science Drive Madison, WI
www.sunpeakpower.com

Matt Bellehumeur

608-535-4554

contact@sunpeakpower.com

SunPeak is a turnkey developer of commercial solar PV electricity systems based in Madison, Wisconsin. Businesses can be assured the feasibility studies, financial payback analysis, system engineering, installation and ongoing maintenance will be professionally handled. Projects typically range from 100 kW to 5 MW (hundreds to thousands of solar panels) and offer significant cost savings relative to conventional utility electric rates. • Commercial

TruNorth Solar | PS

5239 Edina Industrial Blvd. Edina, MN
www.TruNorthSolar.com

Martin Morud

612-888-9599

Info@TruNorthSolar.com

TruNorth Solar is a solar installation company in Minnesota specializing in residential, commercial, and utility sized PV projects. With a reputation for integrity and high quality work, TruNorth Solar has comprehensive knowledge of the solar industry and the regulatory structure in which it operates, allowing our team to capitalize on new policies to the benefit of our customers and the environment. We look forward to serving as your solar expert on your next solar project. • Residential • Commercial • Community Solar Garden

Winona Renewable Energy LLC | PS

1449 Ridgewood Dr Winona, MN
www.winonarenewableenergy.com

Tim Gulden

507-312-0190

info@WinonaRenewableEnergy.com

We provide turnkey solar electric solutions for the residential, commercial, nonprofit, and government sectors. Services include: site surveys, quoting, design, procurement, installation, commissioning, training, and customer service. We pride ourselves in outstanding professional service, superior attention to detail, solid integrity, proactive safety, quality products, and competitive value. • Residential • Commercial • Community Solar Garden

Zenergy, LLC |

308 Frontage Road Sebeka, MN
www.ZenergyGuide.com

Jeff Brandt

218-837-5155

jeffb@zenergyguide.com

Zenergy is a leading installer of solar PV modules and services in Minnesota. Our experienced team performs site assessments, designs and installs solar arrays, and provides ongoing support for homeowners and businesses. Mounting experience includes ballasted flat roof, pitched roof, ground mount, top-of-pole, and custom-designed mounts. • Residential • Commercial • Community Solar Garden

Zinniel Electric Co. |

25955 County Road 27 Sleepy Eye, MN
www.ZinnielElectric.com

Timothy J. Zinniel

800-817-7930

tzinniel@zinnielelectric.com

For nearly 40 years, Zinniel Electric has proven to be a trusted electrical contracting company in southern Minnesota. Tim Zinniel (NABCEP) began the solar division in 2008. We have completed PV projects ranging in size up to 3 MW on homes, farms, schools, government buildings, and businesses. We focus on meeting electrical needs in the most efficient, safe, and affordable manner.

Aerotek Energy Services PS

8501 Golden Valley Rd. Suite 200
 Golden Valley, MN
www.aerotek.com

Mike Burtzel

763-923-2004

mburtzel@aerotek.com

Aerotek Energy specializes in recruiting candidates within the solar industry. We have supported utility scale, community garden, and commercial solar projects from development stage through O&M. Core skill sets include: engineering, drafting/design, CMs, PMs, safety, electricians, and installers. Through our proprietary database, our recruiters have direct access to more than 28 million candidates and we have seven non-franchised MN office locations.

Amec Foster Wheeler | PS

800 Marquette Ave Minneapolis, MN
www.amecfw.com

Iain McNerlin

651-323-8704

iain.mcnerlin@amecfw.com

We are an engineering, procurement and construction (EPC) full-service provider to the commercial solar industry. • Commercial

Ameresco | PS

9855 West 78th Street Eden Prairie, MN
www.ameresco.com

John Neville, Regional Director

952-315-6941

jneville@ameresco.com

Ameresco helps organizations meet energy saving and energy management challenges with an integrated comprehensive approach to energy efficiency and renewable energy. Leveraging budget neutral solutions like energy savings performance contracts (ESPCs) and power purchase agreements, Ameresco (NYSE: AMRC) is a leading publicly traded energy services company specializing in the development and implementation of energy services including energy generation, energy efficiency solutions, and renewable energy systems. • Commercial • Community Solar Garden

Apadana Solar Technologies D | PS

2360 Nevada Ave N. Golden Valley, MN
www.apadanatech.com

John Ehresmann

763-203-2106

Solar@ApadanaTech.com

Apadana Solar Technologies is a full-service solar energy system designer and installer of commercial and residential solar systems. We are a company founded and staffed by engineers, supply chain professionals, and solar energy experts, with a mission to help our customers achieve their social, environmental, and financial goals via clean energy.

• Residential • Commercial

Apex Efficiency Solutions, SBC | PS

403 Jackson St, Suite 308 Anoka, MN
www.apex-co.us

Greg Ackerson

763-355-7336

grega@apex-co.us

We are an organization dedicated to improving the community and world. We develop and implement energy efficiency improvements and renewable energy projects for our clients. Ten percent of our profits are returned to the community through donations to other nonprofit organizations.

• Commercial • Community Solar Garden

Applied Energy Innovations | PS

4000 Minnehaha Ave S. Minneapolis, MN
www.AEExpertise.com

Jill Spanitz-Marckel

612-532-0384

jill@appliedenergyinnovations.org

AEI is a HVAC heating/cooling, electrical, solar, and weatherization/insulation general contractor, with an emphasis in energy efficiency/renewable energy and property improvement. Our services combined or separate encompass complete building energy performance, with a respect to replacing dirty/wasted energy with clean energy, in a responsible way that benefits all of our community. • Residential • Commercial

A-Sharp Energy PS EO

2517 Humboldt Ave S, Suite 103
Minneapolis, MN

asharpenergy.com

Daniel Enderton

855-612-6612

daniel@asharpenergy.com

A-Sharp Energy provides two services: (1) a web service (www.asharpenergy.com) that lets people learn about community solar and shop for a subscription, and (2) a subscription management platform for providers to administer their subscriptions over the life of a community solar project.

Associated Benefits & Risk Consulting PS

6000 Clearwater Drive
Minnetonka, MN 55343

Carl Godziek

952-947-9714

Carl.Godziek@AssociatedBRC.com

Associated Benefits & Risk Consulting is an insurance and risk management firm. We specialize in developing insurance and risk management programs for all types of firms involved in the solar industry. We work to develop customized insurance and risk management plans that are tailored to meet our customers' needs.

Automated Control Systems M PS

3951 W. 143rd Street Savage, MN

www.autocontrols.net

Bradley Tutch

952-895-1222

btutch@autocontrols.net

ACS is a product development firm that provides engineering services for many local and national companies. We have extensive experience in electronic systems that manage battery charging for both solar and wind power sources.

Avant Energy, Inc. PS EO

220 South Sixth Street, Suite 1300
Minneapolis, MN

www.avantenergy.com

General Contact

612-349-6868

Info@avantenergy.com

Avant Energy is an energy management company with over 30 years of experience in energy consulting, project development, and utility management services. We work with our clients to develop innovative yet practical solutions based on the overarching belief that "better is possible."

Barr Engineering Co PS

4300 Market Pointe Bloomington, MN

www.barr.com

Rachel Walker

952-832-2849

rwalker@barr.com

Barr provides engineering and environmental consulting to clients across the Midwest. Barr serves the solar and natural-resource-management organizations and others with complex problems. We pride ourselves on solving clients' problems as if they were our own. We'll bring to your projects the expertise we've gained from our work on thousands of projects—we promise to do our best work on your behalf.

Blattner Energy, Inc. I PS

392 County Road 50 Avon, MN 56310

www.blattnerenergy.com

Matt Dankers

320-356-7351

matt@blattnerenergy.com

Blattner Energy is a premier EPC contractor in renewable energy construction with more than a century of large-scale project experience and over 30,000 megawatts of renewable energy installations across North America. Blattner provides complete engineering, procurement, and construction services for commercial and utility-scale PV, CPV, and CSP solar projects, delivering the highest levels of safety, quality, scheduling and productivity on every solar project. • Commercial

Cedar Creek Energy I PS

1285 114th Avenue NW Suite 100
Coon Rapids, MN

www.cedarcreekenergy.com

Rob Appelhof

763-432-5261

info@cedarcreekenergy.com

Cedar Creek Energy is a full-service electrical contractor specializing in turnkey solar energy and energy efficiency projects. Cedar Creek has been a leader in this space since 2007. Cedar Creek offers solutions for commercial, municipal, government, nonprofit, educational, and residential clients.

• Residential • Commercial • Community Solar Garden

Common Sense Energy I PS

412 West Broadway Plainview, MN

www.csdlc.solar

Amy Lorentz

507-710-4120

amy@csdlc.solar

Common Sense Energy prides itself in creating custom solutions for those seeking energy self-reliance. At CSE, your concerns are heard; whether it be environmental concerns or the increasing impact of the cost of energy on your wallet, we do our best to meet the goals and priorities of the customer.

• Residential • Commercial • Community Solar Garden

Compar, Inc. PS EO

10301 Yellow Circle Drive
Minnetonka, MN

www.comparinc.com

Stephen Bohlig

952-945-0300

stephen@comparinc.com

Since 1996 Compar, Inc. has undertaken solar research and operated research solar facilities. Compar has partnered with the Department of Energy, Environmental Protection Agency, and Xcel Energy.

Consulting Engineers Group, Inc. PS

21875 Eaton Avenue Lakeville, MN

www.ceg-engineers.com

Stephen Peichel

651-463-6263

information@ceg-engineers.com

Consulting Engineers Group is an electrical power systems design company specializing in electrical facilities required to connect renewable generation to the utility systems.

Development Services, Inc I PS

402 N Harold, PO Box 48 Ivanhoe, MN

dsi-services.com

Vince Robinson

507-530-1756

vince@dsi-services.com

DSI is a multifaceted consulting firm in the areas of community and economic development; housing development and management; grant writing and administration; and renewable energy development. We have substantial experience with solar project development from conception, to entity organization, to financing, to implementation. One of our specialties is creative organizational structure and investor identification. We have assisted in the development of entities with membership from one to hundreds.

• Residential • Commercial • Community Solar Garden

Dunham Associates, Inc. PS

50 South Sixth Street, Suite 1100
Minneapolis, MN

Dunhameng.com

Jake Armstrong

612-465-7550

info@dunhameng.com

Dunham is a mechanical and electrical consulting engineering firm, delivering high-quality services to our clients. Our experience designing renewable energy systems includes solar and wind energy, as well as ground and lake source geothermal energy systems.

Energy Wise Solutions | PS

130 Kiser St Bessemer City, NC

www.energywisesolutions.net**Kevin Smith**

704-281-7022

ksmith@energywisesolutions.net

Our team is NABCEP certified and able to provide expert consulting, design, and installation. Most of the products we use come with a 25-year manufacturer's warranty. The best part is that solar electric (PV) is virtually maintenance free! We feature the SolarEdge StorEdge HV Hybrid Inverter including battery backup, LG Chem 9.8kWh 63Ah 400V Lithium Ion Battery RESU10H. • Residential

EVS, Inc. PS

10025 Valley View Rd Ste 140

Eden Prairie, MN

www.evs-eng.com**Sohan Das**

952-646-0277

sdas@evs-eng.com

EVS is a consulting, engineering and surveying firm located in Eden Prairie, Minn. EVS offers electrical engineering for solar projects, site design/civil engineering, environmental engineering, land surveying, and solar and wind energy engineering services. EVS offers these services to meet the demands of a variety of projects for developers, contractors, private corporations, and government agencies.

Fredrikson & Byron, P.A. PS

200 South Sixth Street Minneapolis, MN

www.fredlaw.com**Daniel Yarano, Chair Energy Group**

612-492-7149

dyarano@fredlaw.com

We are a full-serve law firm with offices in Minnesota, Iowa, North Dakota, Mexico and China. Our energy practice includes renewable energy development, financing, and M&A. We assist clients in the oil and gas industry and assist in building large transmission and pipeline projects.

Gary Hammer Electric | PS

PO Box 394 Becker, MN

Gary Hammer

320-250-1447

ghammer@izoom.net

We are a full-service electrical company that works with solar installation companies to connect their solar systems to the grid.

• Residential • Commercial

Genie Solar Support Services PS

1215 Lilac Lane Excelsior, MN

Donna Pickard

952-500-0789

dpickardgsss@gmail.com

We support solar installers by applying, on their behalf, for utility interconnections.

Geronimo Energy | PS

7650 Edinborough Way, Suite 725

Edina, MN

www.geronimoenergy.com**Lindsay T. Smith**

952-988-9000

marketing@geronimoenergy.com

Geronimo Energy is a utility-scale, full-service renewable energy development company headquartered in Minneapolis. We have developed over 1,600 megawatts of wind and solar projects that are either operational or currently under construction throughout the United States. • Commercial • Community Solar Garden

Green Circuit | PS EO

901 4th street #101 Hudson, WI

rhinogreencircuit.com**Brett Robinson**

651-343-8477

brett@green-circuit.com

Green Circuit provides engineering, procurement, and construction (EPC) project design, consulting, and construction management financing. • Commercial • Community Solar Garden

Green Energy Products D | PS

1315 W Central St Springfield, MN

www.SolarGEP.com**Tim**

507-723-4885

info@SolarGEP.com

Green Energy Products provides customized renewable energy services and installations featuring SunPower solar. • Residential

• Commercial • Community Solar Garden

Green Financing Solutions PS

Minneapolis, MN

www.greenfinancingsolutions.com**Ian Schonwald**

612-655-1181

ian@greenfinancingsolutions.com

Green Financing Solutions (GFS) works with project owners and contractors as an owner and project advocate. We outline your options, educate you on financial impact, and work with you to get the project across the finish line. Our expertise in serving different types of clients nationwide allows us to assist with numerous kinds of projects.

Green Home Doctors | PS

4737 County Road 101, #163

Minnetonka, MN

www.greenhomedr.com**Matt Danielson**

612-216-1640

info@greenhomedr.com

We specialize in energy conservation services. This starts with energy audits and follows through with insulation and air sealing services. Before a client installs a photovoltaic system, their home should be energy efficient. We have established relationships with many satisfied customers. • Residential

IBEW Local Union 292 | PS EO

312 Central Ave. SE, Suite 292

Minneapolis, MN

ibew292.org**Chris Kohn**

612-617-4240

ckohn@ibew292.org

Our members provide installation, operation, maintenance, and repair of all electrical wiring and electrical equipment used in the construction of photovoltaic solar arrays. • Residential • Commercial • Community Solar Garden

iDEAL Energies | PS

5810 Nicollet Ave Minneapolis, MN

www.idealenergies.com**Braden Solum**

952-836-8524

braden.solum@idealenergies.com

iDEAL Energies is the premier Minneapolis-based commercial solar energy developer with over 160 commercial systems currently in operation. We design, install, finance, and operate turnkey solar energy systems for commercial for-profit businesses, nonprofit businesses, school districts, government entities, REITs, and ESOPs. • Commercial

Kandiyo Consulting, LLC PS

433 South 7th St., Suite 2025

Minneapolis, MN

www.renewableNRGpartners.com**Michael Krause**

612-229-7702

michaelkrause61@yahoo.com

We provide business planning, marketing and sales strategies; financial analysis and funding; project management support; and proposal drafts.

Karges-Falconbridge, Inc. (KFI Engineers) PS

670 County Road B W St. Paul, MN

www.kfiengineers.com**Chrissy McNamara**

651-254-6922

cmmcnamara@kfi-eng.com

Karges-Falconbridge, Inc. (KFI) is a recognized industry leader in process and facilities infrastructure, design, and performance. We are a mechanical and electrical engineering and commissioning firm that provides services for a wide range of customers including educational, government, commercial, industrial, institutional, retail, and healthcare organizations.

Knobelsdorff Electric, Inc. | PS

25701 370th Street Goodhue, MN
www.knobelsdorffelectric.com

Jeff Olsen

651-923-4970

jeffo@knobelsdorffelectric.com

Knobelsdorff Electric provides complete services for the solar industry, including all work from low voltage up to 35,000 volt systems, riser poles, and point of interconnect. We know string and central inverter systems, handle all AC underground installations, DC installations of racking, modules and inverters. We can perform work as an EPC contractor or work as a sub to other EPC contractors. • Commercial • Community Solar Garden

M+W Energy | PS

570 N. 54th St., Ste 100 Chandler, AZ
www.mwgroup.net

Robert Wanless

602-402-3638

Robert.Wanless@mwgroup.net

M+W Energy is a turnkey engineering, procurement & construction (EPC) provider of solar photovoltaic power plants. We operate nationwide and have installed over 1 gigawatt of projects in the U.S. market. M+W's services begin on projects that are under development and span into the period of operations and maintenance. With our office in Edina, Minn., M+W will have installed over 160 MWs by the end of 2017 within the state. • Commercial • Community Solar Garden

Meyer Borgman Johnson, Inc PS

510 Marquette Ave, Suite 900
 Minneapolis, MN
www.mbjeng.com

Tony Litecky

612-604-3624

alitecky@mbjeng.com

MBJ is a full-service structural engineering firm that provides array ballasting services in addition to structural reviews and reinforcing solutions of existing roofs for solar array installations.

Minnesota Municipal Utilities Association PS EO

3025 Harbor Lane North, Suite 400
 Plymouth, MN

mmua.org

Robert C. Jagusch

612-840-9697

rjagusch@mmua.org

MMUA represents Minnesota's 125 municipally owned, not-for-profit electric utilities. We support our members with safety training, engineering and regulatory assistance, as well as support for projects and project funding.

Minnesota Native Landscapes PS

8740 77th St NE Otsego, MN

www.MnNativeLandscapes.com/solar

Tyler Adamsheck

763-295-0010

tylera@mnlcorp.com

We are Minnesota's premier native vegetation experts with services ranging from erosion control to bio-engineering and everything in between. In addition to our extensive service offerings, we also produce local origin native plants and seed.

Minnesota Solar Energy Industries Associations PS EO

2512 33rd Ave S Apt 2 Minneapolis, MN

mnseia.org

Minnesota Solar Energy Industries Association

651-331-0919

jmkearney@mnseia.org

MnSEIA represents and serves Minnesota energy professionals and solar energy users. Our membership is comprised of over 100 organizations involved in solar photovoltaic energy, solar thermal energy, and energy storage. Membership includes solar installers, vendors, developers, distributors, manufacturers, job trainers, labor unions, law firms, and utilities.

Minnesota Solar Sales LLC. PS EO

642 Quincy St. NE. Minneapolis, MN

Patrick Holt

612-388-0505

prholtmn@gmail.com

We provide project management, PV design and technical sales, energy storage and management.

MinnPACE PS

380 St. Peter Street, Suite 850
 Saint Paul, MN

minnpace.com

Michael Linder

651-204-6236

Michael@minnpace.com

PACE (Property Assessed Clean Energy) is the best source of financing solar projects in Minnesota. With no payments until May 15th of the year following the installation, the project is cash flow positive from the start. MinnPACE is a statewide program available to commercial and agricultural businesses with a 4.5% fixed interest rate for 10 years. Visit www.minnpace.com for more information.

Mortenson Construction | PS

700 Meadow Lane North Minneapolis, MN

www.mortenson.com/solar

Robert Ed

763-287-5658

robert.ed@mortenson.com

Mortenson has proven to be a reliable and bankable EPC partner. Our expertise in energy modeling tools combined with our self-perform capabilities keep us focused on delivering the lowest cost of energy over the life cycle of our projects. • Commercial • Community Solar Garden

New Energy Equity, LLC | PS

705 Melvin Avenue, Suite 100
 Annapolis, MD

www.newenergyequity.com

Jake Dashiell

443-616-2188

jdashiell@newenergyequity.com

New Energy Equity sources financing from private, public, and institutional investors with established long-term, successful relationships. As an end-to-end project team with experience handling all aspects of the development process, New Energy Equity works with the most reputable solar construction companies to complete engineering, permitting, construction, and commissioning of solar transactions. • Commercial • Community Solar Garden

Novel Energy Solutions | PS EO

23913 Co Rd 39 St. Charles, MN
www.novelenergysolutions.com

Cliff Kaehler, CEO

507-272-5401

cliff.kaehler@novelenergy.biz

Novel Energy Solutions (NES) offers a turnkey solar installation service with 100% financing to qualified businesses. NES also develops community solar gardens and has over 70 MW in queue in the MN solar rewards program.

• Residential • Commercial • Community Solar Garden

Nu Energy Tech Solutions | PS EO

49 Hwy 613 Devlin, Ontario

netscanada.ca

Jeremy Nussbaumer

807-276-3245

Jeremy@netscanada.ca

We provide renewable energy installations and consultations and energy conservation services.

• Residential • Commercial • Community Solar Garden

Olson Energy Corporation | PS

Suite 900 IDS Center, 80 South 8th Street
 Minneapolis, MN

olsonenergycorporation.com

Robert A. Olson, JD, President

612-349-5271

rao@robertaolson.net

Olson Energy develops solar and wind commercial and utility scale facilities including storage facilities in association with experienced EPC contractors, structuring financing for eventual ownership by for-profit entities, but also especially for nonprofit and tax-exempt entities, such as cities, counties, and municipal power companies with the project donated to that entity, after five years. • Commercial • Community Solar Garden

Oxbow Sunworks | PS

5633 Memorial Ave N Stillwater, MN

www.oxbow-solar.com

Morgan Southard

651-408-3962

Morgan@oxbow-solar.com

Oxbow Sunworks is a full-service solar installation contractor serving the Minnesota and Wisconsin industries. We are an elite group of electricians, installers, operators, and managers with unparalleled collective experience. We pride ourselves in providing expert system integration on behalf of the Midwest's finest developers, EPCs and clients of all kinds. With over 65 MW installed since our origination, we have a depth of understanding and adaptability unlike any others around. • Residential

• Commercial • Community Solar Garden

Paulson Law Office, Ltd. PS

4445 W. 77th Street, Suite 224
Edina, MN 55435

jcp-law.com

Jeffrey C. Paulson

952-835-0055

pat.jcplaw@comcast.net

We handle all solar project-related services, including leasing, interconnection, power purchase agreements, environmental permitting, procurement, construction, financing, O&M, as well as regulatory advocacy and litigation. We represent a range of developers from large utility-scale projects to smaller commercial projects and we are actively involved in the evolving community solar garden program in Minnesota.

Power System Engineering, Inc. PS

10710 Town Square Drive NE, Suite 201
Minneapolis, MN

www.powersystem.org

Curt Lyons

763-783-5355

lyonsc@powersystem.org

The electric power infrastructure is a complex system. Effectively interconnecting renewable generation projects to this system requires extensive analysis capabilities and an in-depth understanding of how it operates. PSE has this expertise; we provide a wide range of study and design services to support renewable energy projects, and have extensive experience in doing so.

REAL Solar, Inc. I PS

3963 8th St SW Backus, MN

www.rreal.org

Jan Hubbard

218-947-3779

jan@rreal.org

REAL Solar is a Minnesota and North Dakota licensed electrical and general contractor providing design-build engineering, procurement, and construction services in residential, commercial, municipal, and utility solar energy installation markets. • Residential • Commercial

• Community Solar Garden

RedWind Consulting, LLC PS

9853 Frederick Place Eden Prairie, MN

www.redwindconsulting.com

Daniel E. Rustowicz

952-303-4769

contactus@redwindconsulting.com

RedWind specializes in renewable energy markets with an emphasis on commercial and utility-scale wind and solar generation. Our primary services include: advisory services, financing solutions, development, consulting, and expert witness testimony.

Robert A. Olson JD, Attorney at Law, PA PS

Suite 900 IDS Center, 80 So. 8th Street
Minneapolis, MN

Robert A. Olson, JD, President

612-349-5271

rao@robertaolson.net

I am an experienced tax attorney and former bank owner who is knowledgeable in the financing and structuring of wind and solar and storage facilities. I have special knowledge and experience in the design of utility and commercial/industrial scale projects for nonprofit entities including cities and counties and municipal power companies.

Simple Solar Designs D I PS EO

2610 119th St NW Rice, MN

[facebook- Simple Solar Designs](https://www.facebook.com/SimpleSolarDesigns)

Gary Court

320-493-9775

SimpleSolarDesigns@aol.com

We provide solar hot water thermal heat systems.

• Residential • Commercial • Community Solar Garden

SoCore Energy I PS

225 W Hubbard, Suite 200 Chicago, IL

www.socoreenergy.com

Laura Caspari

312-859-3951

Laura.Caspari@socoreenergy.com

SoCore Energy develops solar energy installations for commercial, industrial, utility, and public sector customers throughout the United States—with a client list that includes Fortune 500 retailers, industrial operators, municipalities, and academic institutions. We are a full-service clean energy developer, providing site identification, project development, engineering, construction management, operations & maintenance, and incentive application services in-house.

Solar Design Studio PS

23185 State Hwy 92 Platte City, MO

www.solardesignstudio.com

Bob Solger

913-221-6253

bob@solardesignstudio.com

Solar Design Studio is an international consulting and engineering firm that specializes in the solar photovoltaic (PV) industry. From our headquarters in Kansas City, Missouri, we serve solar project developers, PV equipment distributors, and solar integrators and installers.

SolarStone Partners I PS

3944 Xerxes Avenue South
Minneapolis, MN

solarstonepartners.com

Gordon Simanton

612-801-2000

gordy@solarstonepartners.com

SolarStone's executive team has been involved with over \$3 billion of currently operational wind, solar and hydro projects across the U.S. and Europe. Our development experience includes project development, land acquisition, project management, transmission and distribution interconnection, energy policy, project finance, construction, operations and maintenance. • Community Solar Garden

St. Cloud Heating and Air Conditioning Inc. I PS

1545 Hwy 23 East St. Cloud, MN

stcloudheating.net

Gary Anderson

320-253-0657

gary@stcloudheating.net

We provide residential and small commercial HVAC service and installations, new construction and remodeling, and solar PV systems and solar thermal heating and hot water.

• Residential • Commercial

Sundial Solar Energy I PS

3209 W 76th St #305 Edina, MN

www.sundialsolarenergy.com

Jon Kramer

240-463-3688

sundialsolarenergy@gmail.com

Sundial Solar is one of Minnesota's oldest and leading solar companies. We specialize in development and financing of commercial and industrial businesses, municipal entities, schools districts, and pioneering creative projects. • Commercial

SunPeak I PS

440 Science Drive Madison, WI

www.sunpeakpower.com

Matt Bellehumeur

608-535-4554

contact@sunpeakpower.com

SunPeak is a turnkey developer of commercial solar PV electricity systems based in Madison, Wisconsin. Businesses can be assured the feasibility studies, financial payback analysis, system engineering, installation and ongoing maintenance will be professionally handled. Projects typically range from 100 kW to 5 MW (hundreds to thousands of solar panels) and offer significant cost savings relative to conventional utility electric rates. • Commercial

The Sun's Warmth PS EO

28609 Walnut Run Way Red Wing, MN
www.sunswarmth.com

Rich Huelskamp

651-301-3271
rich@sunswarmth.com

We educate, advise, and conduct engineering analysis of potential projects and successfully complete project management of projects/programs. We are an energy efficiency and renewable energy consulting company.

TruNorth Solar I PS

5239 Edina Industrial Blvd. Edina, MN
www.TruNorthSolar.com

Martin Morud

612-888-9599
Info@TruNorthSolar.com

TruNorth Solar is a solar installation company in Minnesota specializing in residential, commercial and utility sized PV projects. With a reputation for integrity and high quality work, TruNorth Solar has comprehensive knowledge of the solar industry and the regulatory structure in which it operates, allowing our team to capitalize on new policies to the benefit of our customers and the environment. We look forward to serving as your solar expert on your next solar project. • Residential • Commercial • Community Solar Garden

U.S. Renewable Energy Credit Exchange PS

3171 309th Ave NW Cambridge, MN

Tom Karas

763-333-5200
tkaras@puresynergy.net

US REC-X exists with an operational mandate to provide a valid REC marketplace for Local Clean Energy Heroes operating distributed energy projects. Capturing the REC revenue is one of the final steps in recovering all monetary value for making an investment in a clean energy project.

Wagner Zaun Architecture Inc PS EO

17 N Lake Ave Duluth, MN
www.wagnerzaun.com

Rachel Wagner

218-733-0690
rwagner@wagnerzaun.com

We are an architectural design firm with broad experience and expertise in passive solar design, zero net energy design, and active "solar ready" design.

Wenck PS

7500 Olson Memorial Hwy Suite 300
 Golden Valley, MN
www.wenck.com

Abby Neuens

952-837-3348
aneuens@wenck.com

Wenck was founded more than 30 years ago and now features 14 branch offices in five states strategically located around the country. We provide engineering, environmental, construction, and emergency response services to deliver single-source real estate solutions for our clients.

Westwood Professional Services, Inc. PS

7699 Anagram Drive Eden Prairie, MN
www.westwoodps.com

Mallory Lindgren

952-937-5150
mallory.lindgren@westwoodps.com

Westwood is a multidisciplined surveying and engineering services provider with over 6GW of experience supporting the development and construction of utility-scale, distributed generation, and commercial rooftop solar projects across the United States. Our in-house expertise includes: civil, electrical, geotechnical and foundation engineering, environmental permitting, land surveying, and aerial mapping.

Winona Renewable Energy LLC I PS

1449 Ridgewood Dr Winona, MN
www.winonarenewableenergy.com

Tim Gulden

507-312-0190
info@WinonaRenewableEnergy.com

We provide turnkey solar electric solutions for the residential, commercial, nonprofit and government sectors. Services include: site surveys, quoting, design, procurement, installation, commissioning, training, and customer service. We pride ourselves in outstanding professional service, superior attention to detail, solid integrity, proactive safety, quality products, and competitive value. • Residential • Commercial • Community Solar Garden

Winthrop & Weinstine PS

225 South Sixth Street, Suite 3500
 Minneapolis, MN
www.winthrop.com

Norm Jones

612-604-6605
njones@winthrop.com

We provide legal counsel for solar developers, investors and lenders who want to find debt and equity financing for long-term ownership of systems. We focus on ground mount or (pooled) rooftop projects from 1 MW to 10 MW. We have a special interest in financing Minnesota Community Solar Gardens.

WSB PS

701 Xenia Avenue - Suite 300
 Golden Valley, MN
wsbeng.com

Brian Bourassa

763-541-4800
bbourassa@wsbeng.com

WSB is a full-service civil engineering, planning, and environmental consulting firm. We provide environmental, permitting, geotech, ALTA survey, and preliminary and final design for renewable energy projects.

Yucatan Solar LLC PS

2038 Ford Pkwy #444 St Paul, MN
www.yucatansolar.com

Gerardo G Ruiz

612-221-3774
gerardo.ruiz@yucatansolar.com

We are a solar project management and consulting firm specializing in utility-scale plants and special-purpose solar projects. Our personnel can supervise the adherence to technical solar standards of construction, as well as manage material logistics and quality control on site.

Alswager Strategies EO

7169 121st Street West Apple Valley, MN

Jan Alswager

651-245-6151

jan@alswager.net

Jan Alswager has more than 23 years of experience lobbying at the Minnesota Legislature. After directing the legislative and political activities of a very large organization, she started her own firm. In addition to lobbying, her skills include legislative strategy, grassroots organizing, and coalition development. She has lobbied the legislature and agencies on solar energy and other issues.

A-Sharp Energy PS EO

2517 Humboldt Ave S, Suite 103

Minneapolis, MN

asharpenergy.com

Daniel Enderton

855-612-6612

daniel@asharpenergy.com

A-Sharp Energy provides two services: (1) a web service (www.asharpenergy.com) that lets people learn about community solar and shop for a subscription, and (2) a subscription management platform for providers to administer their subscriptions over the life of a community solar project.

Avant Energy, Inc. PS EO

220 South Sixth Street, Suite 1300

Minneapolis, MN

www.avantenergy.com

General Contact

612-349-6868

Info@avantenergy.com

Avant Energy is an energy management company with over 30 years of experience in energy consulting, project development, and utility management services. We work with our clients to develop innovative yet practical solutions based on the overarching belief that “better is possible.”

Clean Energy Economy Minnesota EO

400 South 4th Street, Suite 401–202

Minneapolis, MN

www.cleanenergyeconomymn.org

Gregg Mast

612-743-9157

gmast@cleanenergyeconomymn.org

Clean Energy Economy Minnesota (CEEM) is an industry-led, nonprofit organization dedicated to strengthening Minnesota’s clean energy ecosystem through public education in support of a prosperous economy. Our mission is to provide educational leadership, collaboration, and policy analysis that accelerates clean energy market growth and smart energy policies.

Clean Energy Resource Teams EO

1991 Upper Buford Circle, 411 Borlaug Hall

Saint Paul, MN

www.cleanenergyresourceteams.org

Dan Thiede

612-626-0556

thie0235@umn.edu

The Clean Energy Resource Teams—or CERTs—is a statewide partnership with a shared mission to connect individuals and their communities to the resources they need to identify and implement community-based clean energy projects.

Compar, Inc. PS EO

10301 Yellow Circle Drive

Minnetonka, MN

www.comparinc.com

Stephen Bohlig

952-945-0300

stephen@comparinc.com

Since 1996 Compar, Inc. has undertaken solar research and operated research solar facilities. Compar has partnered with the Department of Energy, Environmental Protection Agency, and Xcel Energy.

Ecolibrium3 EO

2304 W. Superior Street Duluth, MN

www.ecolibrium3.org

Bret Pence

218-336-1038

bret@ecolibrium3.org

Ecolibrium3 is nonprofit organization with a focus on energy and equity in Duluth and northeast Minnesota. We provide fee-for-service residential energy audit services, and have been a Solar Market Pathways grant recipient since 2015. Our primary solar motivation is to create a vibrant local solar market through technical assistance, institutional outreach, and public education.

Green Circuit I PS EO

901 4th street #101 Hudson, WI

rhinogreencircuit.com

Brett Robinson

651-343-8477

brett@green-circuit.com

Green Circuit provides engineering, procurement, and construction (EPC) project design, consulting, and construction management financing. • Commercial • Community Solar Garden

IBEW Local Union 292 I PS EO

312 Central Ave. SE, Suite 292

Minneapolis, MN

ibew292.org

Chris Kohn

612-617-4240

ckohn@ibew292.org

Our members provide installation, operation, maintenance, and repair of all electrical wiring and electrical equipment used in the construction of photovoltaic solar arrays. • Residential • Commercial • Community Solar Garden

Midwest Solar Expo, LLC EO

147 Prince Street Brooklyn, NY

www.midwestsolarexpo.com

Sharona Kohn

301-523-5335

sharona@midwestsolarexpo.com

The 2017 Midwest Solar Expo returned to Minneapolis on May 22-24, 2017 for the 4th annual conference and exhibition. The conference brings together hundreds of solar industry leaders to advance the solar conversation in the Midwest. It includes plenary and networking sessions, keynotes, presentations, exhibition, happy hour, and ping pong.

Minnesota Municipal Utilities Association PS EO

3025 Harbor Lane North, Suite 400
Plymouth, MN

mmua.org

Robert C. Jagusch

612-840-9697

rjagusch@mmua.org

MMUA represents Minnesota's 125 municipally owned, not-for-profit electric utilities. We support our members with safety training, engineering and regulatory assistance as well as support for projects and project funding.

Minnesota Renewable Energy Society (MRES) EO

2928 5th Ave. S Minneapolis, MN

www.MnRenewables.org

Doug Shoemaker

612-308-4757

Dougs@MnRenewables.org

The Minnesota Renewable Energy Society (MRES) is a nonprofit organization dedicated to promoting and advocating for the use of renewable energy in Minnesota through education and the demonstration of practical applications. MRES is involved in education, awareness, and advocacy efforts for all forms of renewable energy, with a particular emphasis on solar technologies.

Minnesota Solar Energy Industries Associations PS EO

2512 33rd Ave S Apt 2 Minneapolis, MN

mnseia.org

Minnesota Solar Energy Industries Association

651-331-0919

jm Kearney@mnseia.org

MnSEIA represents and serves Minnesota energy professionals and solar energy users. Our membership is comprised of over 100 organizations involved in solar photovoltaic energy, solar thermal energy, and energy storage. Membership includes solar installers, vendors, developers, distributors, manufacturers, job trainers, labor unions, law firms, and utilities.

Minnesota Solar Sales LLC. PS EO

642 Quincy St. NE. Minneapolis, MN

Patrick Holt

612-388-0505

prholtmn@gmail.com

We provide project management, PV design and technical sales, energy storage, and management.

Novel Energy Solutions I PS EO

23913 Co Rd 39 St. Charles, MN

www.novelenergysolutions.com

Cliff Kaehler, CEO

507-272-5401

cliff.kaehler@novelenergy.biz

Novel Energy Solutions (NES) offers a turnkey solar installation service with 100% financing to qualified businesses. NES also develops community solar gardens and has over 70 MW in queue in the MN solar rewards program.

- Residential • Commercial • Community Solar Garden

Nu Energy Tech Solutions I PS EO

49 Hwy 613 Devlin, Ontario

netscanada.ca

Jeremy Nussbaumer

807-276-3245

Jeremy@netscanada.ca

We provide renewable energy installations and consultations and energy conservation services.

- Residential • Commercial • Community Solar Garden

Red Rock Energy M EO

12181 375th St. North Branch, MN

www.redrok.com/main.htm

Duane C. Johnson

651-583-2265

redrok@redrok.com

We are an all-around solar tracking expert, providing solar trackers and electronic parts.

Renewable Energy Services EO

448 Morgan Avenue South, Suite 300
Minneapolis, MN

John Dunlop

612-377-3270

JDunlop@RESMinn.com

Renewable Energy Services (RES) provides technical and policy support for renewable energy. RES was established to represent over 35 years of active support for renewable energy programs, first with the Minnesota State Energy Office and then with the American Wind Energy Association.

Simple Solar Designs D I PS EO

2610 119th St NW Rice, MN

facebook- Simple Solar Designs

Gary Court

320-493-9775

SimpleSolarDesigns@aol.com

We provide solar hot water thermal heat systems. • Residential • Commercial
• Community Solar Garden

The Great Plains Institute for Sustainable Development EO

2801 21st Street S. Suite 220

Minneapolis, MN

www.betterenergy.org

Brian Ross

612-767-7296

bross@gpisd.net

The Great Plains Institute works with diverse interests to transform the way we produce, distribute, and consume energy to be environmentally and economically sustainable. The Sustainable Communities Team works with local governments and stakeholders to turn local policy into action. GPI helps communities on planning, regulation, permitting, and technical analysis to realize renewable energy goals.

The Sun's Warmth PS EO

28609 Walnut Run Way Red Wing, MN

www.sunswarmth.com

Rich Huelskamp

651-301-3271

rich@sunswarmth.com

We educate, advise, and conduct engineering analysis of potential projects and successfully complete project management of projects/programs. We are an energy efficiency and renewable energy consulting company.

Wagner Zaun Architecture Inc PS EO

17 N Lake Ave Duluth, MN

www.wagnerzaun.com

Rachel Wagner

218-733-0690

rwagner@wagnerzaun.com

Wagner Zaun is an architectural design firm with broad experience and expertise in passive solar design, zero net energy design, and active "solar ready" design.

Writing for the Workplace, LLC EO

PO Box 40472 Saint Paul, MN

greengrantwriter.com

Cass Erickson

612-723-9904

cve.grants@gmail.com

We provide grant writing services to nonprofit organizations and small businesses. Deliverables include prospect research, annual grants calendars, letters of inquiry, and grant proposals. We specialize in the environment and education.

Common Expectations of a Solar Installation

Before installing a solar energy system, consumers are urged to make some basic home improvements that will save energy: get an energy audit; seal air leaks and add insulation; repair or replace old appliances; replace old lighting with LEDs; and use a programmable thermostat. Making homes or businesses energy efficient first will reduce energy consumption, which will reduce the investment needed for a solar energy system.

After making cost-effective home energy improvements, consumers can educate themselves about solar energy options. They can take a class on solar basics and talk to friends and neighbors who have installed solar. The Clean Energy Resource Teams offers “Solar Electricity for the Home, Farm, and Business,” a series of fact sheets to help determine if solar is a good option. The education process will help determine the goals behind installing a solar system, and highlight the need for a pre-

liminary solar site assessment to make sure the location is suitable for solar (see the Minnesota Solar Suitability App under “Solar Resources” on page 35). A third-party source, such as the Minnesota Renewable Energy Society, can provide an independent site assessment.

Once deciding to install a solar energy system, consumers will need to select a solar installer and plan their installation. Hiring a qualified contractor is highly recommended because proper installation requires many considerations and attention to detail to ensure a safe, productive and long-lasting system. It’s a good idea to meet with two or three installers before settling on one. The complexities of sizing, siting, purchasing, installing, permitting, and interconnecting a solar electric system are beyond the scope of what most homeowners are able to do. Solar installations are electrical in nature and require a licensed electrician to perform the installation.

Several key components of the solar installation process include:

Qualifications. Verify your installer’s qualifications. A hired installation crew must include a licensed Minnesota electrician; make sure the installer is in good standing with the Minnesota Department of Labor and Industry (dli.mn.gov). Ask about installer credentials; for example, many installers are certified by the North American Board of Certified Energy Practitioners (NABCEP). Request customer and business references. To find a current list of installers, check out the Clean Energy Project Builder, Minnesota Solar Energy Industries Association, NABCEP, or this guide.

Site Assessment. As part of your installation, be sure that the installer provides a detailed assessment of your site, including a shading analysis, examination of the roof and other structures to determine feasibility of a solar installation, and estimated annual production of the system, along with the estimated energy offset.

Permits and agreements. Confirm that the installer is applying for all necessary building permits, interconnection agreements, and documentation for incentives and manufacturer/installer warranties.

Manufacturer and installation warranties. Review all warranties. Most solar panels and collectors will have a manufacturer’s warranty that guarantees a minimum of 80% output of the name plate capacity for 25 years. The warranty for workmanship by the installer is usually two to five years.

Costs. Be sure that the installer provides a detailed bid contract that describes all the work to be done and who is doing it (including any subcontractors), all the equipment and materials to be installed, timeframes for completion, payment specifics, and process for any change orders.

Rebates and incentives. Review with your installer all financial incentives available to your installation. Make sure that the installer provides documentation for all applicable rebates and incentives and ensures timely filing. Check out the Database of State Incentives for Renewables & Efficiency (dsireusa.org) for a list of incentives that may apply to you.

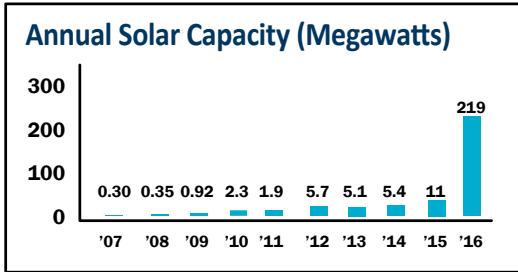
Inspections: Agree that all required project inspections will be arranged by the installer.

Solar Resources

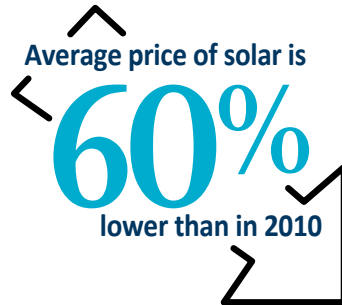
- **Clean Energy Project Builder** (cleanenergyprojectbuilder.org): A resource that connects people and businesses with companies that can help plan, implement, and manage clean energy projects. The online directory features companies that provide products and services for all kinds of solar and wind energy projects.
- **Clean Energy Resource Teams** (cleanenergyresourceteams.org): Offers fact sheets to determine if solar is right for homes, businesses, and farms; information about community solar gardens; special solar guidance for rural Minnesotans; and more.
- **Database of State Incentives for Renewables and Efficiency** (dsireusa.org): Provides a list of rebates, incentives, tax credits, and loan programs to support renewable and energy efficiency projects.
- **Midwest Renewable Energy Association (MREA)** (midwestrenew.org): Works to expand renewable energy adoption through innovative programs, renewable energy training, and educational events.
- **Minnesota Department of Commerce, Energy Information Center** (mn.gov/commerce): Provides unbiased general information about solar energy in Minnesota (800-657-3710); includes a solar-help resource (solar.help@state.mn.us) to answer solar questions.
- **Minnesota Department of Employment and Economic Development** (mn.gov/deed): Promotes business recruitment, expansion, and retention; international trade; workforce development; and community development for solar job seekers and solar businesses.
- **Minnesota Department of Labor and Industry** (dli.mn.gov): Oversees the state's programs for apprenticeships, construction codes and licensing, occupational safety and health, wage and hour standards, and workers' compensation. Licenses electricians.
- **Minnesota Renewable Energy Society** (mnrenewables.org): Promotes the use of and advocates for renewable energy in Minnesota through education and the demonstration of practical applications. Provides solar education and training and independent solar site suitability assessments.
- **Minnesota Solar Energy Industries Association** (mnseia.org): MnSEIA represents and serves Minnesota energy professionals and solar energy users. Work primarily focuses on state legislative lobbying efforts and administrative implementation work at the state agency level.
- **Minnesota Solar Suitability App** (mn.gov/solarapp): A public online tool created by the University of Minnesota that determines solar site suitability for locations throughout Minnesota.
- **National Renewable Energy Laboratory** (nrel.gov): Offers a range of information on solar research, including “Best Practices Guide for Photovoltaic System Operations & Maintenance.”
- **North American Board of Certified Energy Practitioners** (nabcep.org): A certifying body for solar installers; provides list of certified solar installers.
- **Solar Energy Industries Association** (seia.org): Supports the solar industry nationwide.
- **U.S. Department of Energy** (energy.gov): Provides a wide range of solar information. The DOE SunShot Initiative supports research and development efforts to leverage America’s abundant solar energy resources.

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Minnesota Solar Facts



Minnesota Department of Commerce



Lawrence Berkeley Lab
Tracking the Sun report

Minnesota's three largest solar power plants in operation:

Aurora Distributed Solar, **105MW**

North Star Solar, **100MW**

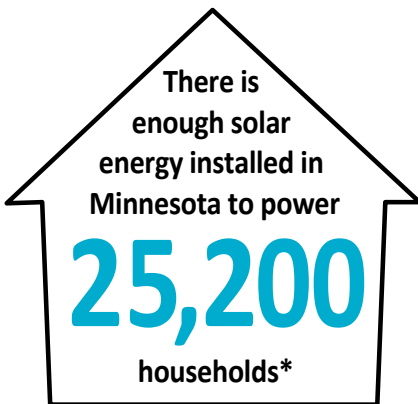
Marshall Solar, **62MW**

Minnesota Department of Commerce

2016 solar industry economic activity

\$1 Billion

Minnesota Department of Commerce



*assumes 10 kW/household

Community solar programs

26

in Minnesota

Clean Energy Resource Teams