



Photo Credit: Northwind Renewable Energy Cooperative



MREA Solar Canopy, ***DRIVING ON SUNSHINE***

The emergence of Electric Vehicle (EV) technology and the potential of solar photovoltaic systems (PV) to provide electricity without the pollution associated with fossil fuel have both led to creative advances in their respective industries. The technologies were destined to cross paths in an impactful way, and today a meaningful combination of both technologies is changing the way we think about transportation.

In spring of 2018, the Midwest Renewable Energy Association (MREA) collaborated with RENEW Wisconsin through the Solar for Good program to construct a 19.44 kW solar canopy. The structure features eight level II workplace chargers and a level III fast charger. To date, the array has produced over 13 Mwh of solar power. Completed in June of 2018 through an advanced installation course, the structure serves both as a demonstration site for solar education, as well as illustrates how solar energy can be combined with EV technology to generate 100% clean transportation opportunities.

The result is an offset of the energy demand for hundreds of EV charging sessions per year and a marriage of the two technologies in the process. Doing so has assisted in paving the way to increase the number of such structures in contemporary settings and thus, allow EV technology to emerge into the mainstream as a viable option, supported by infrastructure, for the daily transportation needs of the public. With the help of future sponsors, the MREA hopes to continue installing similar structures in communities across the Midwest, using the opportunities to both train students entering the solar professional field while expanding solar energy's reach as both a valuable investment and a viable alternative to fossil fuels.

"We are excited to demonstrate the potential of PV + EV and are working with partners across the Midwest to support continued investment in both technologies. The future is electric, and the future of electricity is solar energy."

- Executive Director of the MREA, Nick Hylla

PROJECT HIGHLIGHTS:

- **Location:**
Custer, WI
- **Commissioned:**
June 2018
- **DC Capacity:**
19.44 kW
- **AC Nameplate:**
20 kW
- **Expected Performance (AC):**
26,000 kWh/year
- **Array Tilt and Azimuth:**
20° and 180°
- **Structure:**
Poly-Tex Company - Steel, mono-truss, fixed
- **Racking:**
IronRidge – XR1000 rail and universal fastening object
- **Modules:**
72 Kyocera KU270-6MCA (270 Watt)
- **Inverter #1:**
Fronius Symo 10.0-3, 10 kW, 480 Volt, 3-phase
- **Inverter #2:**
SolarEdge SE10k, 10kW, 480 Volt, 3-phase, w/ P600 Optimizers
- **Solar Installer:**
Photovoltaic Systems, LLC



ABOUT THE MREA:

The Midwest Renewable Energy Association promotes renewable energy, energy efficiency, and sustainable living through education and demonstration.

Together with partners around the Midwest, we work to expand renewable energy adoption through innovation programs, renewable energy training, and educational events. The MREA is a 501(c)(3) non-profit organization.

CONTACT INFORMATION:

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SPECIAL THANK YOU TO OUR DRIVING ON SUNSHINE ADVOCATES:

The MREA is grateful to the many members, donors, and sponsors who helped make the solar canopy possible. The project has been a valuable opportunity to pursue its mission of promoting renewable energy, energy efficiency, and sustainable living through education and demonstration.

With support from the MREA's partners, the canopy was completed prior to The 29th Annual Energy Fair, where it was put to use virtually around the clock to meet the needs of EV owners during the event. In total, 1,514 kWh were consumed over the three-day weekend alone.



The project was made possible with support of members, donors, and sponsors.



Advanced PV Installation Course at the MREA.



News crews at the Ribbon Cutting Ceremony, during The 2018 Energy Fair.

SUSTAINABILITY

The environmental offsets from this project for the first year alone are outstanding:



44,953

miles driven by an average passenger vehicle (Greenhouse gas emissions)



20,100

pounds of coal burned (CO2 emissions)



3.2

homes' electricity use for one year (CO2 emissions)



6.4

tons of waste recycled instead of landfilled (Greenhouse gas emissions)



304

304 Tree seedlings grown for 10 years (Carbon sequestered)

SOURCE: epa.gov/energy/greenhouse-gas-equivalencies-calculator

ELECTRIC VEHICLE CHARGING:

The solar canopy houses a variety of electric vehicle chargers open to the public year-round—all powered by sunshine:



- One ABB Terra 53 DC Fast Charger
- One Level II High Power Tesla Connector (19.2 kW)
- Seven Level II HCS40R, 7.7 kW ClipperCreek Stations

Learn more at: midwestrenew.org/electric-vehicle-charging



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The Future is Electric!

