

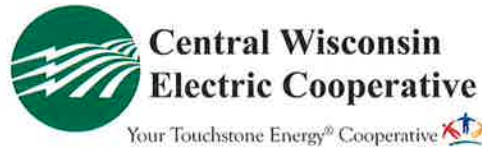


To aid you in finding more information about renewable/alternative energy sources we have compiled the following list of Web sites:

- **Midwest Renewable Energy Association**
www.the-mrea.org
- **Wisconsin Geothermal Association**
www.wisgeo.org
- **American Wind Energy Association**
www.awea.org
- **Solar Electric Power Association**
www.solarelectricpower.org
- **National Biodiesel Board**
www.biodiesel.org
- **National Hydropower Association**
www.hydro.org
- **Focus on Energy**
www.focusonenergy.com
Although we don't participate in Focus on Energy their site is an excellent information source.
- **U.S. Department of Energy/Energy Efficiency & Renewable Energy**
<http://www.eere.energy.gov/>

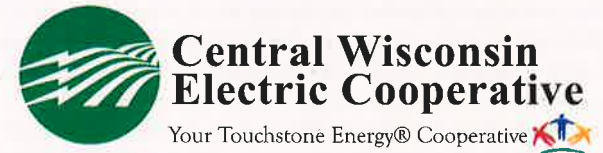


Solar Array Questions & Answers



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www.cwecoop.com



Are You Interested in Renewable Energy?

Central Wisconsin Electric Cooperative's solar demonstration units came on-line in the summer of 2015. Listed here are frequently asked questions and responses. If you have any further questions, please feel free to contact our office.

Why did CWEC install a solar demonstration system?

Seeing an increase in the amount of co-op members exploring the possibility of installing a solar system, the co-op's board of directors felt having a solar demonstration system available for member's to examine would be an effective tool in their evaluation process.

Why are there two sets of panels?

We thought it would be helpful to show a couple of different styles of panel arrays. The first array, North Wind Renewable Energy panel, is a standard south facing panel. The second array, Ten K Solar, has two rows of panels installed in tandem-one facing south and the other facing north.

How large are the solar arrays at the co-op?

The standard array is comprised of 12 panels measuring 66" x 39.5" and is rated at 3.36 KW AC. The dual panel array is comprised of 16 panels measuring 77.5" x 51.5" and is rated at 4.2 KW AC.

Are the solar arrays large enough to cover the energy needs of Central Wisconsin Electric Cooperative's office?

No. Our building's monthly average electric usage is around 16,775 kilowatt hours (kWhs). The combined projected monthly average output of the two solar arrays is 968 kWhs (346 for the standard and 622 for the dual).

Is the size of either solar array large enough to cover the needs of a typical residence in our area?

The average residential consumer on our system uses 858 kWhs per month. The projected output of the dual system is 622 kWhs per month. So probably not, but it depends on the actual electrical usage of the home. Individual usage varies according to house size, number of people and how electric devices are used. Solar system installers typically use past electrical usage when sizing a system. Because of high system costs, most systems are not sized to provide 100 percent of the electrical needs.

How much do solar arrays, similar to Central Wisconsin Electric Cooperative's, cost?

The cost varies depending on site preparation. The typical cost of the type of systems at the co-op is between \$15,000 and \$30,000.

How many years will the panels be operational?

We're anticipating 20-plus years. Typically, the panels are very durable and performance does not degrade much over time.

How long is the payback on a solar system similar to the ones at the co-op?

Payback varies as no two solar system paybacks are the same. To determine a payback on a solar system, we recommend you consider the following:

- Final cost of the system after incentives, such as rebates and the 30 percent federal tax credit;
- The estimated yearly output of the system; and
- The rate at which you will be paid by the electric utility for the system's output to the grid.

Where does the electricity go when the system is producing electricity?

Both systems are interconnected with the grid, so their output goes directly onto our distribution wires, which in turn reduces the amount of wholesale power we need to purchase. The energy produced is not directly used by our building.

Do either of the systems have a battery backup system?

No. The cost for battery backup for these types of systems is approximately \$30,000.

Do these systems work in the event of a power outage?

No. All renewable systems with an inverter and no battery backup require line voltage to function and will not generate during an outage.

Does the weather and change of seasons affect the solar production?

Both the weather and seasonal changes will affect the amount of sun reaching the panels. During the summer, the panels will produce more energy because the days are longer and the sun is higher. If it's a cloudy day, the panels will produce less.

Are tours of the systems available?

Absolutely, just give us a call or stop by our office.

How can I see what electricity the systems are generating?

We have monitors in our office displaying the output of the systems and have the same information available on our web site www.cwecoop.com.

What other renewable energy plans does Central Wisconsin Electric Cooperative have?

Your board of directors is considering a community solar garden, watch for more details. Don't forget we offer member rebates of up to \$1,500 for renewable systems.



North Wind Renewable Energy



Ten K Solar