

Real potential, ready today: Solar energy in Iowa



Solar energy has the potential to play a substantial role in Iowa's mix of energy sources. Here are some of the reasons interest in solar energy is growing:

Iowa ranks among the top third of U.S. states in the technical potential for solar PV energy production.¹ Iowa's 16th place ranking puts it ahead of many states south of Iowa, such as Florida, Georgia, Utah, Missouri, North Carolina and South Carolina. A solar PV array located in Iowa produces a comparable amount of electricity as one located in Miami, Houston, Atlanta, and more than ones located in Newark or Chicago.

Solar PV offers significant economic benefits to Iowa. Adding 300 megawatts (MW) of solar PV in Iowa over a five year period would create an average of 2,500 jobs for each of those five years. Solar PV can reduce the dollars spent importing fossil fuels – and help provide Iowans with cleaner air and water. According to the Solar Foundation, Iowa had 210 solar jobs in 2012 and 680 solar jobs in 2013 and **900 solar jobs in 2014.**

The cost of installing solar power has decreased

significantly in recent years. Prices fell on average 5% to 7% each year from 1998 to 2011.² Cost reductions from 2008 to 2012 were even greater. While the cost to install a watt of solar PV averaged \$7.50 in 2008, that cost had come down to about \$4 per watt in 2012.³ Costs are expected to continue to decline in future years as well.

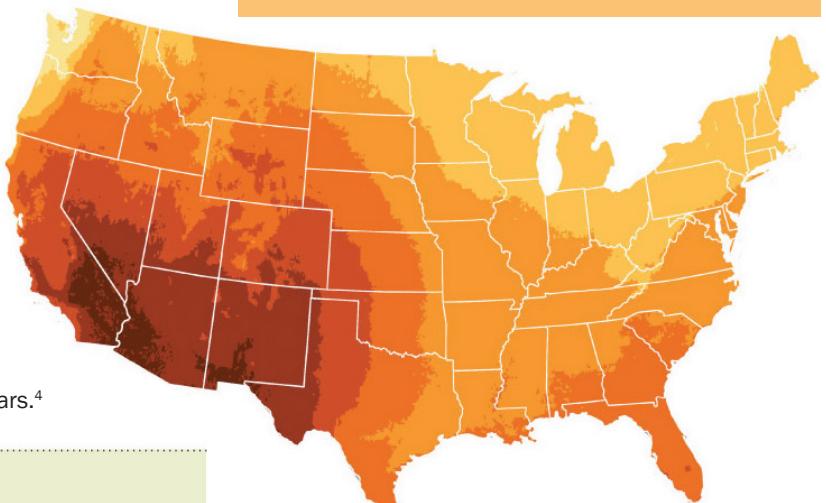
▼ Average PV system prices have declined significantly in recent years.⁴



▲ Access Energy Cooperative in Mt. Pleasant installed 100 kW of solar panels on the roof of its headquarters.

A large, bipartisan majority of Iowans support solar energy.⁷

- 91% support increasing use of solar energy, including 85% of Republicans, 96% of Democrats and 92% of Independents.
- 93% say they should have the right to put solar on their own home and choose how to pay for it.
- 91% oppose utility efforts to block consumer use of renewable energy such as solar.



▲ The solar resource available in Iowa is similar to many states further to the south and east.⁶

Learn more about solar energy's potential in Iowa:

www.iaenvironment.org/solar



▲ When installed in 2012, the 280 kW array at Luther College in Decorah was Iowa's largest. That is likely to change in 2014 with an even larger array planned for construction near Frytown in Johnson County.

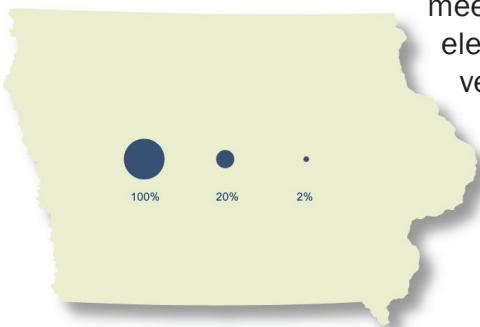
Solar PV generates the most electricity during periods of highest demand, when electricity prices spike and when the electric grid is stressed. In Iowa and much of the Midwest, summer heat and electricity use go together, so energy use and prices are often highest on hot, sunny summer afternoons. By generating electricity during these times, solar PV can reduce costs and improve the reliability of the electric grid.

Solar and wind are complementary renewable energy resources. While wind turbines can produce energy at any time of day and any time of the year, wind energy production tends to be higher in the winter and higher at night. Solar energy is available during the day and production is higher during the summer.

Iowa has the potential to build enough solar PV to meet annual electric needs by more than 150 times over. Iowa's rooftop solar PV potential alone could meet close to 20% of Iowa's annual electric needs. The rooftops of Iowa homes, warehouses, schools, hospitals, car dealerships, parking ramps, and more are ideal locations for solar PV. Alternatively, using ground-mount solar PV to

meet 5% or 10% of Iowa's annual electricity needs would require a very small geographic footprint.

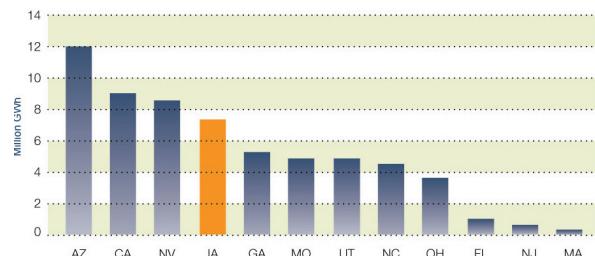
Using 21 of Iowa's 55,857 square miles of land for solar PV would provide 10% of Iowa's electricity needs.



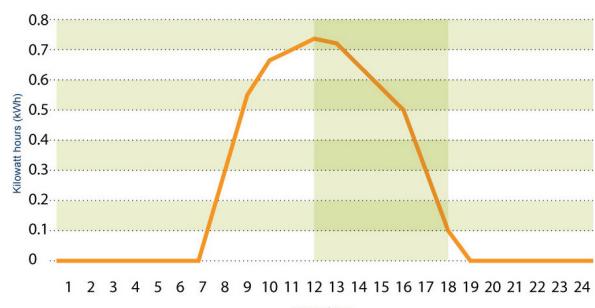
▲ This chart shows the approximate land areas required if Iowa were to obtain 100%, 20%, or 2% of its energy from solar PV.

Footnotes: 1. Lopez et al, NREL, U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis (2012). 2. Department of Energy, Photovoltaic (PV) Pricing Trends: Historical, Recent, and Near-Term Projections (2012) at <http://www.nrel.gov/docs/fy13osti/56776.pdf>. 3. Id. 4. Chart used with permission from SEIA, SEIA/GTM Research, U.S. Solar Market Insight Q2 2013, and Lawrence Berkeley National Lab, Tracking the Sun IV. 5. All rankings based data included in NREL's Renewable Electricity Futures Study (2012). 6. National Renewable Energy Laboratory, Photovoltaic Resource of the United States (2009). Map shows annual average solar resource for a solar PV system where the tilt equals the latitude. This and other solar resource maps are available at <http://www.nrel.gov/gis/mapsearch/>. 7. Public Opinion Strategies and Fairbank, Maslin, Metz & Associates poll of 434 registered Iowa voters. Conducted between 7/26/2014 and 8/3/2014. 4.7% margin of sampling error. 8. This chart uses modeled solar PV data from NREL's PV Watts version 1.0 and modeled wind data from the Iowa Energy Center's wind energy calculator.

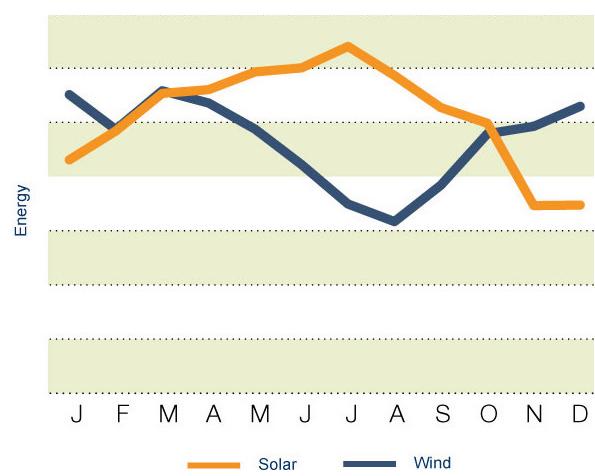
The Iowa market for solar PV is ready for substantial growth. Iowa's potential for solar PV development is as good or better than states that have hundreds of times what Iowa has installed today.



▲ Iowa's technical potential for solar energy is greater than states like Georgia, North Carolina, and Florida.⁵



▲ A large amount of solar energy is available in Iowa when utilities experience peak demand (shown in the shaded area).



▲ Seasonal changes in wind and solar energy allow them to complement each other well throughout the year.⁸

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