CEDAR RAPIDS

New Bohemia Solar Project

What is solar power?

An immense amount of solar energy strikes the Earth's surface every day. This energy can be captured and converted into electricity using photovoltaic (PV) cells, or used for heat and other applications in solar-thermal systems. Another way to obtain energy from the sun is through passive solar gain. This is a way that buildings and homes can be designed to take full advantage of the sun's warmth and light, helping to reduce their utility costs.

What is the potential for solar power in Iowa?

Iowa has "very good" solar potential, according to the National Renewable Energy Laboratory, even when put up against California, Florida and Hawaii. If 1,000 acres of Iowa land were covered with solar panels, the energy produced would:

- Equal the energy use of 111,000 homes
- Displace the consumption of more than 438,000 tons of coal per year
- Keep $10.9 million from being exported from Iowa to pay for fossil fuels
- Avoid 1.2 million tons of carbon dioxide per year
- Avoid 2,900 tons of nitrogen oxide per year
- Avoid 33,000 tons of sulfur dioxide, ozone and carbon monoxide

What is the New Bohemia Solar Project and what is a solar array?

The New Bohemia Solar Project was dedicated on September 9, 2005. The solar array is located on top of the Kouba Building at the corner of Third Street and 10th Avenue in southeast Cedar Rapids. The building is part of a brownfield redevelopment area adjacent to the Downtown Bohemian Commercial Historic District. The array installation was completed during the summer of 2005 through a series of hands-on workshops.

This solar array has three types of racks – single axis (follows the sun from east to west), dual axis (follows the sun from east to west throughout the day and north and south through the seasons), and fixed. The array is directly connected to the local power distribution grid. Alliant Energy purchases the power as part of its Second Nature program for customers interested in purchasing energy from renewable sources.

How can I learn about the solar power these arrays are producing?

Part of this project included the development of an educational interactive kiosk, located on the northwest corner of the Kouba building. This kiosk features real-time electric data from the solar arrays as well as information about all of the partners involved in the project.

Who were the partners in this project?

The partners involved were: Alliant Energy-Interstate Power and Light Company, the City of Cedar Rapids, the Iowa Renewable Energy Association, the Thorland Company, and the Iowa Department of Natural Resources. Primary funding was provided by the U.S. Department of Energy, with project partners also providing funds.

How can I find out more about solar power and other renewable energy sources?

Iowa's portfolio of natural resources – strong winds, fertile soils and abundant crops – position the state as a leader in the development of renewable energy. Creating a renewable energy industry in Iowa ensures a healthier environment by improving air, water and soil quality. Economically, renewable energy development can keep dollars in the state while offering a new revenue stream for Iowa's businesses and farms. Renewable energy also increases national security.

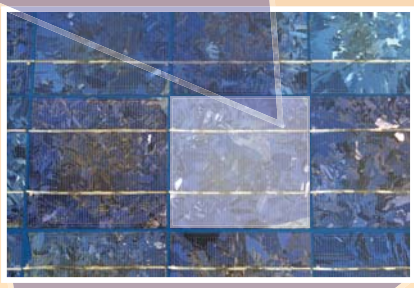
For more information, visit www.iowadnr.com or www.solarmidwest.org

DNR

The Photovoltaic Effect

Solar Cell

Solar electric systems (cells) convert sunlight directly to electricity. Cells are made of light-absorbing materials called semi-conductors. Silicon is commonly used.



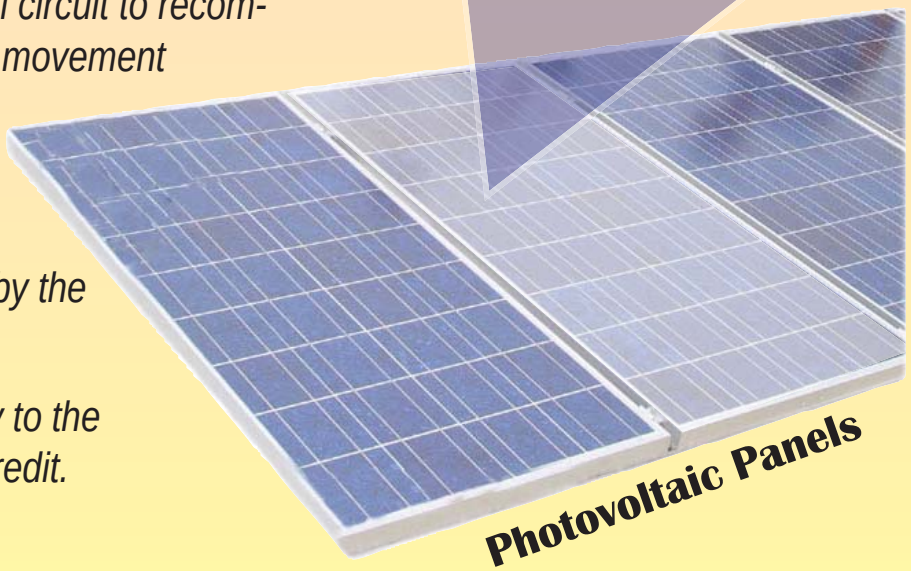
Solar Panel

1. The energy of absorbed light knocks electrons loose from their atoms, allowing them to flow freely across a junction between layers of silicon.

2. The electrons flow through an external circuit to recombine in the semiconductor material. This movement of electrons is an electric current.

3. The current flows to a controller that regulates the amount of electrical voltage (volts) and power (watts) produced by the solar panels.

4. Energy generated can be sent directly to the power grid and reserved as an energy credit.



Photovoltaic Panels