

MSU Solar Array Demonstration Project

MSU's Solar Demonstration Project was launched in 2003 with help from Consumers Energy and the Michigan Department of Consumer Industry Services. The demonstration project's goal is to inform the thousands of yearly visitors to the Pavilion and MSU students about the workings of solar energy and its potential uses.

MSU's solar array, located on the south side of the Pavilion, is composed of photo-voltaic (PV) solar panels, which means that they convert light energy into electricity. Other kinds of solar cells, called solar thermal, convert the sun's rays into heat.

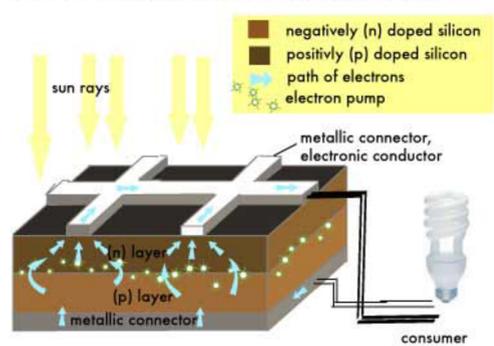
PV is Easy

The Pavilion does not draw power from MSU's grid, instead, like most buildings on the this side of Mt. Hope Road, the building uses energy from Consumers Energy and its own solar array.

This type of system is useful during power outages and it is easy to maintain because it has no moving parts.

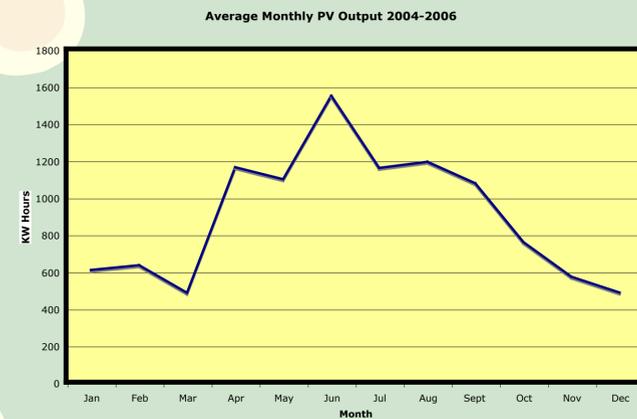
PV can save money through reducing demand for purchased power. In addition, if located far from the grid, PV can provide power without adding infrastructure.

How Conventional Solar Cells Work

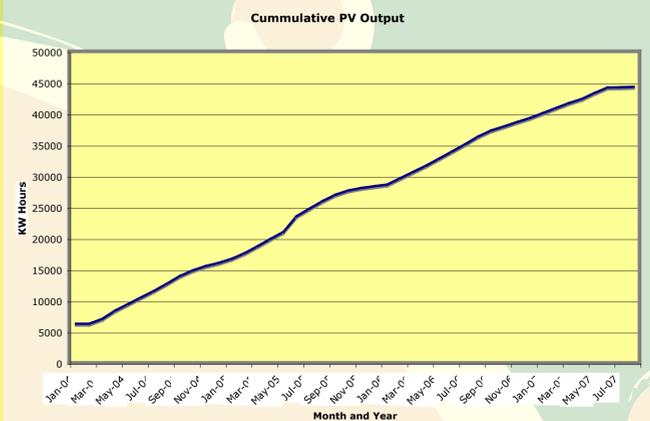


The array consists of 72 modules and is 900 square feet in area. The array is designed to deliver 10 kw at full strength but its output is dependent on the strength of the sunlight.

Since its launch in August 2003, the PV array at the Pavilion has generated almost 45,000 kWh, enough energy to power a typical Midwestern home for years four years and prevent 64,000 pounds of carbon dioxide from entering the air.



The PV array produces the most electricity during the summer months when the sunlight is most direct.



PV is Clean

No fuel, emissions, no noise. Photo-voltaic solar panels don't harm the environment by emitting carbon dioxide or other greenhouse gases. The array also doesn't require the extraction and transport of fuels like oil or coal from remote sites.

A watt-hour is the amount of energy used by a one-watt load drawing power for one hour.

Electricity bills usually list consumption in kilowatt-hours (kWh) when tracking energy use. A kilowatt-hour is 1000 watt-hours.

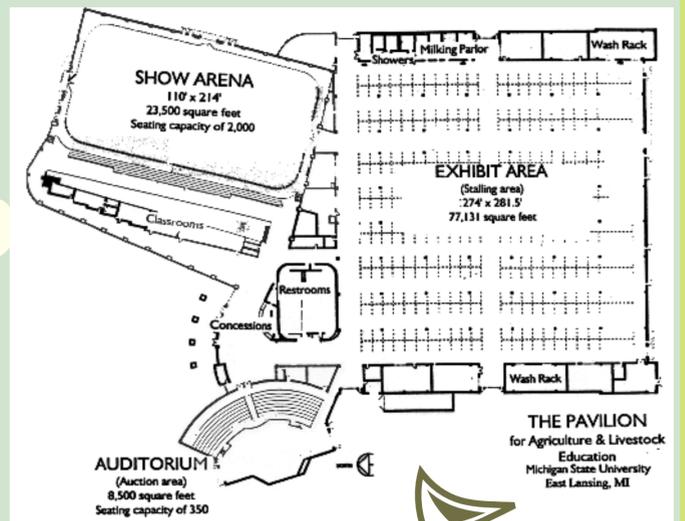
Appliance	Wattage	Hours per day	Energy per day	Energy per year
Compact Fluorescent Bulb	23 watts	5	115 watt-hours (0.12 kWh)	42 kWh
Incandescent Bulb	100 watts	5	500 watt-hours (0.5 kWh)	183 kWh
Laptop Computer	40 watts	5	200 watt-hours (0.2 kWh)	73 kWh
Desktop Computer (with monitor)	270 watts	5	1350 watt-hours (1.35 kWh)	492 kWh
Water Heater (40 gallon)	5000 watts	5	25,000 watt-hours (25 kWh)	9125 kWh

MSU's other solar projects



Did you know MSU has a solar car team? The team has been in action for several years building a solar car from scratch in order to compete in the 2008 North American Solar Challenge. The Solar Challenge is a 2,500 mile race from Austin, Texas to Calgary, Alberta. The 16-foot-long car will generate 1.2 kW from about 255 4" x 7" photovoltaic panels on its surface and is designed to top out at 60 mph. The race is scheduled for the summer of 2008 and the team plans to get the car road-worthy by March 2008.

Sources: U.S Department of Energy, U.S. Energy Information Administration.



TOUCH THE COPPER PLATE



TO GET CURRENT READ OUT

**MSU Agricultural & Livestock Pavilion
Pavilion Drive, MSU Campus, East Lansing**



This is a new 10 kW photovoltaic grid-intertied system. There is a display cabinet in the main lobby which explains the system and has a data collection display unit. To view the panels, follow the white fence around to the back.