Ohio Solar Applications
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Green Home Workshop
4-H Center
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www.GreenEnergyOhio.org
Ohio Solar Applications

Solar Electric – Photovoltaic
Statewide Overview
Solar Electric for Green Homes

GEO Tour Across Ohio June 3, 4&5, 2016

Public Policy Issues Impacting Green Homes
U.S. Photovoltaic Solar Resource

Annual average solar resource data are shown for a tilt=latitude collector. The data for Hawaii and the 48 contiguous states are a 10 km satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005.

The data for Alaska are a 40 km dataset produced by the Climatological Solar Radiation Model (NREL, 2003).

This map was produced by the National Renewable Energy Laboratory for the U.S. Department of Energy.
Ohio’s Solar Potential Resource

"There is a form of renewable energy in every county of Ohio."
- Biomass & Renewable Energy Taskforce, 2004

Even with less solar energy resource, Germany has much more energy production than Ohio.
State Wide Data Sources for Renewable Energy Systems

- GEO Tour Database
- PUOC
  - Certified Renewable Energy Resource Generating Facility
- Ohio Renewable Energy Installers
  - Individual queries
GEO Tour Sites October 2,3 & 4 2015
Green Energy Ohio News Magazine
Summer 2014
If a tree falls in a suburb...
Leak Proof Racking Attached to Roof
Photovoltaic Panels Convert Light into Electricity

These SolarWorld 255 Watt Panels are 3 X 5 feet weighing 40 pounds

16 Monocrystalline Black Panels were fitted with 16 Enphase Energy Microinverters
Panels Fixed & Wired on Racks
Panels Fixed & Wired on Racks
All-American Roof-Mounted Solar Array
Surviving the Polar Vortex
All-American Roof-Mounted Solar Array
Revenue Grade Meter Measures Solar
Electrical Energy Produced
Dec 4 2013 to April 8 2016

Spratley Array Data On-Line at: http://bit.ly/1VWUa0U
Incentive Program(s) Utilized:
30% Federal Income Tax Credit and Sale of Solar Renewable Energy Credits (SRECs) yielded solar system installed at $3.85 per Watt

Estimated Annual Production:
3,689 kWh estimated annual production.

From installation on Dec. 4, 2013 to Sept. 4, 2014 system produced 3 MegaWatt Hours or 3,000 KiloWatt Hours with peak day of May 6, 2013 at 23.6 kWh

Over 25 years, the system is estimated to offer 92,223 kWh of electricity or 31% of estimated future usage.

Estimated Utility Savings:
$543 First Year Electric Bill Savings Estimate with annual kWh offset estimated at 31% of electricity usage

Net savings over 25 years including bill savings, SRECs, maintenance & microinverter replacement (after-tax) estimated at $22,495.

Simple Payback estimated 14 years

Pre-Tax Compound Annual Rate of Return (IRR) over 25 years 12%

Estimated Initial Increase in Property Value $10,859

Maximum resale value increase occurs at year 11 at value of $14,898