

# Solar Energy

## What is Solar Energy?



Solar energy is the energy received by the earth from the sun. This energy is in the form of solar radiation, which makes the production of solar electricity possible.

Solar energy is vital to support life on earth, it helps to grow our food, light our days, influence weather patterns, provide heat, and can be used to generate solar electricity.

Solar electricity relies upon man-made devices such as solar panels or solar cells in order to provide a source of clean, and low cost renewable energy.

## Locate Certified Solar Energy Practitioners in your area

Visit: <http://www.nabcep.org/>

## Solar Water Heating

Solar water heating is water heated by the use of solar energy. Solar heating systems are generally composed of solar thermal collectors, a fluid system to move the heat from the collector to its point of usage. The system may use electricity for pumping the fluid, and have a reservoir or tank for heat storage and subsequent use. The systems may be used to heat water for a wide variety of uses, including home, business and industrial uses. Heating swimming pools, under floor heating or energy input for space heating or cooling are more specific examples.

Solar thermal installations can be subdivided into two kinds of systems: passive ("compact") and active ("pumped") systems. Both typically include an auxiliary energy source (electric heating element or connection to a gas or fuel oil central heating system) that is activated when the water in the tank falls below a minimum temperature setting such as 122°F (50°C). Hence, hot water is always available. Solar water heating systems are seldom designed to provide 100% of the hot water demand. A 50% – 60% solar fraction may prove most cost effective in Pennsylvania.

## Photovoltaics (PV)

Photovoltaics convert sunlight directly into electricity. You may be more familiar with PV cells as solar cells that power watches and calculators. But PV can do much more. It can provide electricity for residential and commercial buildings, including power for lights and air conditioning. PV can also be a convenient source of power for pumping water, electrifying fences, heating pools, or aerating ponds in remote applications. Solar panels can be used to power lights in parking lots, power lights along a trail or walkway within a park, or to accent a garden walkway.

## Resources

Solar Renew Energy.  
<http://www.pasolar.org/>

U.S. Department of Energy.  
<http://www1.eere.energy.gov/solar/>

[http://www.energysavers.gov/your\\_home/space\\_heating\\_cooling/index.cfm/mytopic=12490](http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12490)

[www.dcnr.state.pa.us](http://www.dcnr.state.pa.us)

