

## Solar Energy

Renewable energy technologies have slowly been making their way into Pennsylvania and elsewhere. Pennsylvania has a small but growing solar infrastructure. The state has a history of solar hot water heating dating back to the 1970's and 1980's.

**There are several ways to utilize solar energy on your site, for example:**

**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 (sometimes called "compact") and active (sometimes called "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.

**Solar-electricity, or photovoltaics (PV)** converts 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.



Visit the following link to find a list of PA North American Board of Certified Energy Practitioners (NABCEP) Solar Installers: [http://www.pasolar.org/index.asp?Type=B\\_BASIC&SEC={AB45DF16-398E-489C-A408-A2B4ACBC9807}&DE={16E84200-D19F-4C3D-92B0-68D731C83B09}](http://www.pasolar.org/index.asp?Type=B_BASIC&SEC={AB45DF16-398E-489C-A408-A2B4ACBC9807}&DE={16E84200-D19F-4C3D-92B0-68D731C83B09})

**Resources used to develop this page:**

SOLAR RENEW ENERGY. It really shines in Pennsylvania.

<http://www.pasolar.org/>

U.S. Department of Energy. Solar Energy Technologies Program.

<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)