

Just the Facts About ...

Solar Power

Using Sunlight to Generate Your Own Electricity

Solar Energy

Solar energy is a clean renewable source of light, heat and electricity. Now it is easier than ever to harness the power of the sun for use in your home.

Developments in solar technology have increased the efficiency of solar electric systems and made them more attractive to homeowners and businesses. In addition, state tax incentives and electricity metering laws make solar energy a wise investment for everyone.

Environmental Benefits

Solar energy systems help prevent global climate change by reducing carbon dioxide (CO₂) emissions. Carbon dioxide is a primary greenhouse gas that causes global warming. Solar energy systems can provide heat or electric power without producing any carbon dioxide emissions.

For example, a typical rooftop photovoltaic (PV) system provides 1.2 kilowatts of electricity. By using such a system for a year, an average homeowner can reduce carbon dioxide emissions into the atmosphere by an amount equal to that produced by driving a car about 5,000 miles. This is about equal to the amount of carbon dioxide that an acre of trees absorbs in a year.

Solar Electric Systems

Solar electric systems are often referred to as "photovoltaic" or "PV" systems. Photovoltaic (PV) systems convert sunlight directly into electricity. The PV systems are usually mounted directly on the

roof, but can also be set up in a sunny place in your yard. These systems use photovoltaic (PV) cells to convert sunlight into electricity. PV cells are made of semiconductor materials that release electrons when they are activated by sunlight. These cells can be connected together into modules, and the modules joined to form arrays.

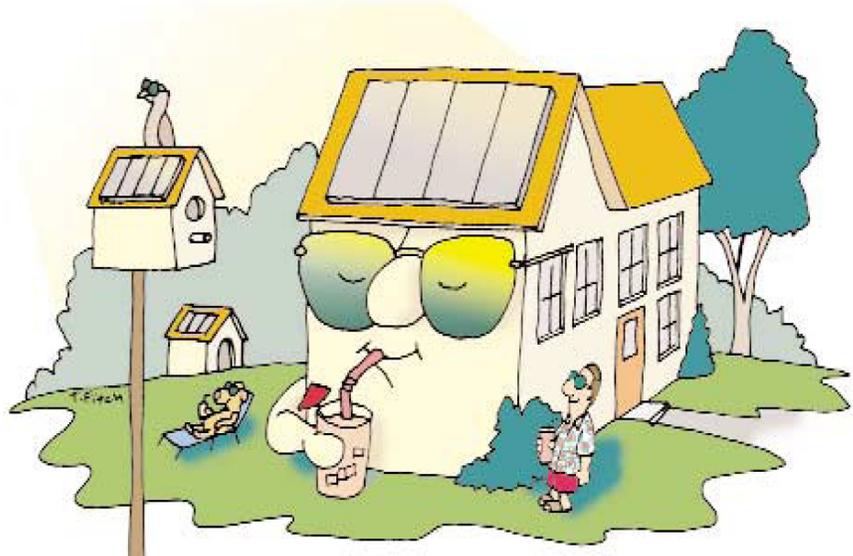
PV arrays are usually connected to a charge-controller which regulates the flow of electricity. The electricity produced by PV arrays is direct-current or DC. This is converted to alternating-current or AC power by an inverter. AC power can be used for most household purposes.

Electricity produced by PV arrays can be used immediately, stored in batteries for later use, or stored on the electric utility grid by using net metering.

New developments in PV technology have increased the efficiency of PV cells. It is also now possible to make PV systems that look exactly like normal roofing materials. In addition, designers and architects are now creating state-of-the-art structures that incorporate solar systems in bold and innovative ways. Solar electric systems are sometimes almost as attractive as design elements as they are as energy sources.

Net Metering

Maryland law requires that your electric company provide you with net metering for solar electric systems, if you request it. "Net" metering means that you only pay for the "net" amount of electricity that you draw from the electric company. The "net" amount is equal to the



amount you use minus the amount that is produced by your solar electric system. During periods when your system is producing more than your home is using, your meter will run backwards.

Using net metering helps reduce the cost of PV systems, because batteries are

gram will be available through the end of 2004.

Forms to file with your income tax return are available through the State Comptroller's Office, or at the Montgomery County Department of Environmental Protection.

Cost of Systems

A photovoltaic (PV) system that is large enough to provide the average single family home with about one fourth to one third of its electricity needs would usually cost at least \$10,000.

While this is a major expenditure for most households, the system will provide cost savings for approximately thirty years into the future. Depending on the cost of utility provided electricity, such a system might pay for itself in 15 to 20 years.

However, most people who buy solar energy systems are less concerned with the cost of the electricity the system provides than with the quality of the power. Solar energy systems can be designed to be completely reliable, regardless of weather conditions or utility outages. Solar systems also provide electricity that is 100 percent "green" at a cost that is often competitive with purchasing "green" energy from a utility or a supplier.



not needed to store electricity. Instead, the homeowner uses the electric distribution grid as a storage device for the power produced by the solar electric system.

State Tax Credit

Maryland residents can now receive state income tax credits for installing solar energy systems on their homes. Homeowners can get a credit of up to \$2,000 for a solar photovoltaic (PV) system, and up to \$1,000 for a solar hot water heating system.

The tax credit is based on 15 percent of the total cost of the system. This pro-

Local Companies

MDV-SEIA is the local association of solar energy companies. MDV-SEIA stands for Maryland, D.C., and Virginia, Solar Energy Industries Association. There are currently over 40 member companies, providing design and installation of solar energy systems, consulting services, supplies and components, and refurbishment of existing systems.

You can find a local company to provide information or installation of a solar energy system through MDV-SEIA, by going to the "services" section of their web site at: <http://www.mdv-seia.org>

For more information:



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