BRUNSWICK ELECTRIC Membership Corporation
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Energy Efficiency Bulletin

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Solar Power - Overview

Follow the sun to lower energy bills

You might applaud large businesses for finding creative ways to use solar energy, but did you realize that solar energy can be used with little difficulty in your own home?

The Technology

The two types of solar thermal technology are passive and active. In passive solar technology no mechanisms are used except for the sun's rays. This is useful to heat air for our homes or cooking. For our homes, windows on the south side will let the sun's light get inside. A thermal mass, any dark object that can hold heat, such as bricks or a black painted barrel of water, is placed where the sun shines inside the house. It will change the light energy into heat and store it for when the house gets cold. The dark color will absorb the light energy and warm up the object. When the room becomes cooler than the object it will give off heat. Solar cookers work the same way with a clear cover to let the light pass through and a dark absorbing surface to heat up.

Active solar technology use collectors that incorporate the transparent cover and dark absorbing surface with a pump to move liquids or air through it. These collectors are placed on roofs where they can get the most sun and absorb a lot of heat. The air system could help to heat your house, while the liquid system would heat your hot water or be used in radiant floor heating.

Solar technology is improving, making it far easier to bring solar energy to the home in the form of photovoltaic cells. Most people associate solar power with the large, fragile glass solar panels of yesterday. But modern photovoltaic energy involves thin layers of semi-conducting materials that convert sunlight directly into energy and do not create a rooftop eyesore.

Lightweight and durable, photovoltaic cells often come in the form of laminates, which are flat, flexible grids of solar panels that easily blend into the roof. Some even take the form of shingles, which do double duty as a protective covering for the roof and a source of energy.

These panels convert sunlight into energy and, depending on where your house is, can supply much of the energy your home needs. That can significantly reduce your traditional energy bill.

Check with your state, county and electric cooperative to determine if tax credits or other economic incentives can help offset the cost of installation. In North Carolina solar thermal technology is mostly used for hot water. It is possible to meet 60% of your hot water needs with just one collector. The energy you save from not heating that water with electricity can pay back the cost of the system in 5-10 years. Homes with passive solar systems could reduce their winter heating costs by 80%. Once installed the heating energy is free and creates no pollution.

Links to more detailed solar power information:

The **NC Solar Center** has a wealth of information about solar and other forms of renewable energy, NC HealthyBuilt Homes and other NC initiatives for homes and businesses as well as directories of Green Builders in the state: http://www.ncsc.ncsu.edu

The **Solar Energy Now South East** (SENSE) group works to promote awareness and implementation of solar and efficient energy technologies in the Cape Fear region of North Carolina. With a goal of 500 new solar installations by 2010, local architects, builders, solar installers, community college staff, county government officials and residents are involved in activities such as public forums on solar energy, demonstration projects and a solar installation inventory. http://www.cfgba.org/solarsense/