

MacIntyre & Cowen
Re/Max Real Estate Professionals

Real Estate Advisor

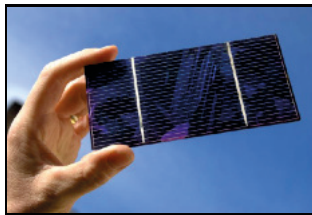
The Pros and Cons of SOLAR ENERGY

With all the current uproar about energy resources and energy costs, you may be looking into every available alternative to lower your own energy bill. One alternative you may want to research is solar power. It's the one power source we all have pretty equal access to (unless you happen to live near the north or south poles, or Seattle). If you've never understood exactly how solar works and what the advantages are, read on to have your questions answered.

You've seen them on rooftops, office buildings and even calculators and watches: solar cells. These solar cells, also called photovoltaics (PV), convert sunlight directly into electricity. PVs are made of semiconducting materials similar to those used in computer chips. When sunlight is absorbed by these materials, the solar energy shakes loose electrons from their atoms, allowing those electrons to flow through the material to produce electricity. This process of converting light (photons) to electricity (voltage) is called the photovoltaic (PV) effect.

Solar cells are usually put together into modules that hold about 40 cells. Then ten of the 40-cell modules are mounted on flat plate arrays (we know them as solar panels). These flat-plate PV arrays can be mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight over the course of a day. Ten to twenty PV arrays can provide enough power for the average American household. Hundreds interconnected are needed for large electric utility or industrial applications.

Solar technology continues to advance. The latest, greatest thing to come down the PV pike is thin-film



solar cells. These cells are made of layered semiconductor materials that are only a few micrometers thick. This thin film technology makes possible roof shingles and tiles, building facades and window glazing made of photovoltaic material. These shingles and glazing are just as protective and durable as conventional shingles and glazing.

There are, naturally, pros and cons to using solar panels.

Some of the advantages include:

- No carbon emissions. No pollution, no waste. It's some of the cleanest energy you're bound to find in this or any other galaxy.
- Freeing yourself (at least partially) from power companies. No more dependence on the power grid system, no more being at the mercy of outages and rate hikes.

Disadvantages:

- Price. The average cost for a home installation of the typical solar panel system is \$35,000. There are two types of solar panel systems: solar thermal system and the solar electric system. The solar thermal system is less expensive than solar electric systems. Solar thermal systems can cost as little as \$7,700, but a typical solar electric system costs about \$44,000. Rebates are available for the installation of solar panels.
- They must be protected from mechanical damage (in particular against hail impact, wind and snow loads, ice). This is especially important for wafer-based silicon cells which are brittle.
- Some people think they look bad up there on the roof.

But if you've got some money to invest in something that will eventually pay for itself and you're interested in reducing your impact on the environment, solar may be the way to go.

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What is Energy Star?

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy helping us all save money and protect the environment through energy-efficient products and practices.

In 1992, the (EPA) introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. Computers and monitors were the first labeled products. Through 1995, EPA expanded the label to additional office equipment products and residential heating and cooling equipment. In 1996, EPA partnered with the U.S. Department of Energy for particular product categories. The ENERGY STAR label is now on major appliances, office equipment, lighting, home electronics, and more. EPA has also extended the label to cover new homes and commercial and industrial buildings.

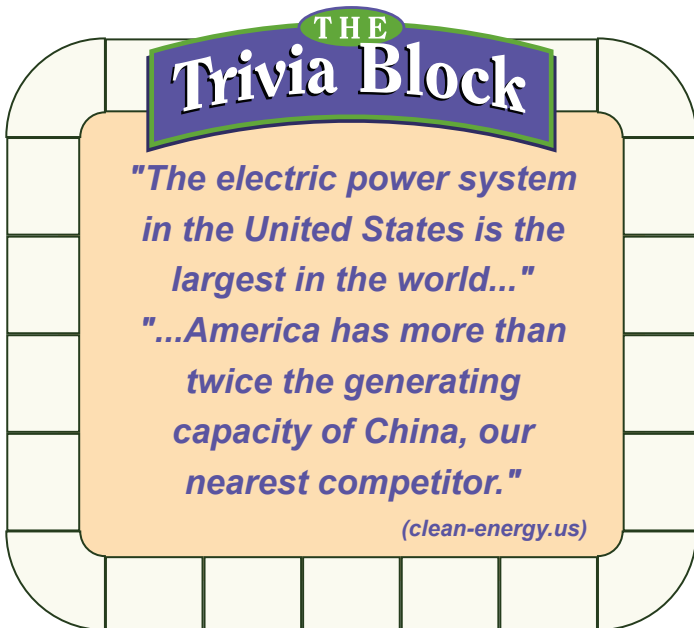
On October 3, 2008, President Bush signed into law the "Emergency Economic Stabilization Act of 2008." This bill extended tax credits for energy efficient home improvements (windows, doors, roofs, insulation, HVAC, and non-solar water heaters). Tax credits for these residential products, which had expired at the end of 2007, will now be available for improvements made during 2009. However, improvements made during 2008 are not eligible for a tax credit. So for once, if you have been putting off making those improvements you've talked about for years, procrastination may be the better part of valor.

The residential tax credit is available for these energy efficient improvements, placed in service in 2009:

- Windows
- Doors
- Roofs
- Insulation
- HVAC

The tax credit for solar water heaters and solar panels, which remained in effect for 2008, has been extended to 2016. If you are building a new home, you do not qualify for the tax credits for "eligible building envelope components" (windows, doors, insulation, roofs) or "qualified energy property" (HVAC & non-solar water heaters). However, the tax credit for photovoltaics, solar water heating, and fuel cells is available for homeowners building new homes.

Not all ENERGY STAR qualified homes and products qualify for a tax credit. Be sure to check www.energystar.gov to see if your home or product qualify.



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