

by James_Dulley

Dear Jim: I like the idea of generating my own electricity with solar cells. I will save on electric bills and have electricity when the utility's power goes off. Are solar cells systems available for home use? - Ron H.

Dear Ron: The proper term for solar cell systems which produce electricity is PV (photovoltaics). PV systems are available for providing electricity for homes and some homes use it exclusively. The silicon-based solar cells directly convert the sun's energy into electric current which you can use.

The PV solar cell technology has been advancing quickly and it is becoming more efficient and less costly. Still though, at today's electric rates from utility companies, it would take a long time to pay back the initial investment in a PV system for your home. They are most often used on remote homes where it is difficult to run electric lines. This does not necessarily mean you should not consider installing a PV system on your home. Solar cells have a very long life with some systems offering a 20-year warranty. No one really knows how high electric utility rates will be in 20 years. PV is clean power, so your children will not have to deal with as much pollution and problems from global warming.

Also, PV can provide emergency power when the utility's electricity goes off. Just several weeks ago, still in April, Texas experienced brownouts from air-conditioning use on a hot afternoon. If the bird flu hits, rolling brownouts are forecast because utility employees will not be able to go to work. The tornado season has already been severe this year.

Most people install a PV system and remain attached to the utility company's power. You can start out with a relatively small system and gradually add more solar cell panels as your budget allows or as utility rates increase. Check with your local utility company to see if they will buy excess electricity from you or allow it to run your electric meter in reverse.

If you are interested in a whole-house system and severing your connection to the utility company, a large area of PV cells will be needed. Many of the newest PV designs are built into roof shingles. From the ground, these are barely distinguishable from standard shingles. Plan on installing efficient appliances and making some minor life-style changes.

For electricity during the night or cloudy stormy weather when the power may go off, install battery sets to store the electricity. Your PV system supplier can help you determine how much storage capacity you need.

To get the highest electricity output from your PV system, install standard panels on special racks which follow the sun throughout the day. These racks use no electricity and rely upon the sun's heat and gravity to rotate the racks.

The following companies offer photovoltaic systems: Kyocera Solar, (800) 223-9580, www.kyocera.com; Northern AZ Wind & Sun, (800) 383-0195, www.windsun.com; Schott Solar, (800) 977-0777, www.us.schott.com; Shell Solar, (800) 272-6765, www.shellsolar.com; United Solar Ovonic, (800) 843-3892, www.uni-solar.com; and Zomeworks, (800) 279-6342, www.zomeworks.com.

Dear Jim: We have recessed lighting fixtures in our kitchen and have always used standard incandescent bulbs in them. Is it possible to replace them with compact fluorescent bulbs which are more efficient? - Kenny H.

Dear Kenny: You certainly can replace the incandescent bulbs with compact fluorescent ones and save about 75 percent of the electricity they now use. Compact fluorescent bulbs also operate much cooler than incandescent bulbs.

Reflector types of bulbs will be most effective especially if the bulbs are totally recessed in the ceiling fixture. If they are going to be used over the kitchen table or countertop, full spectrum bulbs will make food look better.

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