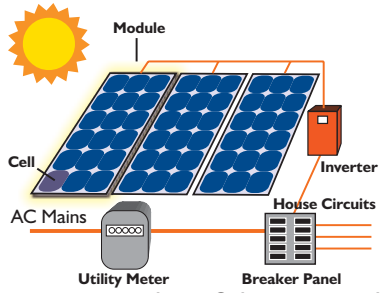


Solar Electric Systems - Frequently Asked Questions

What is a solar electric system?



The basic building blocks of a solar electric system are photovoltaic (PV) cells that generate electricity when light (photons) interact with the semiconductor materials that make up the cells.

Most PV cells designed for outdoor use are based on crystalline silicon – similar to the silicon wafers used in computer chips. Other types include thin film and organic polymers.

Since a single PV cell produces only a small amount of electricity, cells are usually combined into larger units, such as panels or modules. Hook enough modules together and you can generate enough electricity to power your home or business.*

The terms “solar electric” and “photovoltaic” (or PV) are often used interchangeably. PV is a type of solar electric technology.

To complete the system, an inverter is used to stabilize and change the direct current (DC) produced by the cells into alternating current (AC) that is compatible with your home’s electrical devices and the grid.

* The information in this document applies mostly to residential and small commercial solar systems (under 30kW in size).

Why should I consider buying a PV system?

A PV system reduces or eliminates the amount of electricity you purchase from your utility or electric service provider. You’ll save money on your electric bill and help guard against future price increases. The electricity generated is safe, clean, renewable and reliable. You also help your community by reducing electricity demand on the grid – especially during peak periods.

Where can I install a PV system?

Your site must have clear, unobstructed access to the sun. Buildings, trees or other vegetation should not shade your site. South-facing roof exposure is best, but roofs facing east and west may be OK. If a rooftop is not available, your PV system can also be mounted on the ground or even on a patio cover.

As a rule of thumb, 100 square feet of PV area produces one kilowatt of electricity. A typical home system would need anywhere from 200 sq. ft. to 600 sq. ft of roof space. For those concerned about appearance, there are new technologies that look like roof tiles or can disguise the panels within your house’s roofline. Both options are more expensive than traditional solar panels.

How big a system do I need?

The size of your system depends on your location, electricity needs, and budget. California, especially San Diego, is a great place for solar since the sun shines more than most US locations.

To estimate the proper system size for your home or business, check your electricity usage for the last 12 months and apply this formula:

$$\text{Annual Usage (kWh)} \div 1,550 \text{ (kWh)*} = \text{System Size (kW)}$$

$$\text{Example: } 6500 \text{ kWh**} \div 1,550 \text{ kWh} = 4.3 \text{ kW}$$

* 1550 kWh is the amount of electricity a typical 1 kW system produces per year in San Diego. This value can vary widely depending on location, mounting and system efficiency.

** 6500 kWh is the amount of electricity a typical California household uses in a year.

How much does a PV system cost?

Although many factors affect the price, an average PV system currently costs from \$8 to \$10 dollars a watt, including installation, or about \$16,000 to \$20,000 for a 2 kW system before rebates.

What is Net Metering?

Net Metering allows you to “bank” (with your utility) any surplus electricity your system generates. Most home PV systems are sized to generate more electricity during the day than is actually used. During this time, the meter runs backwards. Later, you can pull an equal amount of electricity without incurring a cost.

If you use more electricity from the grid than your system has banked on an annual basis, your utility charges you for the difference. If your system produces more electricity than you use, your utility may buy the excess but is not required to.* Your utility will also charge a monthly connection / distribution fee.

* At this time, SDG&E does not buy excess electricity.

Are there rebates or incentives available?

Yes. The California Energy Commission’s Emerging Renewables Program currently offers rebates of \$2.80/watt* on eligible PV systems of less than 30 kW in size. However, the California Public Utilities Commission has announced its “California Solar Initiative” which will significantly change rebates and system requirements starting in 2007. Based on preliminary proposals, rebate amounts will be going down and there will be system performance requirements. If you are considering a PV system, stay informed!

* Rebates adjust lower every 6 months.

What about tax credits?

The federal government currently offers a 30% tax credit on the total system cost. The credit is capped at \$2,000 for residential systems. There is no cap on business systems but the credit itself drops to a 10% in 2008. The State of California used to offer a 7.5% tax credit but this expired on January 1, 2006.

Can you finance a PV system?

Yes, subject to your ability to secure credit. The best way to finance a home PV system is with a first or second mortgage or home equity loan. If mortgage financing is not available, consider other sources such as conventional bank loans.

What else do I need?

You must enter into an “Interconnection Agreement” with your utility which specifies the terms and conditions under which your system will be metered and safely connected to the grid.

Where can I get more information?

California Energy Commission – www.consumerenergycenter.org

California Public Utilities Commission – www.cpuc.ca.gov

San Diego Regional Energy Office – www.sdenery.org



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