

# Now is the time to become your own power producer.

## Residential, commercial or industrial – we can help with all your power system needs.

By harnessing the power of the sun, wind or water, people all over the world produce their own pollution-free reliable electricity. Technological advances, government assistance, the need for reliable power, and the growing urgency to reduce the use of fossil fuels make renewable energy systems increasingly attractive to people around the world.

Solar technology makes it possible for home and business owners to have dependable power from renewable sources. Mass production has significantly reduced the price of renewable energy systems and their components. Solar systems with battery-based backup power can ensure reliable power even when the utility grid is down.

The use of renewable sources such as wind, water and sun increases our energy self-sufficiency and fosters economic and national security. As more families, individuals and businesses generate their own renewable electricity we will reduce pollution, provide more electricity for all to use, reduce the use of fossil fuels, and make the electricity on the grid “greener”.

Deregulation has created an atmosphere of change in the United States. We are experiencing higher electricity rates and electricity shortages. Laws usually referred to as net metering allow solar-energy-system owners to feed their excess generated electricity back to the utility. The system owner receives a credit or payment for solar-generated electricity fed into the grid. In other words, you pay only for the net electricity you consume – the amount of electricity you take from the utility minus the amount you generate and feed back from your solar system. With a solar electric system, you can provide yourself with protection from the rising prices of fuel, because your system’s fuel is the sun. Additionally, state, local and federal tax incentives and rebates make obtaining a system more economical.



## Types of Power Systems

Power systems vary in design depending on what energy sources are used and what purpose they must fulfill. The next few pages have information to help you design the three basic types of renewable energy systems:

### 1. Grid-Tie Systems

Also called grid-interactive, grid-intertie, utility-interconnected and other such descriptive terms, grid-tie solar systems built onto your building and property that connect directly into the electric utility feed. This is possible in areas that allow net metering, whereby a solar or wind powered system turns your electric meter backwards when it is producing more power than you are using. This type of system provides no backup power when utility power fails.

### 2. Grid-Tie Systems with Battery Backup

A grid-tie system with battery backup feeds excess solar electricity to the grid and provides backup power when the utility grid is down. With this type of system you sacrifice some power generation efficiency in exchange for having power when there is a utility power failure. The amount of backup power you have depends on the size of the battery and electrical loads that draw on them.

### 3. Off-Grid Systems

This type of power system is independent of the utility grid. It can use solar modules, a wind generator, a micro-hydroelectric generator, or a combination of any or all of them to produce your electric power. Owners of this type of system often use a gas or diesel generator for backup when the power system does not meet all of the needs.

## Determine What System Meets Your Needs

Use the tables and worksheets on the following pages to become familiar with the design of these systems and consult with us to pick out the exact components.

## Tax Incentives

### Federal

A federal “energy credit” allows businesses to take a 30% tax credit for renewable energy equipment (solar electric, solar thermal and wind powered systems). The same incentive is available for residential customers, but a cap of \$2,000 applies. This credit is set to expire at the end of 2008, but it is possible that the federal government will renew the incentives in 2008 or 2009.

In addition, there is an accelerated 5-year depreciation schedule that allows businesses to write 100% of a system’s cost off their taxable income over the first five years.

### State and Local

The states of California, New Jersey, Pennsylvania, Washington and others, as well as municipalities like Austin, Texas and Bend, Oregon, offer a rebate or similar payment based on the generating capacity of the system installed. California offers performance-based payments as an alternative to a rebate.

Other states offer various rebates and incentives to homeowners to lower the installed cost of a utility-connected power system. Go to [www.dsireusa.org](http://www.dsireusa.org) for the latest comprehensive information about incentives in your area.

# We can help you generate your own electricity by putting a solar electric power system on your home, business or public building.

For decades, off-grid standalone power systems – not connected to utility electric transmission lines – have generated power using solar energy for remote homes, communications facilities, telemetry, traffic control, public transportation, remote mining and drilling and scores of other applications. Now, people who live on the utility grid can economically install and obtain the benefits of solar and renewable energy systems.

## Lock in your cost of electricity

The higher the percent of your total electricity needs generated by your solar system, the less affected you will be by constantly rising costs of conventionally generated electric power.

## Obtain tax credits and rebates

Tax credits and rebates are available in many states to people and businesses who install solar powered products. See [www.dsireusa.org](http://www.dsireusa.org) for the latest rebate and tax credit information for your area.

## Feed power back to the utility

In many states, you can send your home-generated power back to the utility and get credit for the power you feed into the utility grid.

## Generate green power

Generate electricity with energy from the sun, wind or water, producing virtually no pollution or emissions.

## Gain power independence

With the use of batteries and possibly a generator as needed, you can rely on your own generating capacity, and not on the vagaries of public utilities.

## Ensure uninterrupted power

With a battery backup system, you can keep your appliances running during utility power outages.

## No moving parts!

Solar electricity is the *only* form of energy generation that does not involve any moving part, substantially decreasing maintenance requirements and increasing reliability and long equipment life.



The website for comprehensive information on federal, state, local and utility incentives:

[www.dsireusa.org](http://www.dsireusa.org)

## Commercial Grid-Tie Projects

Cost-effective grid-connected solar systems on commercial buildings can offset high peak electric cost and make an excellent investment for many businesses.

- **Pricing and availability**

We offer competitive pricing for commercial projects, and our steady supply of modules and balance-of-system components will keep your project going when others are waiting for product!

- **Commercial-grade system components**

Inverters to 500kW ... Disconnects up to 800 amps ... Everything you need for your commercial project.

- **System design assistance**

Choosing the right hardware ... Matching system layout to blueprints ... System drawings for confirmed projects.

- **Project financing**

We offer *AEE Solar Financing* with options for purchase or low-cost leasing. Ask us for details of this exciting new program.

- **System monitoring**

Independent third-party monitoring, to provide critical data needed for Power Purchase Agreements, RECs and government incentive programs.



## Remote Industrial Solar Products

We sell products and integrated solutions for a wide range of industrial applications. From large multi-kilowatt power plants to small trickle chargers, our custom-engineered solar systems are backed by an experienced technical staff you can count on.

- **Oil & Gas**

PV power is the perfect solution for the remote energy needs of the oil & gas industry. These systems are deployed worldwide, delivering reliable electric power for telemetry and SCADA, offshore platforms, monitoring and cathodic protection.

- **Telecommunications**

Microwave repeaters, wireless Internet systems, mobile telecom are examples of effective uses for distributed solar electric power systems.

- **Traffic Control**

Solar powered traffic signals can be located anywhere it is not practical or cost-effective to install a utility connection. It can be equally useful in an urban setting or on remote stretches of highway. It is the best solution for mobile warning signals and speed monitoring.

- **Outdoor Lighting**

PV lighting systems are often used in parking lots and bus shelters, and to illuminate highway signs.

- **Vaccine Refrigeration**

Vaccine refrigeration systems approved by the World Health Organization (WHO) play a key role in the storage and distribution of vital vaccines and blood in remote areas of developing countries throughout the world.



The pages ahead feature thousands of products that cover virtually every renewable energy need. Please contact us to help you get the advice and resources you need for residential, commercial, industrial, government, institutional or any other kind of renewable energy system. **Our contact information is on the cover of the catalog.**

