



Frequently Asked Questions About Solar Energy

What is solar?

Solar is a renewable form of energy that produces power from sunlight. Panels are placed on a rooftop to capture sunlight and convert it to electricity for use in the home.

What is Solar Photovoltaic Technology?

Solar cells, also called photovoltaic (PV) cells, directly convert sunlight into electricity. (PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect.) The PV effect was discovered in 1954 when scientists at Bell Telephone discovered that silicon (an element found in sand) created an electric charge when exposed to sunlight. Soon solar cells were used to power space satellites and smaller items such as calculators and watches. Today, thousands of people power their homes and businesses with individual solar PV systems.

Solar panels are typically made from solar cells that, when combined together, create one system called a solar array. For large electric utility or industrial applications, hundreds of solar arrays are interconnected to form a large utility-scale PV system.

What are the conventional types of solar panels?

Traditional solar cells are rigid panels made from silicon and are generally flat-plated and the most efficient. Second-generation solar cells, thin-film solar cells, are made from amorphous silicon or non-silicon materials such as cadmium telluride. Thin-film solar cells use layers of semiconductor materials only a few micrometers thick. Because of their flexibility, thin-film solar cells can double as rooftop material and are significantly lighter in weight, making them ideal for rooftops that cannot bear the load of traditional solar cells.

What happens on a cloudy or rainy day with no sunlight?

The panels will produce electricity but it will be very limited -- depending on how much light can get through the cloud layers. Homeowners with solar power will still be able to use traditional electricity from their local provider just as they did before the solar equipment was installed.

Will solar panels produce the same amount of electricity all year long?

The amount of electricity produced will vary with the seasons as the angle of the sun changes from summer to winter. In the winter, the sun angle is low in the southern sky so the amount of sunlight reaching the panels is less. In the summer, the sun angle is high so the panels produce more electricity.

What is an interconnection switch?

This is the switch that separates the solar panel system from the electric grid. It cannot be activated until your local utility company provides authorization -- to the contractor that the electric meter is set up for net metering.

What is net metering?

Net metering may also be referred to as a two-way meter. A net meter and a solar net-metering policy allow customers to reap the full benefits of a solar system. When solar panels are installed, the local utility replaces the existing electric meter with a net meter. Whenever the solar system makes more electricity than a home is consuming, the net meter spins backwards. The unused electricity goes back into the power grid and the customer receives credit for that electricity.

The meter spins forward when the solar system isn't fully meeting a home's electric needs but is using power from the grid. This is more likely to occur at night and, at times, during the winter.

A net meter tracks how much electricity your home pulls out of the power grid during the year and how much power your solar electric system puts into the grid. At the end of the year, the utility calculates your "electricity balance" and any credit or debit will be applied by the utility to your account.

Learn more about NJRCEV's solar solutions for both [residential](#) and [commercial](#) customers.