

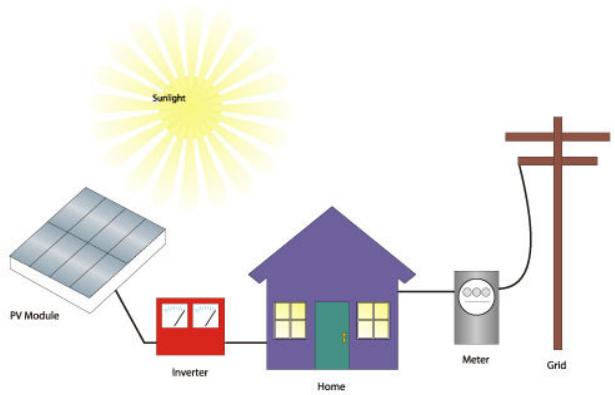
Photovoltaics (Solar Electric)

What is it?

Photovoltaics = Photo
(Light) + Voltaics
(Electricity)

How does it work?

The sun's waves hit a photovoltaic cell and excites the electrons within layers of the cell.



The excited electrons jump back and forth, creating electricity. This electricity is captured by wires running through the PV cells and sends the electricity into your home.

The electric current generated by PV cells is direct current (DC) or the type of current that comes over power lines. If you decide to use conventional appliances in your building, the electricity from the solar cells will now go into an inverter where it will be turned into alternating current. From the inverter the electricity will then be used by the appliances and systems in your home or go out into the grid.

Photovoltaic cells are almost always arranged on a panel to form a solar module. Modules are then linked in series to form what is known as a solar array. The size of a solar module or array is most commonly given in terms of its peak power production, or, Watts-peak (Wp or just W.)

If the solar array is supplying a home with access to the electrical grid, it is recommended that the system be grid-connected (also called grid-tied). In a grid-connected solar system, all electricity generated is sent directly to the grid. Your electricity bill will reflect your net electric usage or the difference between the amount of electricity your solar panels produced and the amount of electricity you used.

Why Solar?

In states like Illinois with net metering laws, the power company must purchase electricity from the PV array owner at retail price.