

How photovoltaics works

A Few Basics about 'electricity' producing solar panels: Photovoltaics

Solar electric or "Photovoltaic" systems convert sunlight directly into electricity. Energy converts from photons (light) to electrons (electricity).

Photovoltaic (PV) cells are made primarily of silicon. Silicon is the second most abundant element on Earth. When silicon is pigmented with one or more other materials, it gains special electrical properties.

When PV cells are exposed to sunlight, the silicon absorbs some of the light. Electrons in the silicon become energized by the photons. The excited electrons move through the silicon in a predictable pattern, allowing us to "harvest" the electrons as usable direct current (DC) electricity. This process is known as the photovoltaic effect.

Single PV cells create small amounts of electricity. A PV module connects a number of PV cells together, to provide a greater capacity for generating electric power. PV modules have no moving parts, are virtually maintenance-free, and have a working life of 20 to 30 years.

You can find more information on Photovoltaic Solar Electric Panels from the U.S. Department of Energy at: http://www.eere.energy.gov/RE/solar_photovoltaics.html