

Photovoltaic panels can generate electricity whether there is light or not



Overview

A photovoltaic (PV) cell, commonly called a solar cell, is a nonmechanical device that converts sunlight directly into electricity. Some PV cells can convert artificial light into electricity. Sunlight is composed of photons, or particles of solar energy. These photons contain varying amounts of energy. The movement of electrons, which all carry a negative charge, toward the front surface of the PV cell creates an imbalance of electrical charge between the cell's surfaces. The PV cell is the basic building block of a PV system. Individual cells can vary from 0.5 inches to about 4.0 inches across. However, one PV cell can only generate a small amount of electricity. The efficiency that PV cells convert sunlight to electricity varies by the type of semiconductor material and PV cell technology. The efficiency of commercially available PV cells ranges from about 15% to 25%. When the sun is shining, PV systems can generate electricity to directly power devices such as water pumps or supply electric power grids. PV systems can also be used to generate electricity for storage in batteries.



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