

PV Glossary

For more solar terms, visit www1.eere.energy.gov/solar/solar_glossary.html#balance

Alternating Current (ac) — a type of electrical current, the direction of which is reversed at regular intervals or cycles

Ambient Temperature — the temperature of the surrounding area.

Ampere (amp or A) — a unit of electrical current or rate of flow of electrons.

Converter — a device that converts direct current (dc) voltage to another dc voltage.

Data Acquisition System (DAS) — a computer program and its related hardware components designed to collect data about a photovoltaic system.

Diffuse Insolation — sunlight received indirectly as a result of scattering due to clouds, fog, haze, dust or other obstructions in the atmosphere.

Direct Current (dc) — a type of electrical current in which electricity flows in one direction, usually with relatively low voltage and high current.

Direct Insolation — sunlight falling directly upon a collector.

Electric Circuit — the path followed by electrons from a power source (generator, battery, PV array), through an electrical system, and returning to the source.

Electric Current — the flow of electrical energy (electricity) in a conductor, measured in amperes.

Electricity — energy resulting from the flow of charge particles, such as electrons or ions.

Electron — part of an atom with a negative electrical charge.

Energy — the capability of doing work.

Incident Light — light that shines onto the face of a solar cell.

Input Voltage — determined by the total power required by both the alternating current loads and the voltage of any direct current loads.

Insolation (W/m²/h) — the solar power density incident on a surface of stated area and orientation, usually expressed as Watts per square meter per hour.

Inverter — a device that converts direct current (dc) to alternating current (ac).

Irradiance (kW/ m²) — the direct, diffuse, and reflected solar radiation that strikes a surface, usually expressed as kilowatts per square meter.

Kilowatt (kW) — a standard unit of electrical power equal to 1,000 watts, or to the energy consumption at a rate of 1,000 joules per second.

Kilowatt-hour (kWh) — a unit of energy equaling 1,000 watts acting over a period of one hour.

Load — the demand on an energy production system; the energy consumption or requirement of a piece or group of equipment, usually expressed as amperes or watts.

Photon — a particle of light that acts as an individual unit of energy.

Photovoltaic (PV) — direct conversion of light to electricity.

Photovoltaic (PV) Array — an interconnected system of PV modules that function as a single electricity-producing unit.

Photovoltaic (PV) Cell — the smallest semiconductor element within a PV module that performs the conversion of light to electricity (also called a solar cell).

Photovoltaic (PV) Conversion Efficiency — the ratio of the electric power produced by a PV device to the power of the sunlight incident on the device photovoltaic (PV) effect—the phenomenon that occurs when photons strike electrons in the atoms of a semiconductor, knocking them loose and causing a flow of electrons in one direction.

Photovoltaic (PV) Module — an environmentally protected collection of solar (PV) cells, the interconnections, and other parts (terminals, diodes) needed to provide a direct current.

Photovoltaic (PV) Panel — a connected collection of PV modules.

Photovoltaic (PV) System — a complete set of components for converting sunlight into electricity, including the array and additional system components.

Semiconductor — any material that has a limited capacity for conducting an electric current.

Silicon (Si) — a semi-metallic element with semiconductor properties used to make photovoltaic (PV) devices solar energy—electromagnetic energy transmitted from the sun (solar radiation).

Transformer — a device that changes the voltage of alternating current electricity.

Volt (V) — a unit of electrical force equal to that amount of electromotive force that will cause a steady current of one ampere to flow through a resistance of one ohm.

Voltage — the amount of electromotive force that exists between two points, measured in volts (V).

Watt (W) — the rate of energy transfer equal to one ampere under the electrical pressure of one volt.