Solar Energy Vocabulary

TERM	DEFINITION
AC OR ALTERNATING CURRENT	A type of electrical current, the direction of which is reversed at regular intervals or cycles. In the United States, the standard is 120 reversals or 60 cycles per second. Electricity transmission networks use AC because voltage can be controlled with relative ease. AC is the type of electricity we use in our homes.
AMP OR AMPHERE	A unit of electrical current or rate of flow of electrons. One volt across one ohm of resistance causes a current flow of one ampere. Power (Energy) = Amps x Volts
ARRAY	An interconnected system of PV modules that function as a single electricity-producing unit. The modules are assembled as a discrete structure, with common support or mounting. In smaller systems, an array can consist of a single module.
ARRAY CURRENT	The electrical current produced by a photovoltaic array when it is exposed to sunlight.
ARRAY VOLTAGE	The voltage produced by a photovoltaic array when exposed to sunlight and connected to a load.
BTU OR BRITISH THERMAL UNIT	A measurement of energy: The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit; equal to 252 calories.
CELL	The smallest semiconductor element within a PV module to perform the immediate conversion of light into electrical energy (direct current voltage and current). Also called a solar cell.
DC OR DIRECT CURRENT	A type of electricity transmission and distribution by which electricity flows in one direction through the conductor, usually relatively low voltage and high current. To be used for typical 120 volt or 220 volt household appliances, DC must be converted to alternating current. Solar cells generate DC current.
DISTRIBUTED GENERATION/POWER	A popular term for localized or on-site power generation or a power supply located near the point where the power is used. Opposite of central power.
EFFICIENCY	The ratio of output power or energy to input power or energy, expressed as a percentage. Solar cell efficiency is the ratio of the electrical energy produced by a photovoltaic cell (under full sun conditions or 1 kW/m2) to the energy from sunlight falling upon the photovoltaic cell.
ELECTRICAL GRID	An integrated system of electricity distribution, usually covering a large area.
ENERGY AUDIT	A survey that shows how much energy used in a home, which helps find ways to use less energy.
FIXED TILT ARRAY	A solar PV array set at a fixed angle (azimuth) to the horizontal.
FULL SUN	The amount of power density in sunlight received at the earth's surface at noon on a clear day (about 1,000 Watts/square meter).
GRID	The utility's network of conductors, substations, and equipment that distributes electricity from its central generation point to the consumer.
GRID CONNECTED SYSTEM	An energy producing system connected to the utility transmission grid. Also called grid-tied.
GROUND MOUNT	A solar array mounted on a structure on the ground, rather than on a roof. Either secured into the ground with several posts or a pole mounted system, the array can be fixed or tracking.
INSTALLED PRICE	The total dollar PV system installed price. This includes all equipment and installation.

INSTALLER	Markets and customizes PV systems for installation.
INVERTER	A device that converts direct current (DC) electricity to alternating current (AC) either for stand-alone systems or to supply power to an electricity grid.
KW OR KILOWATT	A standard unit of instantaneous electrical power (energy) equal to 1000 watts.
KWH OR KILOWATT-HOUR	A standard unit of electrical power produced (or consumed) over a period of 1 hour.
LIFE	The period during which a system can operate above a specified performance level.
LINE WIRE LOSS	Voltage or power lost due to the resistance of any wire or wires in any electrical circuit.
LOAD	The demand on an energy producing system; the energy consumption or requirement of a piece or group of equipment. Usually expressed in terms of watts in reference to electricity.
MPP OR MAXIMUM POWER POINT	The point on the current-voltage (I-V) curve of a module under illumination, where the product of current and voltage is maximum.
MODULE	An encapsulated panel containing a number of electrically connected PV cells.
NET METERING	A metering arrangement where any excess energy exported to the utility is subtracted from the amount of energy imported from it. The net of what is produced and what is consumed is calculated monthly by the utility. Any excess energy produced over the course of the month is reflected as a credit on the homeowner's electric bill.
ORIENTATION	Placement with respect to the cardinal directions, N, S, E, W.
OFF-GRID OR STAND ALONE SYSTEM	A type of PV system that operates autonomously and supplies power to electrical loads independently of the electric utility.
PARALLEL CONNECTION	A way of joining solar cells or photovoltaic modules by connecting positive leads together and negative leads together; such a configuration increases the current, but not the voltage.
PASSIVE SOLAR DESIGN	Refers to the use of the sun's energy for the heating and cooling of living spaces. In this approach, the building itself or some element of it takes advantage of natural energy characteristics in materials and air created by exposure to the sun.
PANEL	Often used interchangeably with PV module.
PEAK SUN HOURS	The equivalent number of hours per day when solar irradiance averages 1,000 w/m2. For example, six peak sun hours means that the energy received during total daylight hours equals the energy that would have been received had the irradiance for six hours been 1,000 w/m2.
PV OR PHOTOVOLTAIC(S)	Pertaining to the direct conversion of light into electricity.
PV OR PHOTOVOLTAIC EFFECT	The phenomenon that occurs when photons, the "particles" in a beam of light, knock electrons loose from the atoms they strike. When this property of light is combined with the properties of semiconductors, electrons flow in one direction across a junction, setting up a voltage. With the addition of circuitry, current will flow and electric power will be available.
PV-THERMAL SYSTEM	A photovoltaic system that, in addition to converting sunlight into electricity, collects the residual heat energy and delivers both heat and electricity in usable form. Also called a total energy system or solar thermal system.

SEMICONDUCTOR	Any material that has a limited capacity for conducting an electric current. Certain semiconductors, including silicon, gallium arsenide, copper indium diselenide, and cadmium telluride, are uniquely suited to the photovoltaic conversion process (converting sunlight into electricity).
SERIES CONNECTION	A way of joining photovoltaic cells by connecting positive leads to negative leads; such a configuration increases the voltage.
SOLAR THERMAL	A form of power generation using sunlight to heat water or other fluid typically to produce heat rather than electricity, though, if concentrated, the heated fluid can be made to turn a turbine to create electricity.
STRING	A number of photovoltaic modules or panels interconnected electrically in series to produce the operating voltage required by the load.
TILT ANGLE	The angle at which a photovoltaic array is set to face the sun relative to a horizontal position. The tilt angle can be set or adjusted to maximize seasonal or annual energy collection.
TRACKING ARRAY	A photovoltaic (PV) array that follows the path of the sun to maximize the solar radiation incident on the PV surface. The two most common orientations are (1) one axis where the array tracks the sun east to west and (2) two-axis tracking where the array points directly at the sun at all times. Tracking arrays use both the direct and diffuse sunlight. Two-axis tracking arrays capture the maximum possible daily energy.
UTILITY	A company that produces and/or distributes electricity to consumers in a certain region or state.
VOLT	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. Power (energy) = Volts x Amps
VOLTAGE	The amount of electromotive force, measured in volts, which exists between two points.
WATT	A measure of power (energy) equivalent to one ampere under an electrical pressure of one volt. One watt equals 1/746 horsepower. It is the product of voltage and current (amperage).

Most of the terms and definitions above are taken from the following online resources:

http://energy.gov/eere/sunshot/solar-energy-glossary

http://www.solarbuzz.com/resources/glossary/

http://solarenergy-usa.com/solar-info/solar-glossary/