Solar Terms

Albedo	The fraction of solar radiation reflected from the ground, ground cover, and bodies of water on the surface of the earth.
Alternating Current (AC)	Alternating current is an electric current whose direction reverses cyclically, as opposed to direct current (DC), whose direction remains constant. AC is the form of electricity that is delivered to your home or business. Solar photovoltaic (PV) systems produce DC power, which must be converted to AC by an inverter.
Ampere (Amp)	The quantity of electrical current flowing through a circuit.
Array	Any number of electrically connected photovoltaic (PV) modules providing a single electrical output
Azimuth	The angle (to the equator) at which a solar panel points. In the northern hemisphere, it should almost always be due south.
Balance of Systems (BOS)	'BOS'; all components of a PV system excluding the PV panels. One side of the balance holds the DC generation (solar array) while the other side holds the AC load (utility-grid, household).
Base Load	The average amount of electric power that a utility must supply in any period.
Battery Storage	A system that stores electrical energy, making the electricity available for later use. These systems are common in Off-Grid Systems and Hybrid Systems.
Building-Integrated Photovoltaics (BIPV)	A solar energy device (SED) that integrates Solar PV modules into the building envelope, where the solar panels themselves act as a building material (roof shingles) or structural element (i.e., façade). These are becoming more common as prices begin to drop with technology improvements, and they save some costs during installation.
Capacity Factor	The ratio of the electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced at continuous full power operation during the same period.
Cell	A device made of silicon and other materials. Solar cells generate electricity when exposed to sunlight. Multiple solar cells (typically from 36 to 96 cells) are used in the construction of one photovoltaic module.
Conversion Efficiency	A measure that gauges the percentage of solar energy reaching a module that in turn is converted into electrical power.
Direct Current Electricity (DC)	Solar PV systems produce electricity in direct current (DC), which is defined as the continuous flow of electricity through a conductor. As DC, electricity always

	flows in the same direction, which distinguishes it from alternating current (AC). Solar PV systems produce DC power, which must be converted to AC by an inverter in order to power household appliances
The Electric Reliability Council of Texas (ERCOT)	The Electric Reliability Council of Texas (ERCOT) manages the flow of electric power to 23 million Texas customers representing 85 percent of the state's electric load. As the independent system operator for the region, ERCOT schedules power on an electric grid that connects 40,500 miles of transmission lines and more than 550 generating stations.
Feed-in-Tariff (FIT)	Money paid to a customer by a power company for excess electricity generated by a renewable energy source. The renewable energy source is most often either solar or wind generated electricity. This excess is connected to the power lines at the customer's residence, and most commonly on the customer's side of the electric meter. For example, if you had a solar electric system installed on your home, and had signed a feed-in-tariff agreement ("FIT") with your power company, you could find the power company selling electricity to you at one price per kilowatt-hour, but BUYING the excess from you for more than they sell it to you at retail. Feed-in-tariffs are implemented to encourage end users to install renewable energy equipment and sell excess renewable energy back to the utility company.
Generation	The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatt-hours (kWh) or megawatt-hours (MWh).
Grid	The network of wires and cables that transport electricity from a power plant to homes and business.
Grid-tied Inverter	An inverter that converts direct current (DC) into alternating current (AC) and feeds the power into the utility grid of homes and businesses on the customer's side of the meter. This has the effect of reducing the amount of power purchased from the utility company. In certain cases, more power may be produced by the system, in which case the utility meter may run "backwards", which at the discretion of the power company, may provide credit to the customer for the back-fed power. The most common source for the DC energy are photovoltaic modules or small wind turbines. Also commonly called "grid-interactive" inverter(s).
Grid tied/Grid-Interactive	A solar electric system that's connected to the utility power grid and uses the utility grid as a backup source of power. If more energy is needed than is being generated by the solar electric system, the difference is supplied to the customer by the utility company. If more energy is being produced than needed, the excess electrical power flows backwards through the electrical meter to the utility company, where it is then used by others.
Ground-Mounted Solar Energy Systems	Devices which are freestanding, or not mounted on existing structures. Ground-mounted devices can be static or tracked, meaning they have a mechanism that enables them to maintain tilt toward the sun as it moves across the sky.

Homeowner's association (HOA)	Homeowner's Association. Can sometimes be a barrier to putting solar on your roof.
Inverter	Device that changes the direct current (DC) electricity to alternating current (AC) electricity for use.
Investment Tax Credit (ITC)	Federal Investment Tax Credits (ITC) help reduce the cost of installing a solar energy system. Part of federal tax policy, ITC provides a 30% tax credit on the purchase and installation costs of installing renewable energy generation.
Levelized cost of energy (LCOE)	The cost of energy of a solar system that is based on the system's installed price, its total lifetime cost, and its lifetime electricity production.
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 amperes or watts in reference to electricity.
MACRS or Modified Accelerated Cost Recovery System	Also known by the abbreviation "MACRS" (pronounced "makers"). Officially, the Federal Modified Accelerated Cost Recovery System. Under this system, a businesses may recover investments in certain property through rapid depreciation deductions. The MACRS establishes a set of classes for various types of property, ranging from three to 50 years, over which the property may be depreciated. A number of renewable energy technologies are classified as five-year property (26 USC § 168(e)(3)(B)(vi)) under the MACRS, which refers to 26 USC § 48(a)(3)(A), often known as the "Energy Investment Tax Credit" (or "ITC") to define eligible property.
Module	Commonly called a "solar panel," a PV module is composed of multiple solar cells that are electrically connected to increase the total power output and are encapsulated in tempered glass for weather protection and ease of handling.
Megawatt (MW)	Unit of electric power equal to 1,000 kW, or 1 million Watts= 1,000,000 W.
Net Metering	Net metering allows utility customers to apply the electricity generated by their own devices against their electric bills. If they produce more than they consume, the utility pays them for the excess. Texas does not currently require that utilities offer net metering.
Net Zero	Net zero occurs when energy generated is equal to the amount of energy consumed.
Off-the-grid (Off-grid)	Not connected to the commercial power lines.
On-Grid/Grid Connected/Grid-tied	An energy device connected to the electric utility provider. More than 90% of solar energy devices installed in the US are grid-tied.

Property-Assessed Clean Energy financing (PACE)	A PACE loan is a means of financing energy efficiency upgrades or renewable energy installations for buildings.
Panelboard	The official National Electric Code term for "breaker panel", "breaker box", or similar terms. An electrical distribution board that houses electrical circuit breakers. A panelboard is the main point at which electricity is distributed throughout a building. In commercial installations, it's often termed "electrical cabinet".
Parity	Grid or cost parity refers to when a developing technology, such as solar can produce electricity for the same cost to ratepayers as traditional technologies.
Passive Solar	Technology for using sunlight to illuminate and heat buildings directly, with no circulating fluid or energy conversion system, and usually no moving parts. Sunlight admitted into your home in the winter that helps to heat the house is a considered a "passive" energy source.
Photovoltaic (PV)	The technology that uses a semiconductor to convert light directly into electricity. The term is derived from the Greek words “photo” for light and “volt” for electricity.
Photovoltaic Array	One or more solar cells connected in one unit is known as a PV module. Multiple PV modules are connected to each other become an array.
Power Purchase Agreement (PPA)	A contract between a power producer and a power consumer, which states that the customer will purchase a certain amount of power at a certain price from the producer.
Racking	Mechanical structures that attach a photovoltaic or other solar energy array to the roof of a building, or to the ground.
Renewable Energy Credits (RECs)	Renewable energy credits, or RECs, are tradable commodities that represent the green attributes associated with energy generated from renewable energy resources.
Renewable Portfolio Standard (RPS)	A renewable portfolio standard (RPS) requires that energy suppliers in a certain state produce a proportion of their energy from renewable energy. To meet these RPS requirements, energy suppliers can: 1) Develop their own renewable energy facilities such as solar energy power plants or wind farms to produce RECS, or; 2) Purchase RECs from others that own renewable energy facilities.

Solar Access	The access of a solar energy system to direct sunlight.
Solar Collector (Solar Thermal Collector)	A solar collector is that part of the system which absorbs the sun's energy and converts it into heat, such as a solar collector for a solar hot water system. Solar collectors can convert typically up to 85% of the sun's energy to heat. Not to be confused with a photovoltaic module, sometimes called a "solar panel". The heat collected by the solar collector may be used immediately or stored for later use. Solar collectors are used for space heating; domestic hot water heating; and heating swimming pools, hot tubs, or spas.
Solar Easements	Legal agreements that protect access to sunlight on a property.
Solar Hot Water System	Solar hot water systems use a solar thermal collector to convert the sunlight to thermal energy. Solar hot water systems typically heat water or air. Solar thermal collectors and Solar PV modules utilize the sun, and therefore need to be mounted similarly for sun exposure. Solar energy is also harnessed for space heating and cooling, and other applications, but these are rarer.
Solar Energy	Radiant energy (direct, diffused, or reflected) received from the sun at wavelengths suitable for conversion into thermal, chemical, or electrical energy.
Solar Energy Device (SED)	Solar Energy Devices (SED) include various mechanisms used as active sources of the conversion of sunlight to electrical energy. A solar energy system (SES) will be composed of many SEDs.
Time-of-Use Metering (TOU Metering)	A utility billing system in which the price of electricity depends upon the hour of day at which it is used. Rates are typically higher during the afternoon when electric demand is at its peak. Rates are lower during at night when electric demand is much less.
Tracking Collector/Tracker	Any mechanical structure that changes its orientation throughout the day in order to follow the path of the sun in the sky. Two-axis trackers continually face the sun throughout the day, changing direction with the time of day and the season. Single-axis trackers rotate on one axis for time-of-day only, and must be manually adjusted for the season.
Utility-Scale PV	A utility-scale solar project is not based on the number of panels or energy generated, but on the purpose of the energy. If the power from a solar application’s primary purpose is to be sold for commercial gain, and not for off-setting electric usage at a facility through net metering (i.e., distributed generation), then it can be considered a utility-scale solar application. Energy generated by a utility-scale solar application is typically sold to energy companies, rather than end users. The owners of the utility-scale solar project would need to obtain a permit from the state and are listed by the US Department of Energy as a power generation source.
Volt	A Volt is a unit of electrical pressure.

Watts	The electrical unit of measure equal to one watt of power for one hour.
Watt-Hour	The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour. For instance, a 60 watt incandescent light will consume 600 watt-hours of energy when used for ten hours (60 watts x 10 hours = 600 watt-hours.). Our electric bills are based on the number of watt-hours of energy consumed each month.
Zenith	At the “zenith” in the sky, the sun will be directly overhead in relation to the observer.
Zenith Angle	The angle between the direction of interest (of the sun, for example) and the zenith (directly overhead). See also "zenith".

For more solar terms, please refer to the North Texas Renewable Energy Group or to the U.S. Department of Energy.

Sources:

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