

How a Distributed Commercial Solar System Works



1. Solar panels use the sunlight to generate direct current (DC) electricity, which then flows to a combiner box where all wires from all panels come together.
2. Larger solar systems usually have several combiner boxes that consolidate all wires into a higher capacity wire that transfers the DC power to the inverter.
3. The inverter's main job besides adjustment of power and safety is to condition the DC power to alternating current (AC), the form of electricity that is used most commonly.
4. Once converted to AC power, the electricity runs through the Utility AC Disconnect where the solar system can be disconnected manually from the grid electricity system. A data acquisition system records real time data and sends to system management team.
5. The final station before the power flows into the building or gets fed into the utility grid is the main switch gear of the building. This is also the place where net metering takes place.

About solar panels

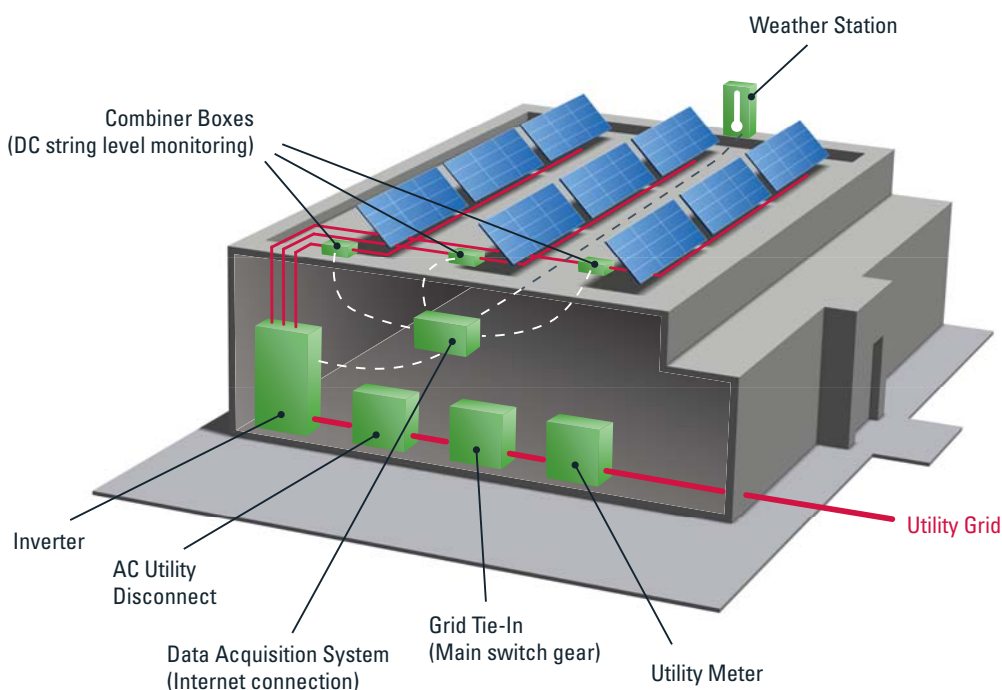
A solar panel, also known as a solar module, consists of individual photovoltaic (PV) cells that are interconnected. The majority of PV cells today are made of wafer-based crystalline silicon. These cells have the ability to convert sunlight directly into electricity through the photovoltaic effect. An assembly of solar panels makes up a solar array. Solar panels can be installed on rooftops, ground mounted, in open areas, or elevated on parking lots.

About net metering

If the production of solar energy exceeds consumption, the surplus energy is fed into the utility electric grid. In this process, the utility meter at the main switch gear will spin backwards and build valuable credits for the customer.

About monitoring systems

SPP provides real-time string level performance monitoring on each of its systems. Monitoring systems compare expected power production with actual power production in real time. The Data Acquisition System, which receives data from an SPP-installed weather station and data from the inverter as well as from each combiner box, transmits all information via internet to SPP's Asset Management team. Automatic alarms alert SPP's Asset Management team if there is an irregularity at any system.



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