



CUTES Solar Power System

Solar Power System



Solar power systems provide a continuous, reliable power solution that's easily deployed, cost-effective and requires little maintenance.

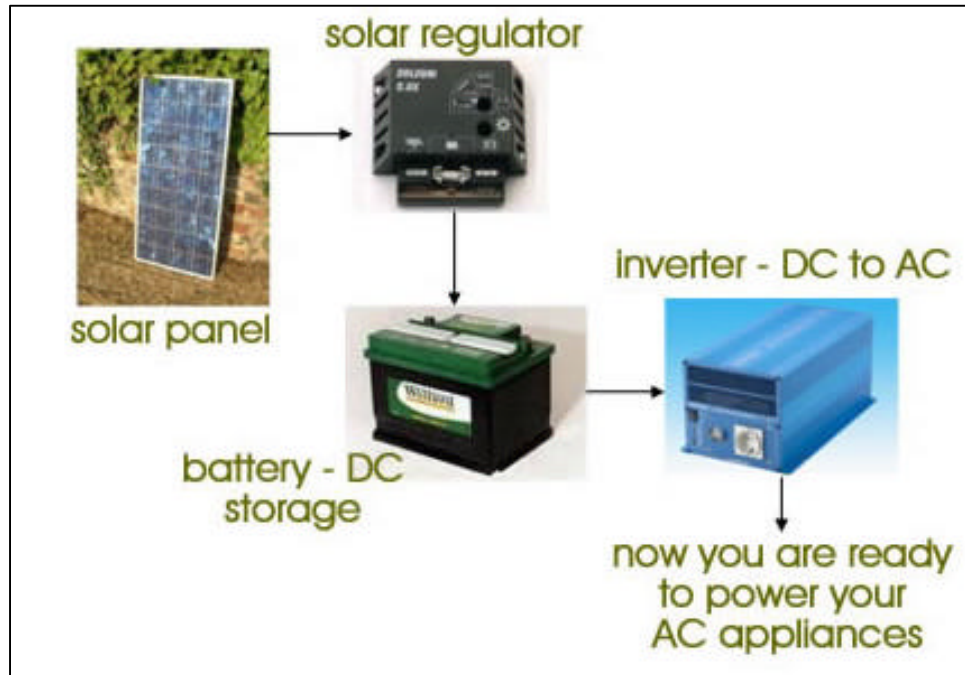
Solar Power Systems are complete, fully integrated solar power supplies designed for site loads requiring 12, 24 or 48 volts DC. Each solar power system provides safe and reliable power generation without the need and expense of installing utility power. The sealed, maintenance free batteries are designed for deep cycle operation and extended life in solar applications. The aluminum array support structures and battery enclosures are strong yet lightweight and corrosion resistant for harsh marine or severe weather locations.

Solar power system is the one which can be conveniently installed and transported. It also has the perfect characteristics of self-control, self-protection, needing no attention, compact structure, elegant outline and convenience for using etc.

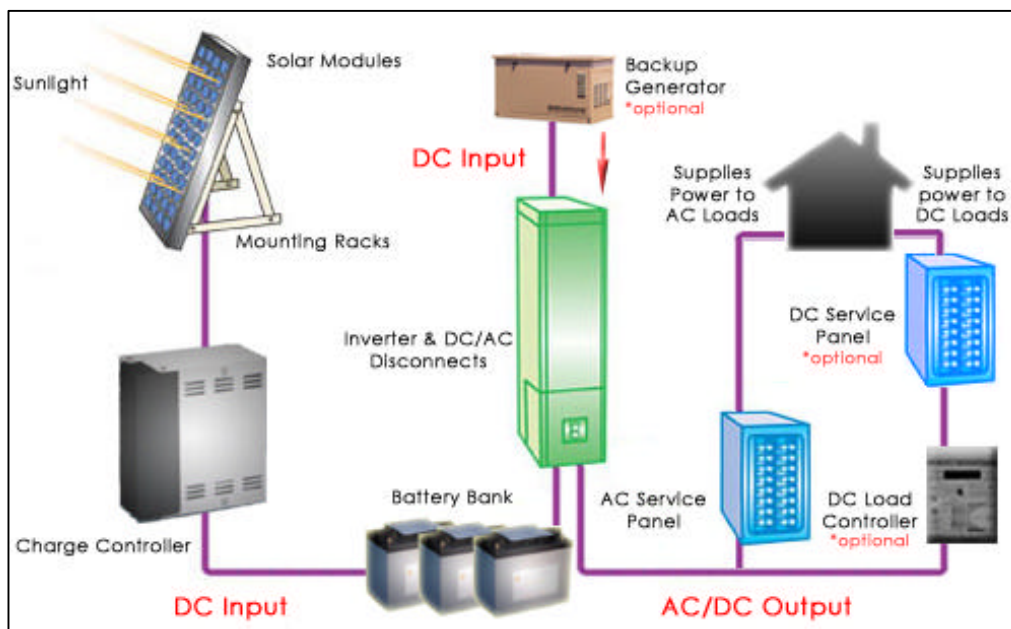
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How Solar Power System Works With Grid Off Inverter:

Block Diagram: A



Block Diagram: B





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Grid Off Features:

Off Grid systems are independent from the utility grid. Electricity from off grid systems is used on site. Power that is generated can also be stored in batteries and used on no sunny or cloudy days, a generator may also be used for back-up. The off grid inverter is a three-in-one system integrating the controlling of battery charging/discharging, inverting and load dumping.

Control Function

The controller regulates AC & DC output of generator to charge the batteries. The controller will charge the battery until it becomes full; when the battery is full, the controller will be in floating charge state. To protect the batteries, the controller will buzz and cut off the batteries' out-put circuit if they are over discharged or battery voltage reach the controller set point.

Batteries Bank

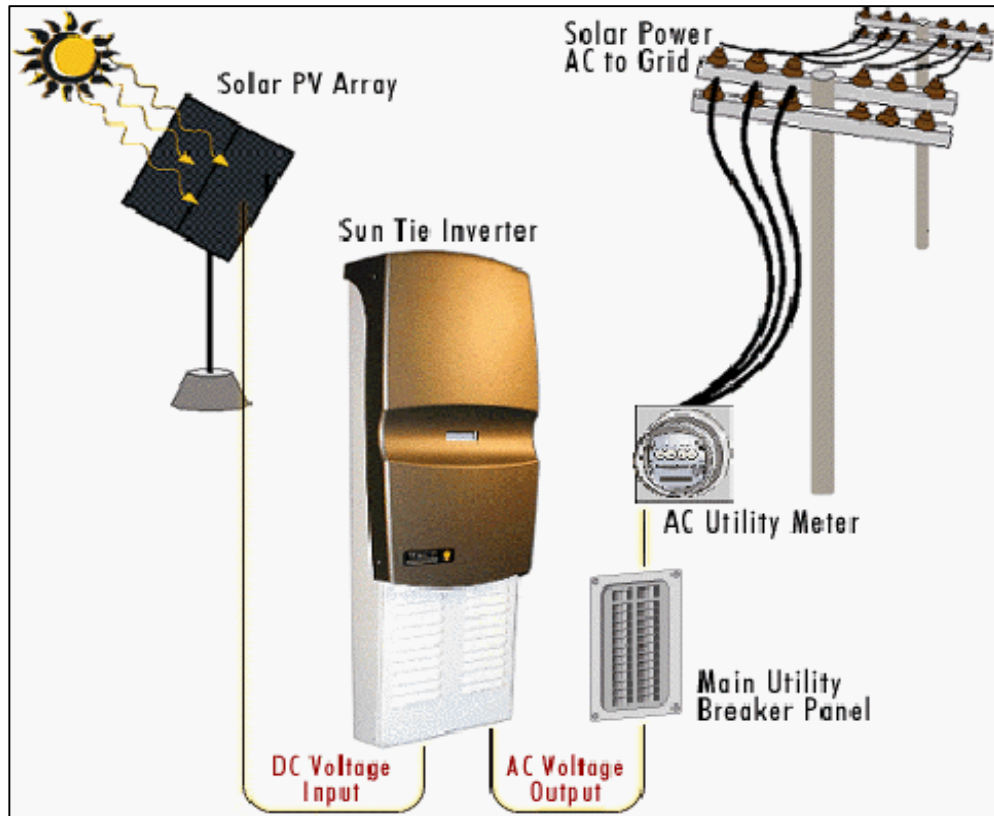
Batteries are used to store energy for use at a later time, like night time or on cloudy days. The batteries used in a Solar System re deep cycle batteries, similar to those that power electric golf carts. The number of batteries used in a system varies on the type o battery and anticipated storage needs.

Inverting Function

The off grid inverter is mainly applied for isolated solar power systems. For example system can supply power for running a separate heating system, refrigerator, pump, etc.

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How Grid-Tied or Grid ON Solar Power System Works:



Solar PV modules collect the sun's energy and convert it into direct current (DC) electricity. The amount of electricity produced is proportional to the amount and intensity of sunlight.

The number of panels is determined by the home or business's power needs. Typically 2,000 to 4,000 watts (2-4 kilowatts, kW). A DC to AC grid-tied inverter converts the electricity from DC to alternating current (AC) for use in a home or business. A rule of thumb is 100 square feet of PV module area per kilowatt (kW) of electricity produced by the PVs. A typical solar electric system for a home will require approximately 200-400 square feet.

A bi-directional (spins both ways) electric meter records and displays "net" power usage. Net power is the difference between what the solar electric system generates and what the electric utility provides to meet a home or business's total energy requirements. When more electricity is generated than is used, the meter spins backward, lowering the electric bill. When less electricity is generated, the meter spins forward, although at a slower rate than it would without the PV system.



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The overall result tracks the net difference as electricity is generated and sent off to the grid and as electricity is consumed. This, then, becomes the basis for payments (credits) to your electric bill. This all happens seamlessly and automatically. No user intervention is required.

Energy storage (batteries) in a grid-tied system is rarely needed or justified. The electric grid acts as "storage," accepting excess power that is produced and allowing it to be used by others. When the PV system does not produce power (nighttime) or produces less power (cloudy weather), the electric grid becomes the source, seamlessly switching over. While there are energy storage solutions, the cost--combined with a short lifespan and maintenance requirements--makes them less of a solution. Unless you're off the grid, storage rarely makes sense. Finally, not having batteries in a system reduces the overall cost and virtually eliminates maintenance of any kind.

Benefits of installin an alternative solar engery system:

1. In many cases there is a significant reduction in the cost of bringing power to your remote site, when compared to what the utility company will charge.
2. No ongoing monthly bill from the utility company.
3. Cleaner power from a solar generating system that is free of surges, spikes, brownouts and blackouts that can damage or shorten the life of appliances..
4. The ability to run regular household appliances without having to listen to the constant drone of a generator and tremendous savings in fuel costs from not having to run a generator 24 hours a day.
5. Not having to bring in ugly power poles that spoils the natural environment, thus enhancing the beauty and resale value of your property.