

Grid Tie/Battery Backup AC Coupled System

Many people believe that a solar power system will protect them from blackouts. This is not the case.

AC Coupling allows a grid-tie system to work with a backup battery system that can be charged even during mains power blackouts. It's perfect for those who want to add a battery back-up package to their existing grid-tie solar power system.

In an AC Coupled solar power system, a grid-tied inverter can continue to operate during mains power outages by syncing with the output of a battery-based inverter. Both inverters are connected to the "critical loads" sub-panel. A "critical loads" sub panel is a subsidiary breaker panel that's separate from a building's main breaker panel, designated only for appliances required during power outages.

How do these AC Coupling Systems work?

When the grid is functioning normally, the battery based inverter/charger will use both the mains power and the AC output of the grid-tie string inverter to maintain charge on the battery bank and to power the critical loads.

During blackouts, the battery-based inverter/charger creates a "local grid" by supplying power to the critical loads in the subpanel. The grid-tie inverter doesn't disconnect because it doesn't know the difference between the "mains" produced power and the "local grid" power created by the battery-based inverter/charger. When the mains power grid is working, the battery-based inverter /charger allows solar power produced by the grid-tie array to feed back to the main utility service breaker panel.

