



## GRID-TIED, OFF-GRID OR BATTERY BACK-UP

*Which is for you? GRID-TIED, OFF-GRID OR BEHIND-THE-METER?*

*We are frequently asked what happens when the grid is down and about batteries, etc. So let's review three types of solar systems; grid tied, battery backup and offgrid. Which is for you?*

### GRID-TIED (In-Front of the Meter)

This is by far the most common type of solar system, as it requires little maintenance, and is the least expensive. It is eligible for the TVA Green Power Providers program, by which TVA purchases some or all of the energy the system produces at the retail price (systems up to 50kW). What you pay TVA for electricity; they pay you for your energy production. One thing to know is that grid-tied systems are required to disconnect from the grid in the event of a power outage. This means when the power goes out, you won't have any power either. Whether this is an issue for you depends on the individual. An in-front of the meter solar system puts you in the business of selling power to TVA. And folks, the business is good!

### GRID-TIED (Behind the Meter)

This type of solar system also requires little maintenance, and is the least expensive. Behind the meter solar is very similar to an "In-Front of the Meter" system with one exception; the power is not purchased by TVA, it is for your own consumption. A behind the meter solar system will not eliminate your entire electric bill, but it could reduce your bill by 50% or more. The reason we don't go 100% is because with behind the meter solar, you wither use it or loose it.

### GRID-TIED w/Battery Back-Up

This type of solar system is behind the meter, and it brings batteries into the equation. The energy produced by your solar panels is first used to charge your batteries, and then used for your consumption. Since solar systems only produce during daylight hours, the batteries can supplement your electricity needs at night or when the power grid goes down for a few hours. Adding batteries increases the equipment and installation costs and also the required maintenance, but for some individuals the sense of security that comes from having some back-up power is worth the additional cost.

### OFF-GRID (Remove the Meter)

This type of solar system is for those who want to completely "cut the cord" from their utility company. Doing so requires batteries, a lot of them. You will need enough stored energy in your batteries to get you through 1-2 weeks of consecutive cloudy days. Batteries charge and discharge through chemical reactions, which themselves require energy. Consequently, a large battery bank will reduce the efficiency of your solar system, as a whole, which in turn requires more solar panels to balance the system. Due to the higher costs of off-grid solar systems, these solutions are typically reserved for folks in extremely remote locations or those truly dedicated to disconnecting from their utility company, regardless of the economic payback.