Grid tied solar power systems

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When you are considering solar energy for your home or business, it might feel like solar has a language of its own - one in which you have to become fluent to understand your options. While there are certainly more than a few key terms to master (see our glossary of alternative energy terms), you can navigate your solar project easily with the right guide.

As part of our library of solar energy resources and education, we"ve put together a handy guide that breaks down one of the most popular types of solar panel systems in the U.S., covering the components of grid-tied solar systems.

A grid-tied solar system is a solar energy setup that maintains a connection to the electricity grid. These systems generate electricity from the sun, but rather than storing excess energy in batteries for backup power, they export it to the larger utility grid. If the home or business requires more power than what is available from the solar panels, the power is imported from the utility grid.

Grid-tie systems are inherently simpler than both grid-tie systems with battery backup and stand-alone solar systems (off-grid solar systems). Some critical differences between grid-tied and other solar systems are:

Another one of the many perks of a grid-tied solar system design is that it requires minimal equipment, easy and affordable to install. Your exact needs might vary based on your specific setup, property, and preferences, as with any solar solution. But in general, you"ll find that the components of a grid-tied solar system are straightforward.

When there is a power surplus in a grid-tied solar system, the extra power is exported to the utility grid. If your utility company allows "net metering" arrangements, you"ll receive utility bill credits for this power.

One of the most significant grid-tied solar system benefits is leveraging net metering. Because your connection to the grid is a two-way street, you can import energy - but you"ll also be able to export it.

Net metering is earning bill credits for excess solar energy exported from your solar panels to the utility grid. With net metering, many homeowners can significantly reduce their utility bills, and some even pay off their monthly charges altogether. Many electric utility companies support net metering, but some do not - so be sure to check with yours when planning and budgeting for your grid-tied solar system.

Solar newbies may not know about grid outages and the potential to take down your grid-tied solar system. In short, systems can not remain on during grid outages. This is to protect utility electrical workers from any unaccounted-for surges as they work to repair the outage. This helps owners of grid-tied solar systems avoid "anti-islanding" infractions. There are ways to keep necessary appliances like refrigerators and air conditioners

powered up during grid outages, including having a backup generator ready to go or by adding battery backup to your grid-tied system.

In terms of weather, spring and fall are usually the more moderate times. Similarly, a grid-tied system"s energy imports and exports are fairly balanced. Because your home is less likely to need significant heating or cooling, and your system provides a steady amount of energy, your energy needs and supply will probably break even.

The weaker sunlight and shorter winter daylight hours mean that your solar energy system will likely be at its lowest solar output levels. At the same time, homes with electric heating demand a lot of energy. So, your grid-tied system will generally need to import more energy than it exports during winter.

Are you considering a DIY grid-tied solar system? Here in the altE Resources Library, you can find a wide variety of information on this topic and others. Check out our Solar Power System Components video series for more details about all the pieces and parts that make up a solar energy system.

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