Residential grid tie solar systems

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Grid-tied, also referred to as grid-connected and grid-interfacing, solar photovotaic systems are made up of several components that, when wired together, are capable of producing alternating current electricity using light from the sun.

These systems are designed to offset utility power usage and to compensate system owners for any excess wattage their systems produce through an arrangement known as "net metering".

This arrangement is, essentially, an electric power plant that is owned and operated by the home or business owner.

To set up a grid tie solar system, you first need to mount the solar panels on your rooftop or eligible space and then connect them to a grid tie inverter. This inverter is then hooked to your home’s electrical panel, which is also linked to the power grid. Remember, a professional service is recommended since the process involves working with electrical wiring, and it is critical to comply with all local regulations and safety measures.

In the simplest terms, a grid tie solar system, also known as a grid-connected or on-grid solar system, is a solar setup that is tied to -connected to- the traditional power grid. While the sun shines, it provides energy to your home, and excess energy is sent back to the grid. At night or during overcast days, your home pulls power from the grid. It’s a seamless back-and-forth between your solar setup and the grid. Intrigued? Dive deeper into what a grid-tied solar system is here.

The primary competitors to a grid tie solar system are off-grid systems (entirely independent) and hybrid systems (a blend of grid and batteries). While both alternatives have their usefulness, grid-tied systems are the most economical due to feeding power back to the grid. This action can generate credits, reducing, or even zeroing, your power bills.

How does it work? Simple, anytime the sun shines, your panels generate power. This solar energy is then converted into usable AC power via the inverter and feeds electricity into your home. Any energy your home doesn’t use, goes back into the grid.

The primary advantage of a grid tie solar system is the cost-effectiveness. Not only are grid-tied systems cheaper to install due to lack of batteries, but the ability to sell energy back to the grid can also result in significant savings.

However, it’s not all roses. Grid tie solar systems are dependent on the grid. This dependency means if the grid suffers a power outage, so does your home, even if the sun is shining.

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So now, you’re up to speed with the lingo and how a grid-tied solar system functions, we can begin to explore how to set up a grid tie solar system. The process involves several essential aspects, which are detailed below.

The primary equipment you’ll need is photovoltaic panels (these capture the sunlight), a grid-tie inverter (to convert the power), mounting hardware, and relevant electrical safety gear.

Your solar energy system will consist of solar panels (photovoltaic or PV panels) which convert sunshine into electrical energy. Depending on your household’s size and power needs, the number of panels will vary. It’s vital to have a high-quality grid-tie inverter that effectively converts the DC power from the panels into AC power.

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