



Backup battery for home solar

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In the age of solar power, home battery backup systems provide safe and reliable energy security. As an advanced alternative to traditional backup systems, like gas and diesel generators, home batteries can increase your home's energy independence in routine times and during emergencies. Having your own energy storage can decrease your property's electricity costs and carbon emissions.

For everything you need to know about home battery backups and how energy storage may be a smart fit for a sustainable residential power system, we've developed this guide for homeowners.

Home battery backups have debuted from many global manufacturers and are now being paired with home solar panels more frequently than ever before. This momentum is largely due to diminishing product costs, and battery prices are expected to continue falling through the end of the decade.

In the US, 14% of new solar systems had energy storage backup included in 2023. The number is expected to rise to 25% in 2024 according to research by Wood Mackenzie. From the fourth quarter of 2022 to the fourth quarter of 2023, battery installations rose 46%.

A home battery backup can operate in several different ways, depending on whether or not you have solar panels and if your property is connected to the energy grid.

Today's sophisticated home batteries give users full control over their energy storage and usage. Most home solar batteries are app-integrated, with intuitive monitoring and management controls that include several automated operating modes to help meet your energy goals.

Without a battery, grid-tied solar panels cannot produce electricity during local outages, as the power generated has nowhere to safely travel when utility lines are shut down or in repair. By adding battery storage to solar panels, you can "island" or temporarily go "off-grid" to run your critical devices with the energy stored in your sustainable renewable power system.

Solar power systems with backup storage give you highly dependable power in emergency situations. In 2022, a Lawrence Berkeley National Laboratory study found battery backup power could be reliable in most areas of the US for most times of the year during a long-term grid outage.

Researchers found solar panels and energy storage would work to power the essentials (refrigeration, interior lighting, a few plugs, and well pumps) for a majority of homes affected by a lengthy power outage. Specifically, they found a 10kWh battery paired with solar could get virtually all homes through a three-day outage, if that home didn't need its heating or cooling. The same storage size met 86% of the power load for three days if using heating and cooling.



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Just as critical, the study showed backup power remains effective through longer spans. In most circumstances, solar panels will recharge the battery. Therefore, with the 30kWh storage, the batteries could meet 92% of a home's power load at day 10 of an outage.

With a home battery backup, you can tap into your stored solar power any time you want, unlocking several benefits beyond preparedness for grid outages. By consuming more of the solar power you generate directly onsite and offsetting ongoing grid electricity purchases, you're reducing your reliance on your utility.

In 2023, 60% of utility-scale electricity in the US was generated by natural gas, coal, or another fossil fuel. Meanwhile, solar energy accounted for just under 4% of total electricity generation. A battery can help you avoid dirty grid energy and consume more carbon-free electricity at home.

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