Home battery storage solutions

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Home batteries used for solar storage and blackout backup power are proven additions to home solar panel systems. Generally battery packs are used to store up low-cost electricity generated from solar panels and from the grid during off-peak hours. Then during high-cost peak utility rate hours or during a blackout the battery packs supply the stored electricity to power your home.

The top battery packs known by their brand names, Tesla Powerwall and LG Chem all use Lithium-Ion battery cell technologies. They are differentiated by their battery cell manufacturers, brand marketing, software to manage the power cycles, pricing strategy and certified installers. The most popular and proven manufacturers of the internal battery cells are Sonnen, Panasonic and LG according to the chart below:

Understanding your home's power consumption is crucial. Calculate or review your energy bills to determine your daily and annual power usage. This will help in sizing the battery system correctly.

Example: Your electricity bills show that your home uses an average of 30 kWh per day. Annually, this adds up to around 10,950 kWh (30 kWh/day * 365 days). This information is crucial for determining the size of the battery system needed to meet your energy demands

If you already have a solar system, its size will influence the type and size of the battery needed. If you're planning to install a new system, ensure the solar and battery system are compatible and adequately sized for your energy needs.

Example: If you have a 5 kW solar panel system, it might generate approximately 20 kWh per day under optimal conditions. This information is essential in choosing a battery that can store enough energy to cover your consumption, especially during periods when solar production is low.

The location of a home battery is crucial for both safety and efficiency. Key considerations include proximity to the main electrical panel to minimize energy loss and maximize efficiency, ensuring the area is well-ventilated to prevent overheating, and keeping it away from extreme temperatures and direct sunlight which can degrade battery performance.

Another thing to consider is the accessibility for maintenance and repairs as it is important for compliance with local building codes and manufacturer guidelines. Safety measures should be in place to protect against potential hazards such as flooding or fire, making a secure, dry, and stable location ideal.

Decide whether the battery system needs to support only critical loads like refrigerators and lights, or if it should also handle high-energy appliances like air conditioners. This choice will significantly impact the battery capacity required.

Example: If you choose to power only critical loads, you might prioritize running your refrigerator, a few lights, and essential electronics, which requires a smaller battery capacity. However, including high-energy appliances like air conditioners will necessitate a significantly larger battery to handle these additional loads.

Research which types of solar batteries (like lithium-ion, lead-acid, etc.) are available in your area. Also, look for skilled and licensed installers who can provide reliable installation and after-sales service.

Example: In your region, the most commonly available batteries might be lithium-ion and lead-acid. Lithium-ion batteries are more compact and efficient but costlier, while lead-acid batteries are bulkier and need more maintenance but are less expensive.

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