20 kWh panasonic energy storage

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Home battery storage systems have revolutionized the way we manage energy consumption, providing homeowners with greater control over their usage, increased resilience to grid outages and fluctuating energy prices, and improved sustainability. But with so many options available in the market, how do you know what type of battery is right for your home and energy needs? Here, we take a look at the key differences between batteries and in what scenarios one type may be better suited than another.

Capacity and power output are two of the most important specifications to consider when choosing a battery, says Roy Skaggs, director of sales for Alternate Energy Hawaii. These determine how much electricity your system will be capable of providing. The capacity refers to how much electricity your battery can store, in kilowatt-hours (kWh) and the power output is how much electricity it can supply at a given time, in kilowatts (kW).

An installer will analyze your utility bills and energy usage patterns to determine the optimal capacity for and power output for your home. For instance, batteries with a high capacity but lower power output can supply electricity to several small appliances for a longer period. Whereas batteries with a lower capacity but higher power rating can run your whole home, but only for a few hours.

This is the maximum amount of electricity your battery can continuously supply over an extended period. It"s important because it indicates how many appliances can run at the same time from your battery. For example, if you want to power essentials like your fridge, lights and broadband in an outage, you need a battery with a continuous power output that matches the energy needs of these appliances.

Skaggs notes that looking at a battery"s continuous power output can be a particularly good benchmark when comparing products. He recommends looking for 5kW as a minimum, though newer batteries, like the Panasonic EVERVOLT(R), can do 7.6kW or more, he notes.

Some batteries are modular, which means you can add or remove modules if your energy requirements change. For example, you may expect your household to grow or you may plan to install an electric vehicle charger or solar panels. "The Panasonic EVERVOLT is a modular system, which allows customers to start small if they would like to and then add more battery modules later," says Skaggs.

Manufacturers will have specific instructions on where their batteries can be installed. If you don"t stick to these, you risk voiding the warranty. Be sure to check where you can install your battery ahead of making a decision. Some batteries, for example, can be installed outdoors, while others must be located indoors. Some can be fixed to walls while others must stay on the ground.

Most batteries come with an app for your smartphone, PC or tablet, that allows you to monitor household

energy data, such as your usage and the amount of power stored in your battery. But some apps go further, enabling you to intelligently optimize energy usage throughout the home.

Panasonic"s EVERVOLT SmartBox for example, centralizes the management of all your home energy systems, including your battery, solar panels (if you have them), and home loads such as your appliances and broadband. It can monitor energy usage and make adjustments to conserve power and keep your home comfortable. It can even prioritize devices based on your preferences and make quick decisions on your behalf, such as when to store and when to supply power from your battery, based on the cost of electricity.

The two main chemistries used in home batteries are lithium nickel cobaltand lithium-iron phosphate. The main difference is that lithium nickel cobalt batteries can store more energy in less space, making them a common choice for homes where space is limited. Lithium-iron phosphate batteries have a lower energy density which can mean they require more space to install. The advantage of these batteries, however, is that they typically have a much longer lifespan and don"t require the same amount of ventilation or cooling as other batteries, so they can be installed in more locations.

A single battery costs anywhere from $8,000 up to about $14,000, shares Skaggs. While this sounds expensive, there are plenty of government incentives available to help offset these costs, with the most generous being the Federal Investment Tax Credit (ITC). The ITC allows you to deduct 30% of the cost of a battery from your federal tax bill. Some states and utilities offer their own incentives for batteries that you can add to the ITC to further lower the costs of installation.

Once your battery is installed, there shouldn"t be any ongoing maintenance costs but like any mechanical item, there can occasionally be failures, notes Skaggs. "That"s where getting a battery with a good warranty comes into play," he says. Be sure to check your warranty covers labor. If it"s not included for the full-term of the battery, find out from your contractor what their service call fees are, Skaggs says. You should also have a product warranty of at least 10 years.