



# Solar panel battery life

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According to recent data, 7 out of 10 solar panel shoppers express interest in adding a battery to their solar systems.<sup>1</sup> Home energy storage lets you keep the excess electricity your solar panels produce during the day and use it when you need it most, such as back-up power during a power outage, at night, or when utility rates are the highest.<sup>2</sup> Learn more about solar battery storage.

We understand that solar storage is a significant, long-term investment in your home. That's why we're answering common questions about the life expectancy of a solar battery to help you understand the benefits of switching to renewable energy.

Home solar battery units last anywhere between 5 and 15 years. If you decide to install a solar battery today, it's almost certain you'll need a replacement in the future to match the 20- to 30-year lifespan of your solar power system.<sup>3</sup>

If you're asking, "What are the best batteries for solar power?" then you need to know that solar power batteries are made with one of three different chemical compositions: lead acid, lithium ion, or saltwater. Of the three types, lithium-ion batteries (also known as li-ion batteries) are the most common sources of energy storage for a home solar system.<sup>4</sup>

Lead-acid batteries have been used in off-grid energy systems for decades, and while they're one of the least expensive options on the market, lead-acid batteries have a shorter lifespan, and lower depth of discharge (DoD) compared to lithium-ion batteries. The opposite of charging, a battery's DoD reflects the amount of power the battery is able to discharge relative to its full kilowatt-hours (kWh) capacity.<sup>5</sup>

When it comes to home energy storage systems, lithium-ion batteries are the gold standard because they're lighter, more compact, and have a longer lifespan and higher DoD than lead-acid batteries. Not only that, but higher demand has decreased the cost of lithium-ion batteries by 85%, making solar power backed by solar storage that much more attainable.<sup>6</sup>

Unlike lead-acid and lithium-ion batteries, saltwater batteries don't contain heavy metals and instead rely on saltwater electrolytes. This makes saltwater batteries more environmentally friendly and allows them to be easily recycled.

Still, as a new technology, saltwater batteries remain somewhat untested.<sup>7</sup> If you're looking to maximize your solar energy potential, lithium-ion batteries will offer the most reliable source of power.

The life expectancy of a solar battery is mostly determined by its usage cycles. Luckily, most solar batteries are generally deep-cycle batteries, which allows them to discharge up to 80% of their stored energy before



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recharging.

Some battery banks need to be manually discharged before recharging. With Brightbox, your solar battery charges automatically to avoid overcharging and to ensure your battery stays healthy and efficient for as long as possible.<sup>8</sup>

Depending on where you live, where you install your battery storage system at home can make a huge difference. This is because your battery unit should be kept at an optimal temperature to maximize its life and efficiency.

For example, if you live in areas with temperate/mild temperatures, your battery could be installed outdoors. Whereas, in regions with harsh temperatures, your battery will perform optimally only if it's installed in your garage or basement.<sup>9</sup> Sunrun's Solar Advisors can help you determine the best placement for your solar battery.

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