Do solar batteries wear out

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These days, when most of us are going to make a big purchase, the first thing we all do is go online and research prices. If you"re thinking about adding batteries to your solar installation, you’ve probably already done this.

However, for energy storage at least, that initial purchase price is only half the story. You also need to take into account your solar batteries’ lifespan. After all, if you found a a giant solar battery for $100, but it only lasts 6 months – is it really a good deal?

How long your batteries last, how far you can discharge them, and how to keep them running optimally are all factors to consider before making any decision. If it sounds like a lot, don’t panic! Let’s dive in to all of it now.

There are two main types of batteries available for energy storage: lead-acid and lithium-ion. Lead-acid batteries are far cheaper than lithium, but don’t last nearly as long. On the flip side, lithium batteries can cost an arm and a leg, but can last 8x to 12x longer than lead-acid, so you’ve got more time to recoup your initial investment.

Battery technology, though, isn"t the only thing that affects solar batteries’ lifespan. Temperature, maintenance, and how deeply you discharge your batteries (known as Depth of Discharge) all play a serious role in their lifespan - either keeping them going as long as possible, or helping them conk out after just a few years.

Let"s take a look at the estimated lifespan of the most common battery types for solar backup and some tips to help you lengthen that battery life as long as possible.

There are many different variations of lead-acid batteries for solar backup, from cheap 6v golf cart batteries, to sealed AGM batteries, to large 48v flooded batteries designed for medium- to large-sized installations.

Unfortunately, as most car-owners know, lead-acid batteries are also short lived - typically ranging around 5 to 7 years. To compound that lifespan problem, most experts recommend only using about 30% to 50% of your lead-acid battery"s capacity. Discharging further greatly shortens the life of the batteries.

So why would you buy lead acid batteries? Cost, of course! Take a look at the Trojan T-105RE, a popular deep-cycle battery specially designed for renewable energy backup.

You can purchase this 225 amp-hour 6v battery for about $170 and receive about 1600 cycles at 50% Depth of Discharge. In other words, in good conditions you can use 50% of the battery"s capacity 1600 times. Exactly

how long 1600 cycles will last depends on your electricity use. Trojan warranties the T-105RE for 5 years, covering complete replacement for 2 years and a pro-rated credit for the remaining 3 years.

You’ll need 2 to bring the voltage up to a useful 12 volts. Even still, if a single Trojan battery costs $170 and it will provide 180,000 amp-hours over its life (225 Ah X 50% X 1600 cycles), your $/AH cost breaks down to $0.19 per 100 AH:

Once only found in smaller devices like cell phones thanks to their extremely high costs, lithium-ion batteries were simply too expensive for large-scale applications like solar.

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