

Choosing a home solar battery

Choosing the right home solar battery for you depends on your current system setup, budget and battery storage requirements.

Current system setup

Choosing a battery will depend on your current system setup. You most likely will either be **adding a battery to an existing solar system or purchasing a new solar battery system**, unless you are considering buying a battery to operate on its own (which may not be financially viable at current prices).

Budget

Different batteries have different properties that affect how they perform. Lithium-ion is the most popular household battery technology on the market. These are small and light in comparison to their capacity, can be efficiently charged and have relatively long lifespans. There are other battery types available which may suit your specific circumstances.

In 2020, the average lithium-ion battery system (including inverter, software and installation) can cost between \$1,000 to \$2,000 per kilowatt hour (KWh). The costs of other battery technologies, such as flow or lead-acid batteries, vary.

You will need to assess what kWh capacity you require and understand if a battery will be a good financial investment.

Battery storage

Choosing the right battery storage size for your needs will mostly depend on the size of your solar, how much energy you consume during the early morning or overnight, whether you want backup during a power outage and your financial considerations, including budget. See below for some sizing tips depending on what you want from your system.



To make the most of your solar

Calculate your excess solar energy per day and decide whether you would like to store all excess solar or just enough for the evening peak.



To power your house overnight

Calculate your sunlight hours and overnight energy use. Size your solar and battery so the battery can be fully charged during the day and discharged at night.



To have backup for multi-day outages

Design your system like an offgrid setup, with a special inverter and isolation switch. Plan for a larger system with higher costs and less efficient battery utilisation.

Additional tips



- **Discharge rates:** Understand the battery's maximum discharge rate, this will determine how many appliances can be run off the battery at the same time.
- **Battery software:** Get a battery that has easy to use software and lets you control the system and check performance.
- **Lifespan and warranty:** Check whether the warranty refers to years, cycles and other limitations like ambient temperature. You want your battery to last as long as the warranty and hopefully well beyond it.
- **Independent assessment:** Seek an independent assessment from an accredited installer to best understand the right option for you.

Practical examples

The below table includes practical examples of what battery size, investment and payback may be required for varying scenarios. Refer to the NSW Home Solar Battery Guide for more practical examples and information.

	Example 1: Isabella	Example 2: Ali	Example 3: Wei	Example 4: Scott
Overview and motivations	Find simple energy efficiency measures to save money.	Reduce carbon footprint and be an early adopter of new technology.	Rely less on the grid and provide grid support.	Become more self-sufficient and have home office backup.
Daily consumption	10 kWh	10 kWh	25 kWh	20 kWh
Existing solar	2 kW	—	5 kW	4 kW
	Their investment			
New solar	Buys energy efficient appliances instead	4 kW	5 kW	—
New battery	-	2.4 kWh	13.5 kWh	13.5 kWh
System cost	\$2,800	\$9,000	\$18,500	\$13,500
Annual savings	\$520	\$870	\$1,500	\$530*
Payback	5 years	10 years	12 years	26 years

*Annual savings from solar storage is \$130, while annual savings from power outage reduction is assumed to be worth \$400.



For more information, download the NSW Home Solar Battery Guide:
energysaver.nsw.gov.au/solar-battery-systems

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