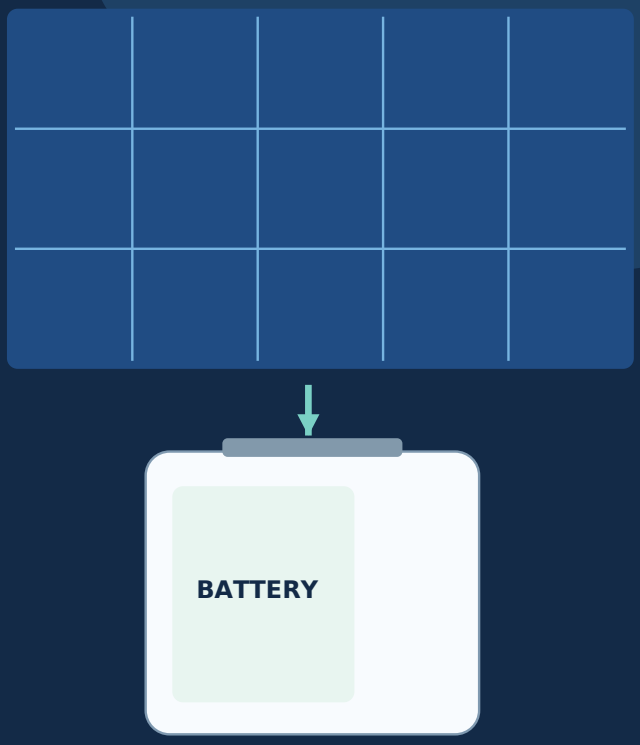
PlaceNest / LEARN

SOLAR + BATTERY

A clear, illustrated guide to generating, storing and using your own electricity at home.



INSIDE THIS GUIDE

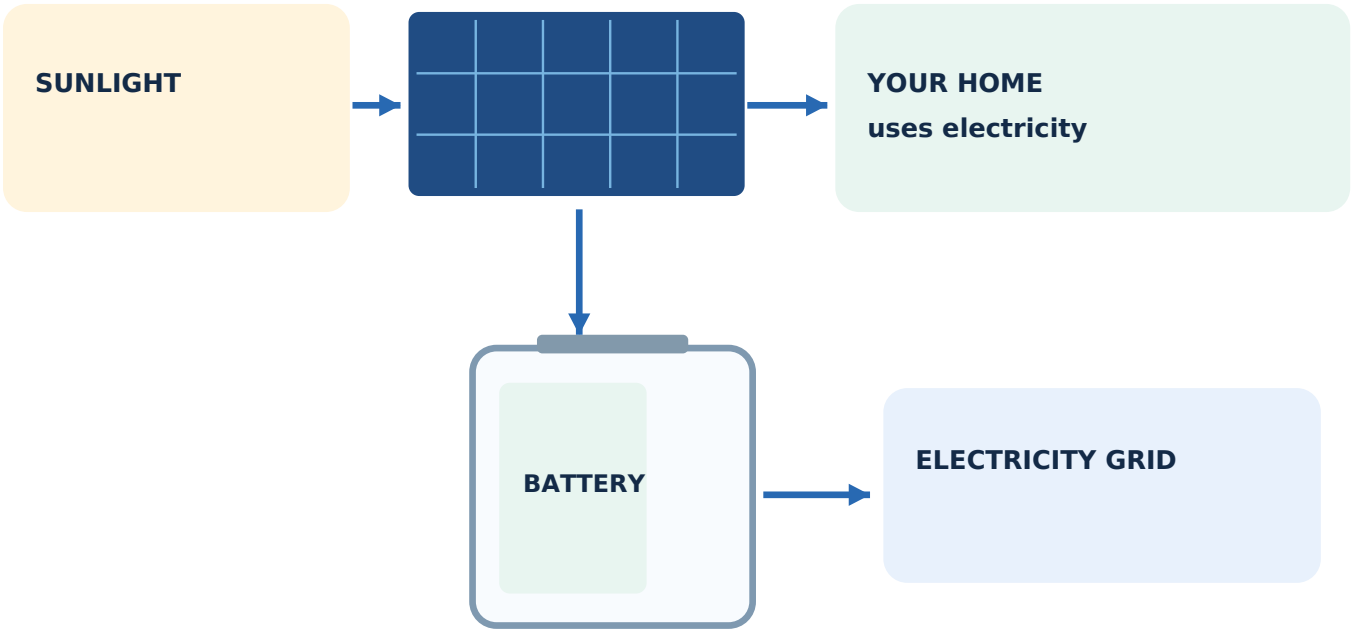
Simple diagrams • Real-world energy flow • Battery sizing
Savings and payback • Blackout backup • Safety and rebates

AUSTRALIA • 31 OCTOBER 2026

General education, not a personalised quote or installation advice

The big picture

Solar panels make electricity. A battery stores some of the extra electricity for later.



During the day

Solar powers your home first. Surplus energy can charge the battery. Any remaining surplus may be exported.

In the evening

The battery can power some of your home. When it is low, the grid supplies the remaining electricity.

A battery does not make electricity. It shifts energy from sunny hours to later hours. Its value depends on how and when you use power.

Understand the four numbers

These are the terms that make battery quotes much easier to compare.

Solar size: kW

The rated power of your solar panels. A 6.6 kW rooftop array is a common example, not a recommendation for every home.

Battery capacity: kWh

How much energy the battery can store. The usable amount may be less than the headline capacity.

Battery power: kW

How fast the battery can deliver electricity. A 5 kW battery output may not run all large appliances together.

Round-trip efficiency

Some energy is lost during charging and discharging. For example, 10 kWh stored at 90% efficiency gives about 9 kWh back.

AN EVERYDAY ANALOGY

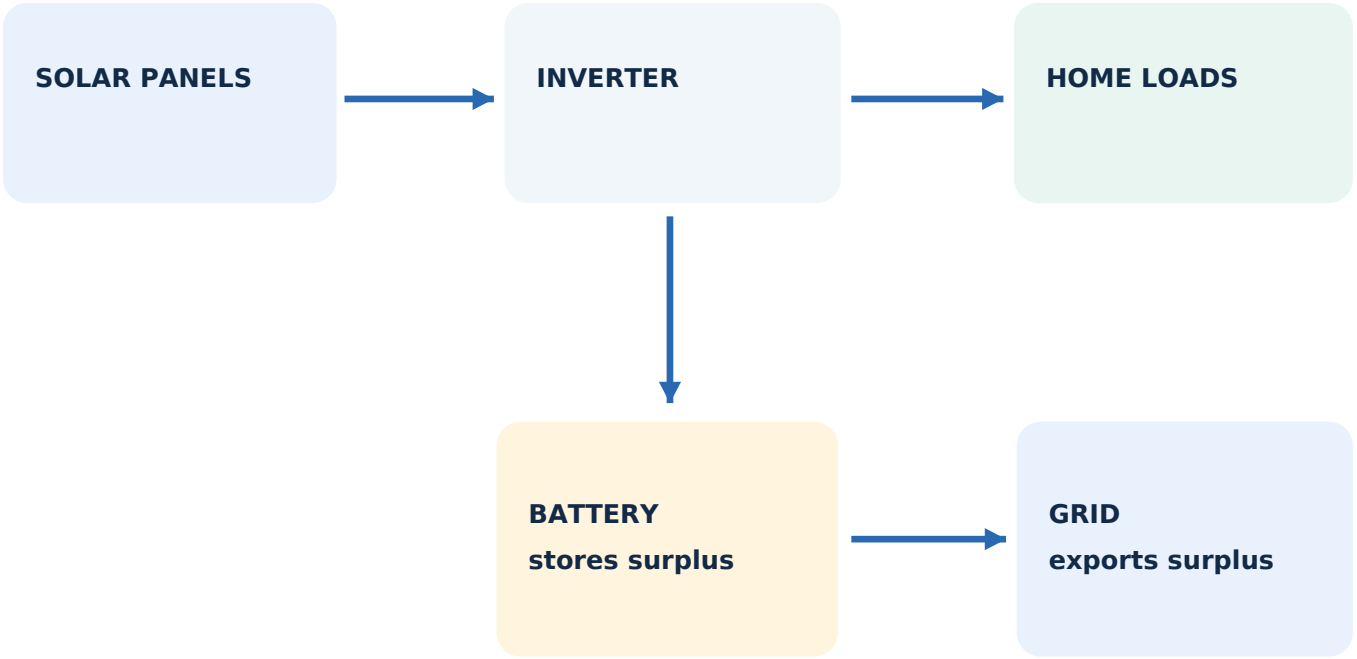
Capacity (kWh) = size of the water tank

Power (kW) = how quickly water comes out of the tap

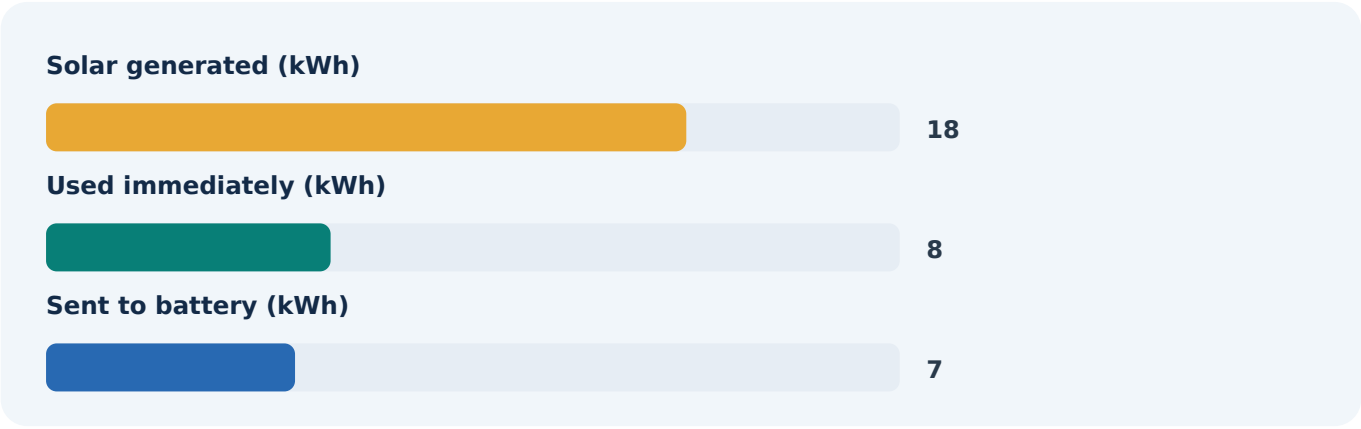
A large tank with a narrow outlet still cannot supply every high-power appliance at once.

A typical sunny-day energy journey

Illustrative energy flow; actual priorities depend on inverter and battery settings.



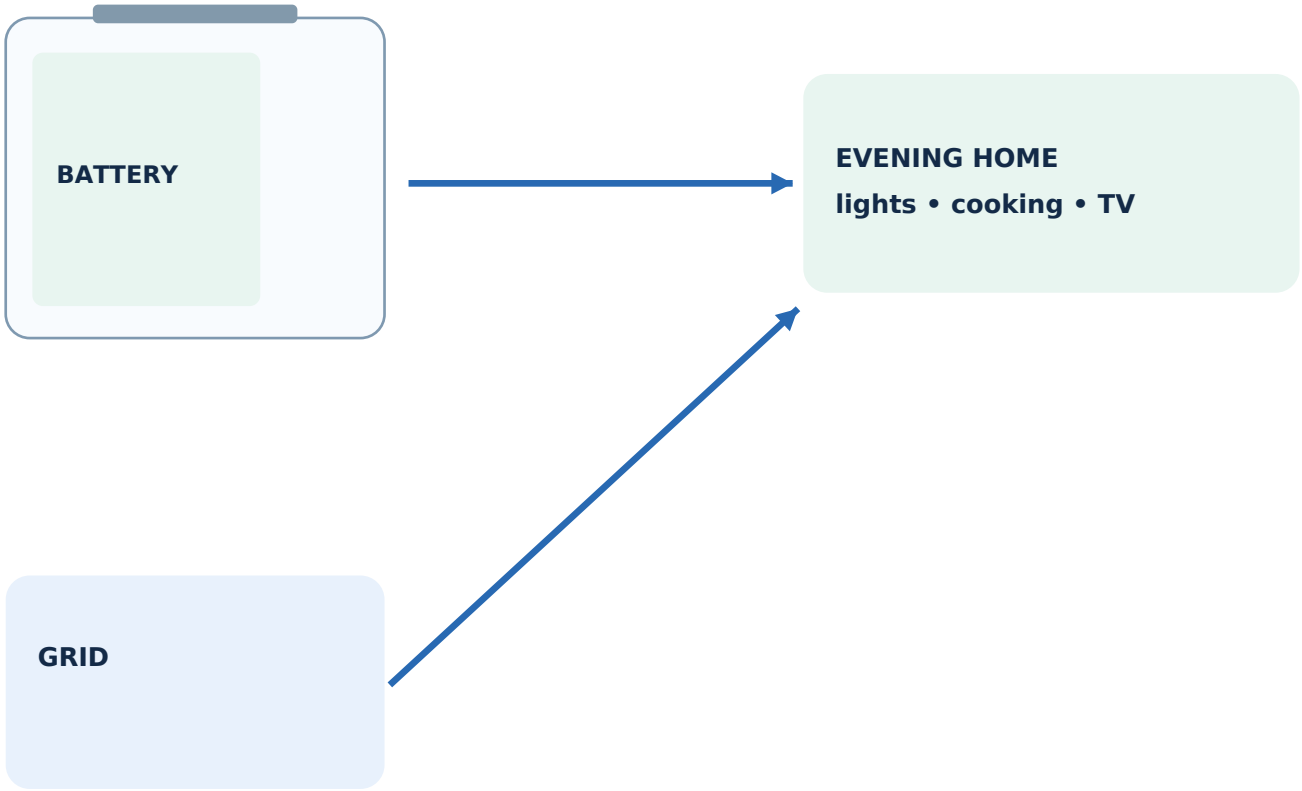
Illustrative daily energy balance



In this simplified example, 3 kWh is exported. Battery charging losses and battery discharge are not shown in these daytime totals.

What happens after sunset?

Your appliances can draw from the battery until its usable energy or power limit is reached.



EXAMPLE: 10 kWh USABLE BATTERY

Moderate evening demand

If evening and overnight use totals 7 kWh, a sufficiently charged battery might cover much of it, subject to losses and power limits.

High evening demand

If use totals 14 kWh, a 10 kWh battery cannot cover all of it. You may still need grid electricity.

Battery storage is not the same as blackout backup. Backup needs suitable equipment, circuits and installation.

How big should your battery be?

Size it for your actual energy habits, not simply to match the solar panel rating.

A

Daytime solar surplus

How many kWh could you charge most days?

B

Evening + overnight use

How many kWh do you typically need after sunset?

C

Usable capacity

How much stored energy can you actually draw?

D

Output power

Can it run the appliances you want at once?

E

Seasonal variation

Will winter generation recharge it often enough?

Rule of thumb: start with your evening/overnight consumption and the amount of solar surplus available to charge the battery. Ask for a month-by-month simulation.

Solar-only or solar + battery?

Neither option is automatically best. Compare the same household and tariff assumptions.

Daytime use	Solar supplies home	Solar supplies home
After sunset	Grid usually supplies	Battery may supply
Upfront cost	Usually lower	Usually higher
Exported solar	Often more	Often less
Blackout backup	Usually no	Only if designed for it
Maintenance	Inverter + panels	Adds battery system
Best fit	High daytime use	Useful surplus + night use

Compare the incremental benefit of adding a battery, not just the total savings of the solar-and-battery package.

A worked savings example

These figures are invented for learning, not a forecast or quote.

ASSUMED TARIFFS

Grid import	**30 c/kWh**
Solar export	**5 c/kWh**

Battery round-trip efficiency: 90%

EXAMPLE: STORE 10 kWh OF SURPLUS SOLAR

Without a battery

Export 10 kWh × $0.05 = $0.50 export credit.

With a battery

Store 10 kWh, then deliver about 9 kWh. Avoid 9 × $0.30 = $2.70 of imports.

Illustrative extra value from storing rather than exporting

$2.70 avoided purchases − $0.50 forgone export credit = $2.20

This is a one-cycle illustration, not daily or annual savings. Actual value varies with charging, usage, battery losses, time-of-use tariffs and export rules.

How to think about payback

The key question: does the battery add enough value to justify its additional cost?

HYPOTHETICAL BATTERY-ONLY ADDITION

Installed incremental cost	**$8,000**
Estimated extra annual benefit	**$800**

Simple payback = $8,000 ÷ $800 = 10 years

WHAT SIMPLE PAYBACK LEAVES OUT

Costs and change

Maintenance, finance interest, battery degradation, replacement, insurance implications and electricity tariff changes.

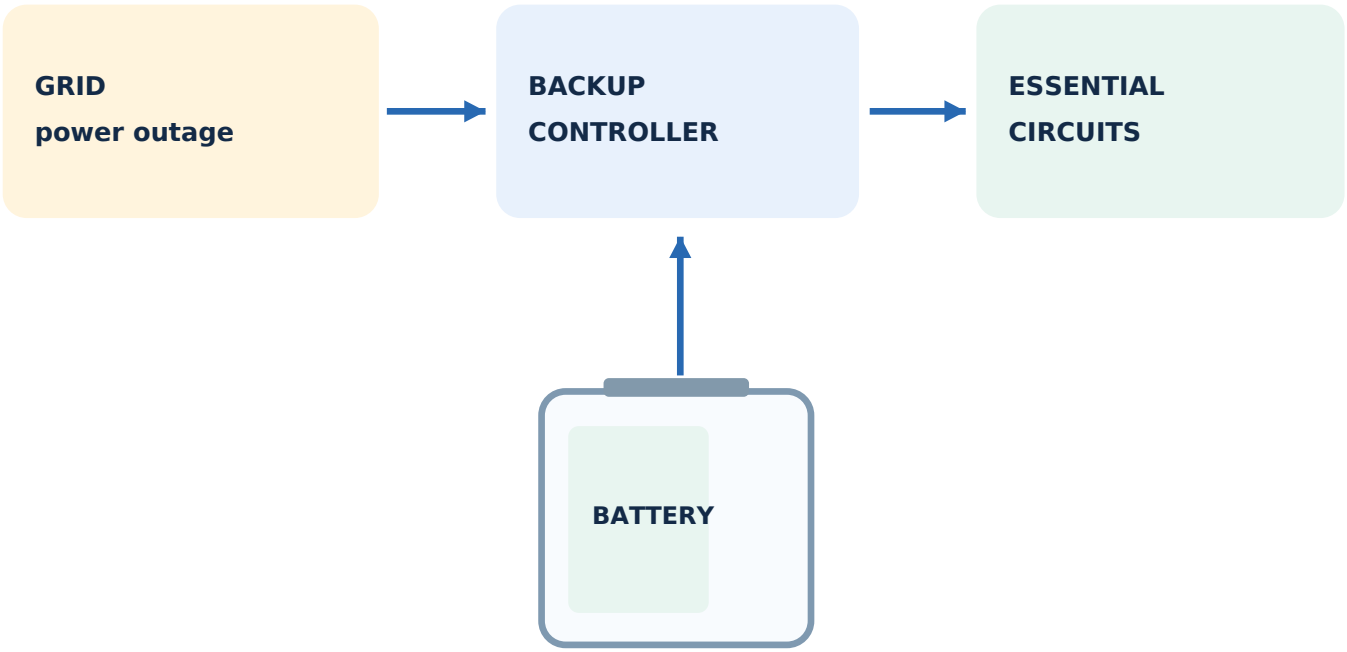
Real-world benefits

Time-of-use shifting, export restrictions, backup value and possible participation in a virtual power plant (VPP).

Compare at least two scenarios: solar-only and solar-plus-battery. Include a conservative case and a battery replacement/retirement assumption beyond warranty.

Will your battery work in a blackout?

Not necessarily. A battery system must be designed and configured for backup.



Typical essential loads

Selected lights, fridge, internet and perhaps a few outlets. Backup circuits and battery output need to be planned.

High-power appliances

Electric ovens, ducted heating/cooling, EV chargers and pumps may exceed backup power or drain storage quickly.

Ask the installer to demonstrate backup operation and explain what is protected, how long it might last, and whether solar can recharge the battery during an outage.

Battery safety and installation

A home battery is electrical equipment. Safe design and placement are essential.

01 Use qualified professionals

Confirm applicable accreditation, licensing, standards and grid connection requirements.

02 Choose a suitable location

Ask about ventilation, clearances, heat, water, flood exposure and fire separation.

03 Understand battery chemistry

Different chemistries have different characteristics; rely on certified products and the installer’s design.

04 Know the emergency plan

Keep the installer’s shutdown instructions and emergency contact information.

05 Keep documentation

Save warranties, serial numbers, certificates, monitoring access and maintenance instructions.

Do not open, move, repair or modify battery equipment yourself. In an emergency, follow local emergency-services advice and the manufacturer’s instructions.

Questions to ask three installers

Ask each supplier for the same information so quotes can be compared fairly.

- [ ] What solar size and battery usable capacity do you recommend, and why?
- [ ] What are the battery’s continuous output and backup power limits?
- [ ] Can you show a month-by-month solar generation and battery-use estimate?
- [ ] How do my import tariff, export tariff and time-of-use rates affect value?
- [ ] Does the quote include inverter, switchboard, backup and metering work?
- [ ] Which warranties cover capacity, throughput, equipment and labour?
- [ ] What happens if the battery or inverter fails? Who provides support?
- [ ] Are the rebates and discounts confirmed, conditional or estimates?
- [ ] Can the battery participate in a VPP, and what control would I give up?
- [ ] What happens at end of life? Are recycling and replacement explained?

Do not sign based only on a promised annual saving. Request the assumptions, tariff, monthly generation and battery dispatch model in writing.

Government support and rebates

Programs and eligibility can change; confirm details immediately before committing.

Solar panel incentives

Eligible rooftop solar installations may benefit from small-scale technology certificates (STCs). Ask for the gross price, certificate discount and final payable price separately.

Battery incentives

The national Cheaper Home Batteries Program provides support for eligible systems under applicable rules. The discount and eligibility depend on the program settings at installation, equipment and other conditions.

State and territory programs

Some jurisdictions offer additional rebates, loans or financing. Confirm whether programs can be combined and whether an approved installer or specific equipment is required.

OFFICIAL SOURCES TO CHECK

energy.gov.au • cer.gov.au • your state/territory energy website

Your decision roadmap

A straightforward way to move from curiosity to a sensible purchase.

1. Collect 12 months of electricity bills and your current tariff.
2. Estimate daytime solar use and evening/overnight consumption.
3. Check roof shading and obtain a monthly solar production estimate.
4. Compare solar-only, solar + battery and no-change scenarios.
5. Request three itemised quotes with the same assumptions.
6. Verify incentives, warranties, backup features and installation safety.
7. Keep your documents and monitor performance after installation.

Your best system is the one that suits your actual energy needs, finances and backup priorities - not necessarily the largest battery.

A few useful terms

Keep this page handy while reading installer proposals.

AC / DC	Alternating current / direct current. Solar panels generate DC; homes usually use AC.
kW / kWh	Power rate / energy quantity. A 5 kW output is different from 10 kWh stored.
Usable capacity	Energy the battery is designed to make available within operating limits.
Depth of discharge	How much of the battery’s stored energy can be used.
Round-trip efficiency	Share of energy recovered after charging and discharging.
Hybrid inverter	An inverter that can manage solar and compatible battery functions.
Feed-in tariff	Payment or credit for eligible electricity exported to the grid.
VPP	Virtual power plant: a program coordinating participating energy assets.
STC	Small-scale technology certificate, used in eligible Australian incentive schemes.

EDITORIAL NOTE

Published 31 October 2026. General educational information only. All prices, tariffs, outputs and payback examples are hypothetical. Consult qualified installers and official government sources for current rules and site-specific advice.