SOLAR AND BATTERIES MADE SIMPLE

Why, how and steps to get rooftop solar and a home battery

In the spirit of reconciliation, we acknowledge the Traditional Custodians of the Land on which we meet.

We pay our respects to Elders past and present and we extend that respect to all Aboriginal and Torres Strait Islander peoples today.

What we'll cover

1. The new Federal Cheaper Home Batteries Program
2. Why install a battery?
3. How do solar and batteries work? How much to get?
4. How much could you save each year on your power bills?
5. How much might rooftop solar and a battery cost?
6. Next steps
7. Q&A

Who are we?

- **Who**: Zero Emissions Solutions are locals helping locals, not-for-profit, we've provided 120+ free events over 5 years
- **What**: We provide free events and resources to Councils, MPs and groups to help people install rooftop solar and batteries and electrify their homes
- **Why**: We want to share the benefits of electrification and reduce burning coal, gas, petrol and diesel.

- Australians are going electric, we want to help you go electric too!

Who are you?

1. I do not have rooftop solar or a battery and am interested in one or both
2. I have rooftop solar, and I’m interested in a battery
3. I have rooftop solar and a battery and I want to help family or friends get these

The main components of an electric home

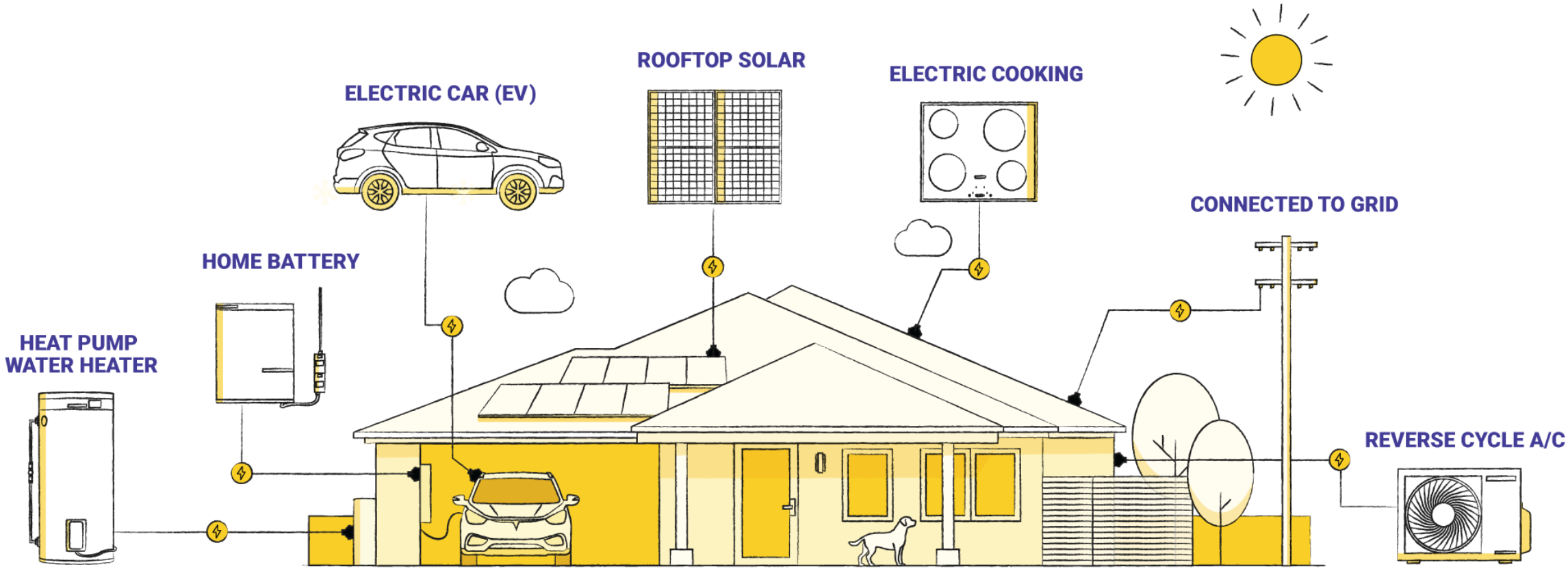


Diagram credit: Rewiring Australia

Federal Cheaper Home Batteries Program

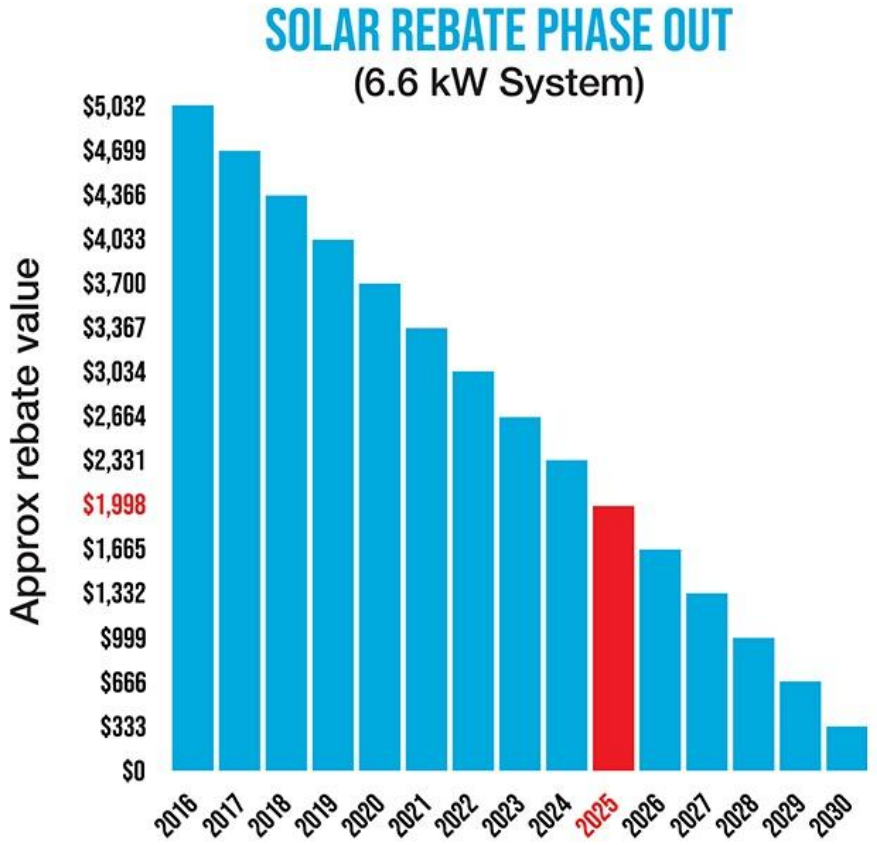
Extends the existing solar rebate scheme (SRES) to include home batteries

- Approx. *30% discount* on the cost of installing a battery (5 kWh to 100 kWh)
- Calculated as 9.3 STC's per useable kWh @ $40 per STC ≈ $372 per kWh
- The rebate will be reduced by about 10% each 1 January till 2030, then end.

- For batteries connected to either *new* or *existing* solar PV systems
- Discount is provided through accredited installers/retailers
- Lowering costs for *everyone* by reducing peak demand on the grid

Who is eligible: Renewable Energy (Electricity) Amendment (Cheaper Home Batteries Program) Regulations 2025
Website: www.dcceew.gov.au/energy/programs/cheaper-home-batteries
Who runs this: administered by the Clean Energy Regulator (CER)

The existing solar panel rebate continues, reducing each year till 2030



Federal Government - Small Scale Technology Certificates (STCs)

- Rebate is included in installer quote
- About 25% of total cost in 2025
- Around $1,500 off for 5kW system;
  $2,000 off for 6.6kW system;
  $3,500 off for 10kW system
- Declines each year, phased out by 2031

The 2 rebates offer great support for home energy!

Image credit: Solar Quotes

WHY INSTALL A BATTERY?

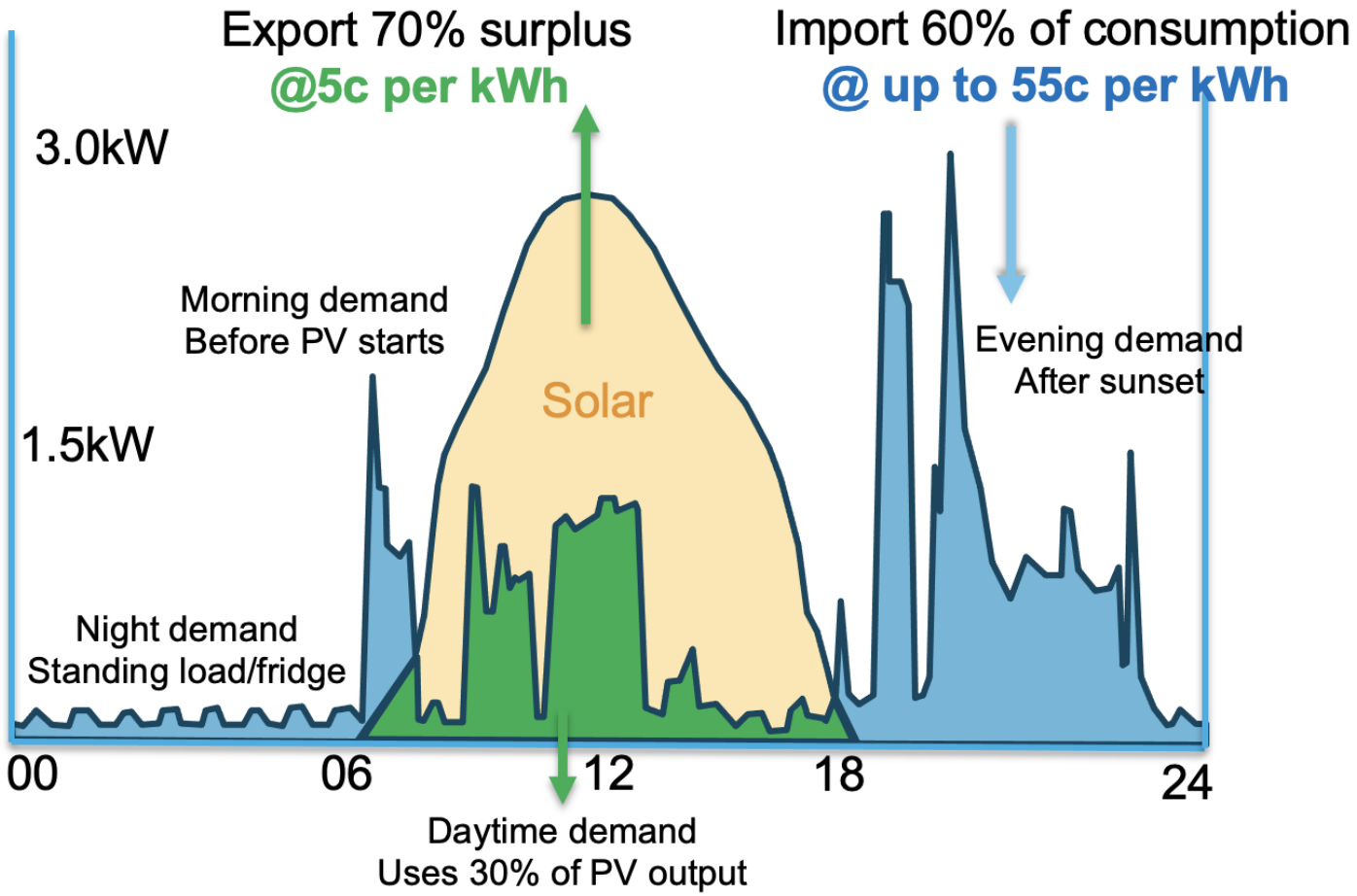
Why install a battery?

To make best use of your solar output => lower bills, less coal/gas

Without a battery, this household would
import 60% of their energy and
export 70% of their solar output

Example:
5.4kW system, 9.7kWh battery,
full-sun day in winter

Production:	16.7 kWh
Consumption:	13.1 kWh
Export:	11.7 kWh
Import:	7.9 kWh
Net cost:	**≈ $3.80**



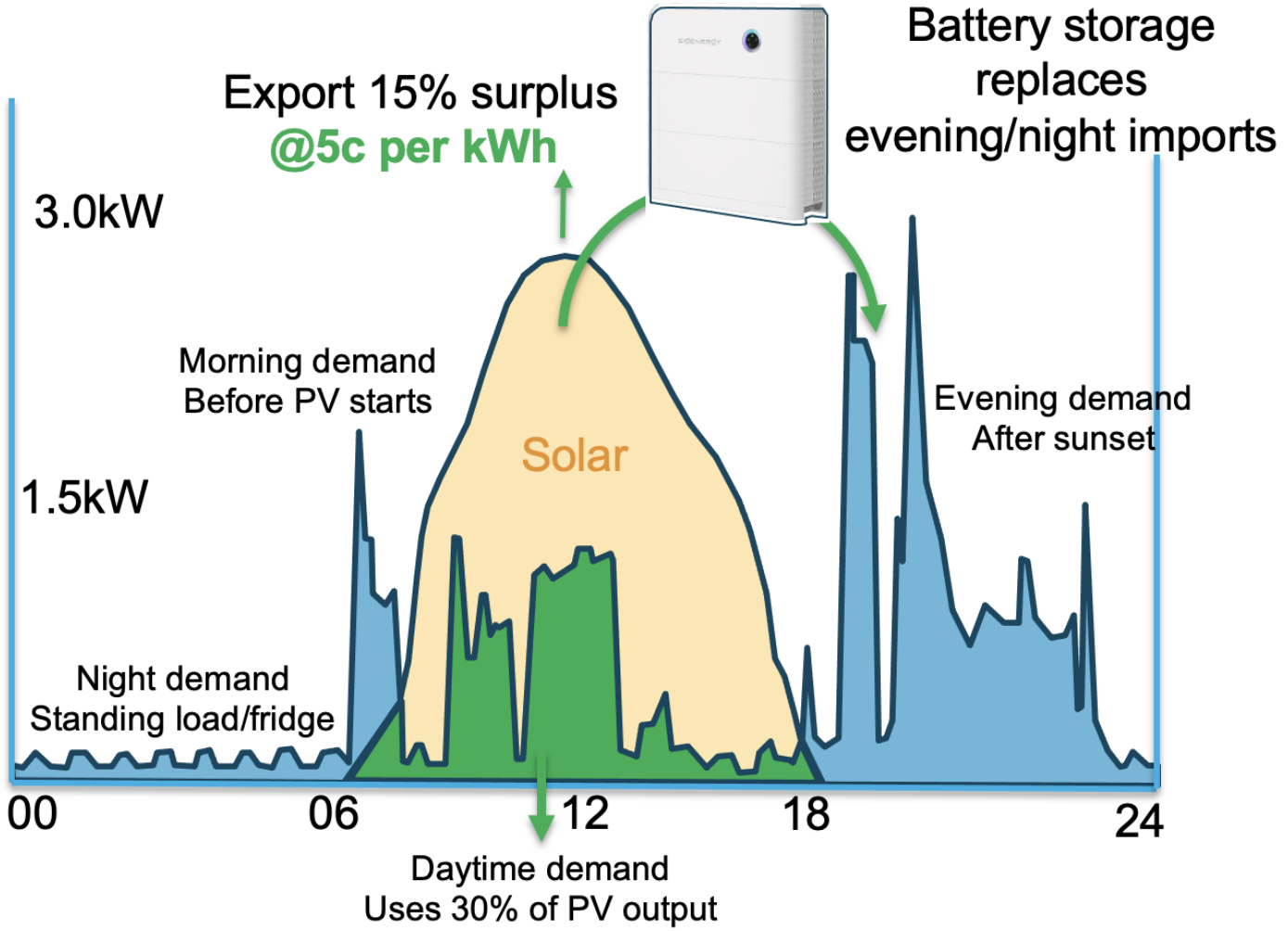
Why install a battery?

To make best use of your solar output => lower bills, less coal/gas

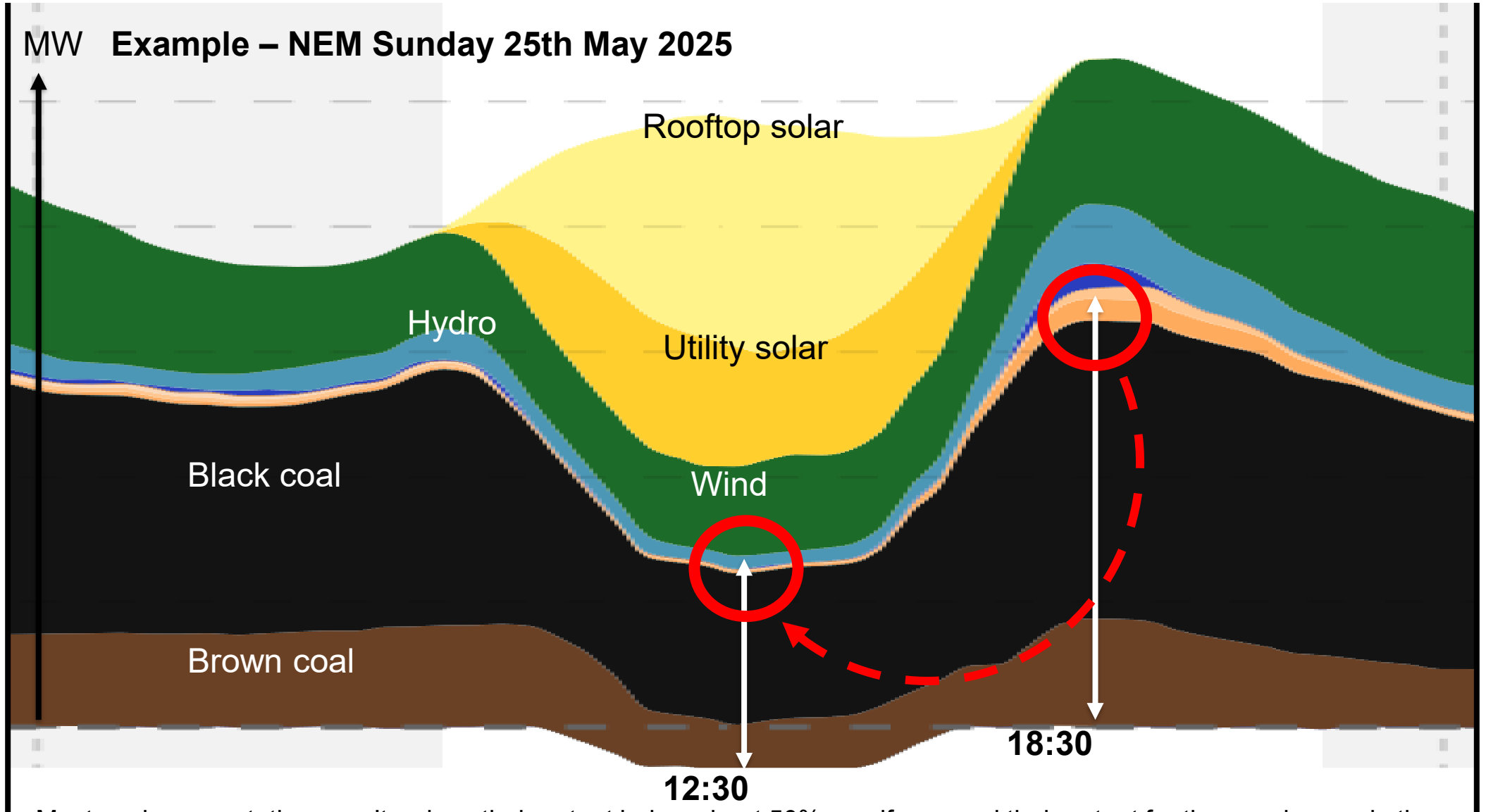
With a battery, this household uses nearly all of their solar output, and imports a minimal amount of energy*

Example:
5.4kW system, 9.7kWh battery,
full-sun day in winter

Production:	16.7 kWh
Consumption:	13.1 kWh
Export:	2.1 kWh
Import:	0.3 kWh
Battery losses**:	1.1 kWh
Net cost:	**≈ $0.20**
Savings:	**≈ $3.60 pd**
	≈ $1,300 py



To decarbonise the grid **we must reduce our evening peak demand** through storage



Most coal power stations can't reduce their output below about 50% - so if we need their output for the evening peak, they and rooftop solar cause utility solar and wind to curtail their output during the middle of the day

HOW DO SOLAR AND BATTERIES WORK?

What's needed for solar + battery?

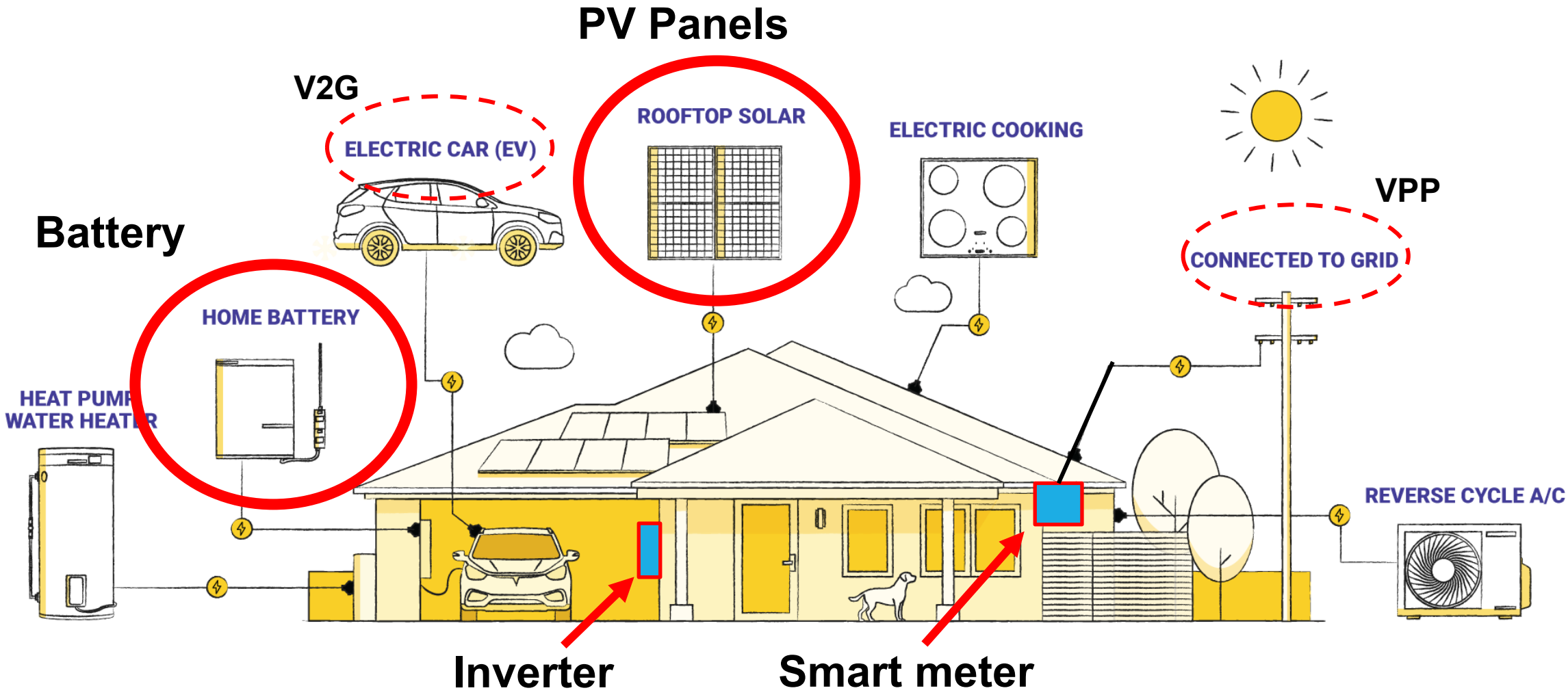


Diagram credit: Rewiring Australia

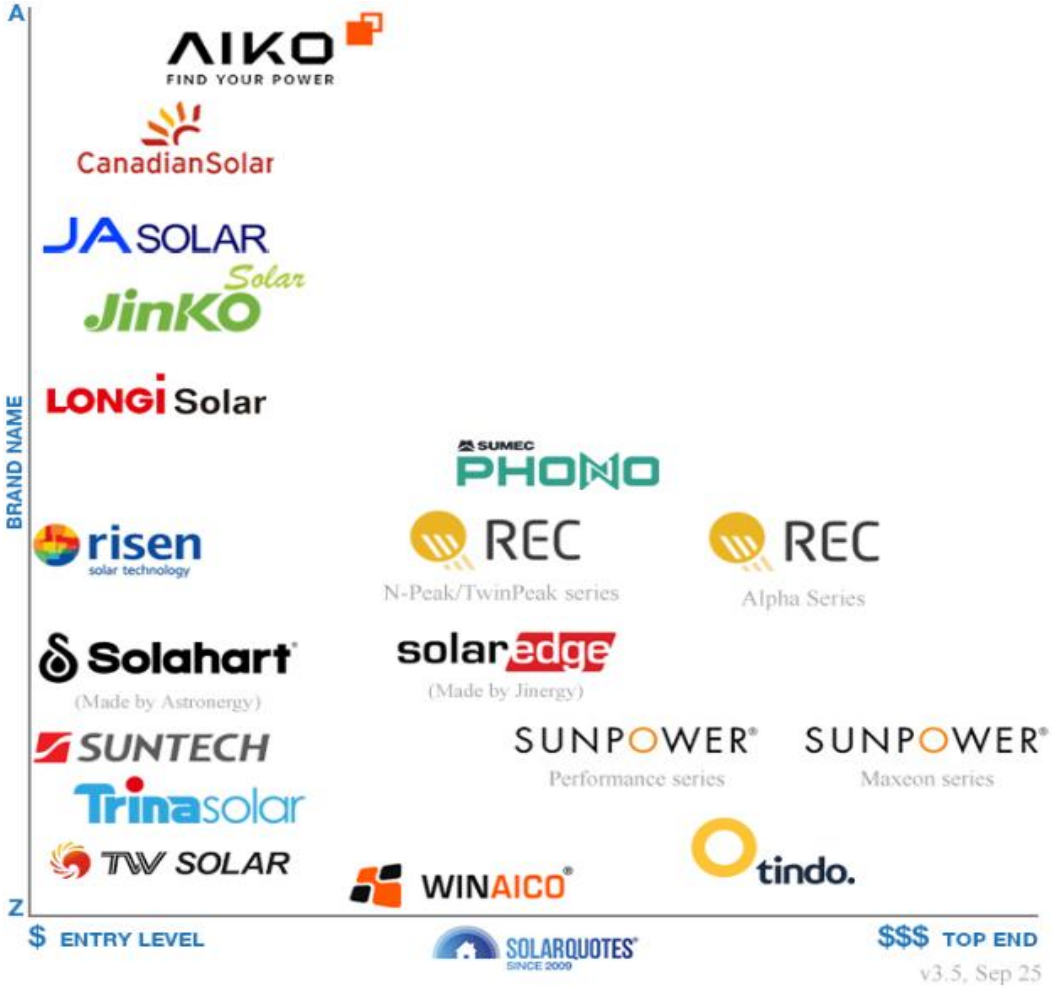
Solar Panels

Grid of solar cells under a sheet of tough glass protected by a frame. Panels convert sunlight into DC electricity. Most sold these days are ‘monocrystalline half-cut’ panels.

Steps to choose

1. Your installer will suggest the panel brand
2. Product warranty and performance warranty: longer is better
3. Panel efficiency: higher is better
4. Price
5. Size/shape/appearance:
   - e.g. you can pay more for all black panels
6. Manufacturing country of origin:
   - most are made in China
   - Tindo Solar are Australian made panels

Which solar panels? Independent info



Cost difference: high-end brand such as REC v budget-end brand like Jinko adds about 30%

Difference in performance between budget and premium brands is marginal.

Main differences:

(i) How much the energy output will degrade over years.

(ii) The length of their product warranty: although many cheaper brands now offer 25 or 30 years.

Image Credit: Solar Quotes (website with solar comparison info)

Inverter: String, String + Optimisers, Micro-inverter

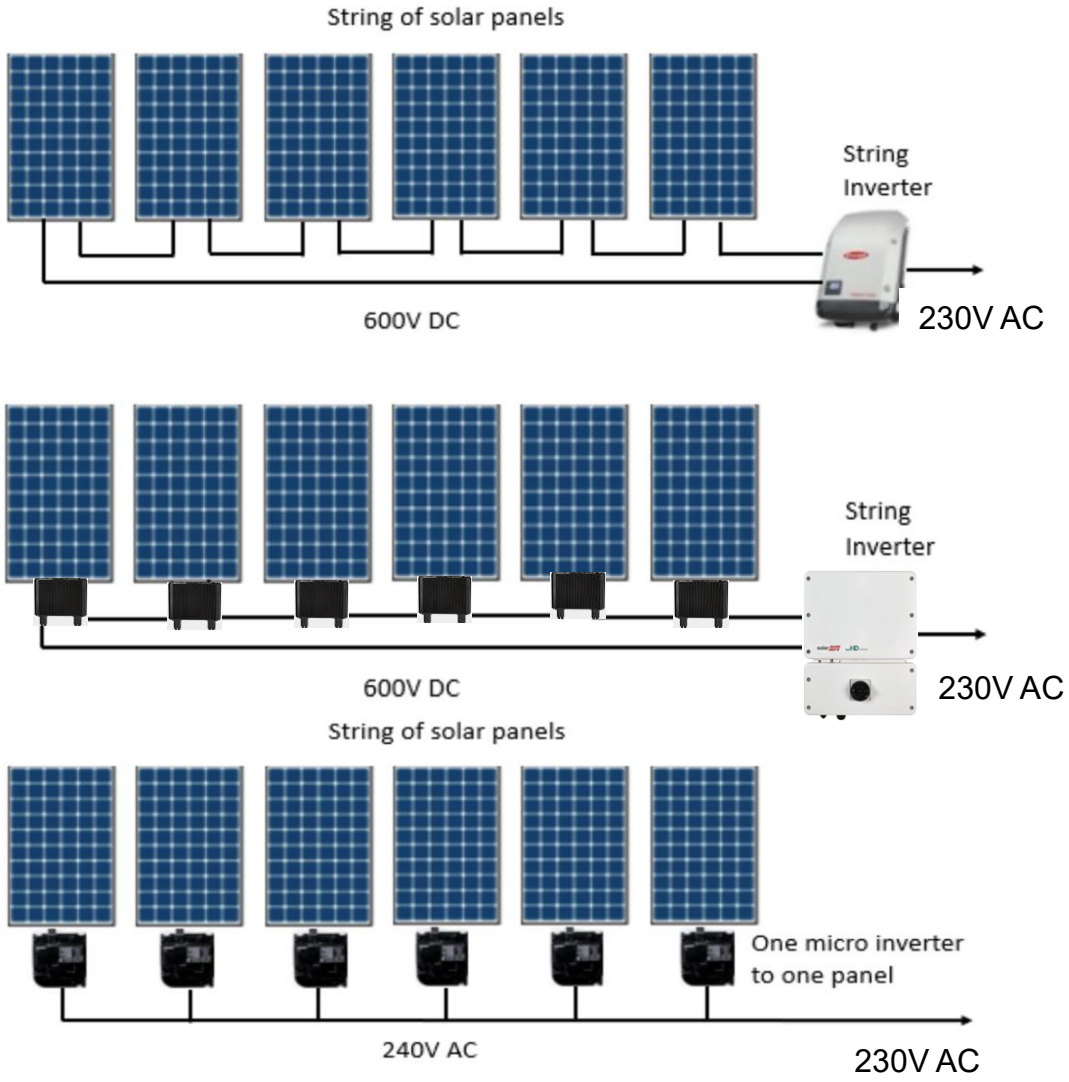


Image credit: Instyle Solar

String – e.g. Fronius or Sungrow

- Panels operate as one system
- Good for roofs without shade
- 10-year warranty

String plus Optimisers – e.g. Solaredge

- Panels managed individually
- Good for partial shade & on multiple aspects
- Longer warranty: 12 extendable to 25 year

Micro-inverters – e.g. EnPhase

- Panels work individually
- Good for partial shade & on multiple aspects
- Longest warranty: 25 year

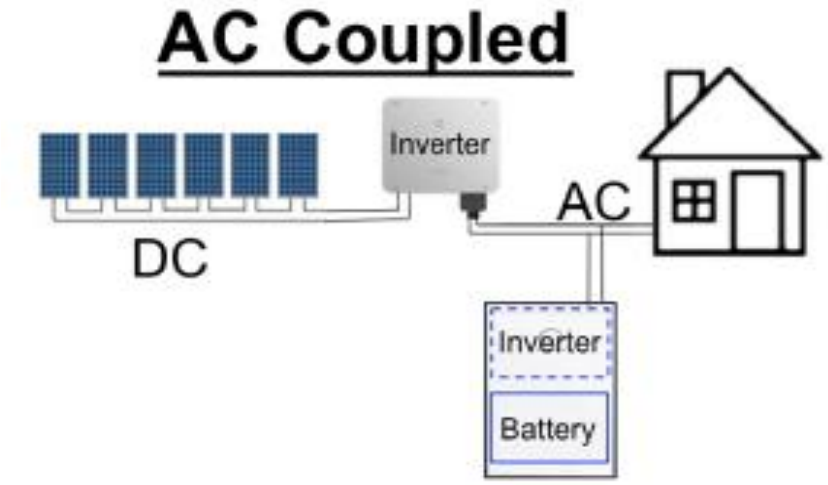
Battery types – AC vs DC coupled

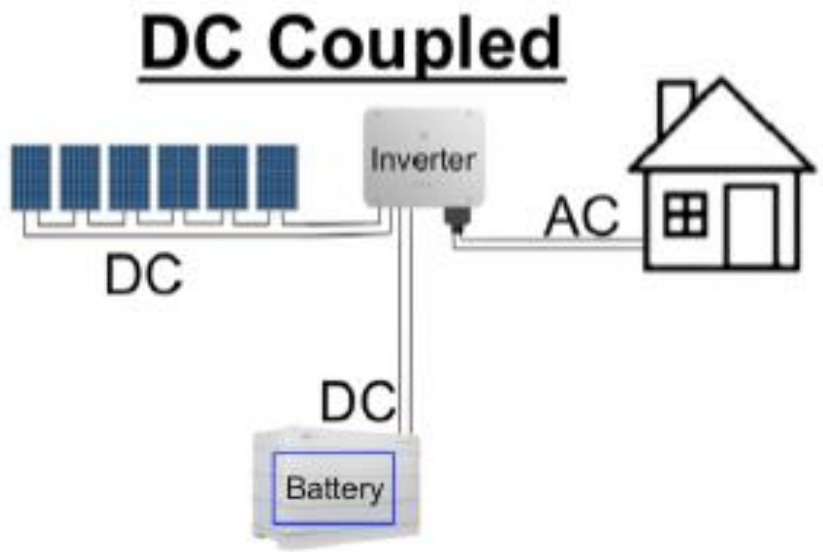
AC coupled:

Easy cost-effective way to retrofit a battery onto *an existing solar PV system*

DC coupled:

Fewer components, often lower cost, more efficient, for *new or existing* solar PV system

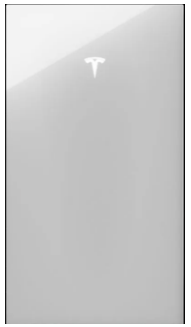




Battery types – Fixed size vs modular

A. Fixed size:

- Larger, more storage, one-off solution
- Higher up-front cost
- Fewer components, less risk of connection failure



Tesla Powerwall 3

13.5 kWh

Solaredge

9.7 kWh

Alpha ESS 9.7 kWh

B. Modular stackable:

- Scalable: Start with one modular battery, add #2 and/or #3 etc later
- Easy installation: Plug-and-play, quicker and easier to install compared to big one-piece battery

Sungrow

3.2 kWh modules

Sigenergy

5 & 8 kWh modules

BYD 2.76 kWh modules

A stackable battery installation

A 32kWh example

6. Place inverter/controller (10 kW)
5. Place 8 kWh battery module 4
4. Place 8 kWh battery module 3
3. Place 8 kWh battery module 2
2. Place 8 kWh battery module 1
1. Install and precisely level the base frame

What about EV batteries, and ‘V2G’?

National standards? ✓

Approved chargers? ✓ Currently only:
- Sigenergy
- Wallbox

Capable EVs? ✓ Most

EV battery warranty? ? TBA

Will be valuable storage, working with home batteries

What's a VPP, and should I join one?

A 'virtual power plant' (VPP) is a mechanism for enabling your energy resources to participate in the energy market, and is essential to accelerating the energy transition.
Your PV and battery (and EV) can import from and export to the grid to help balance supply and demand

Pay for Control	Fee for Service
They pay you, a monthly amount or per usage, for control of your resources	You pay them a monthly fee for the means for you to operate your resources optimally
They take (most of) the risk and the rewards	You keep (most of) the risk and the rewards
agl, origin, EnergyAustralia	amber

Do your homework, and check that you are getting what's best for YOU

Which battery? Independent info - Installers choice

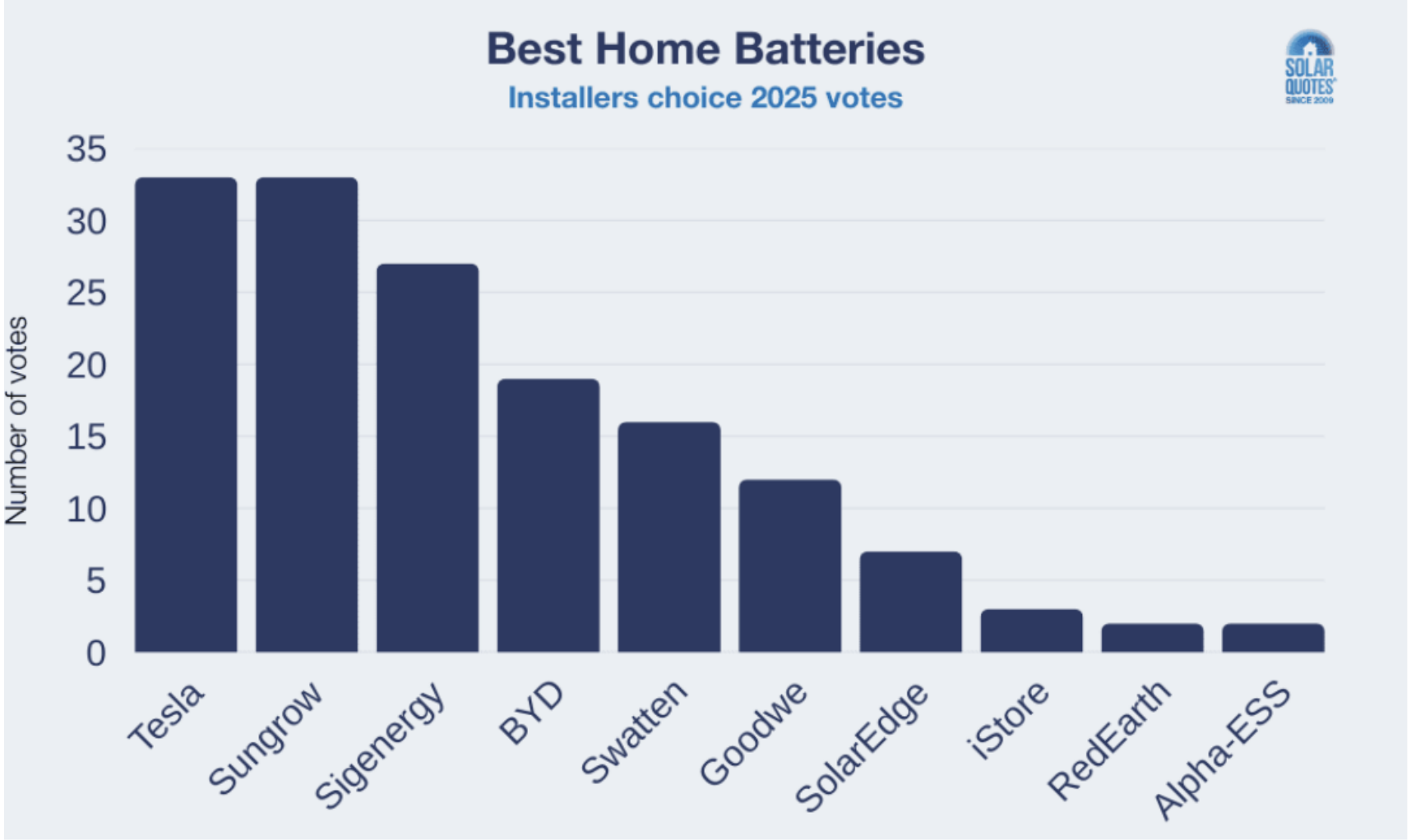
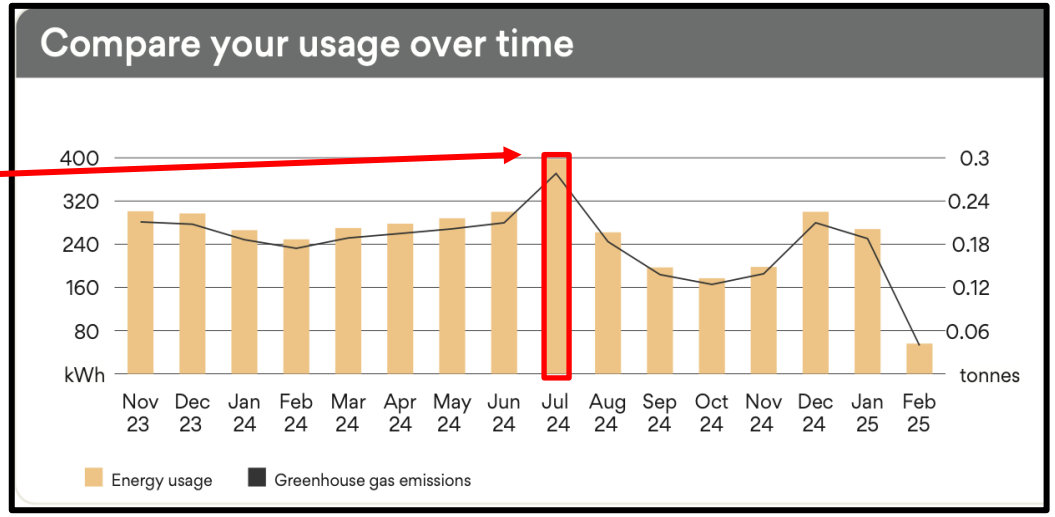
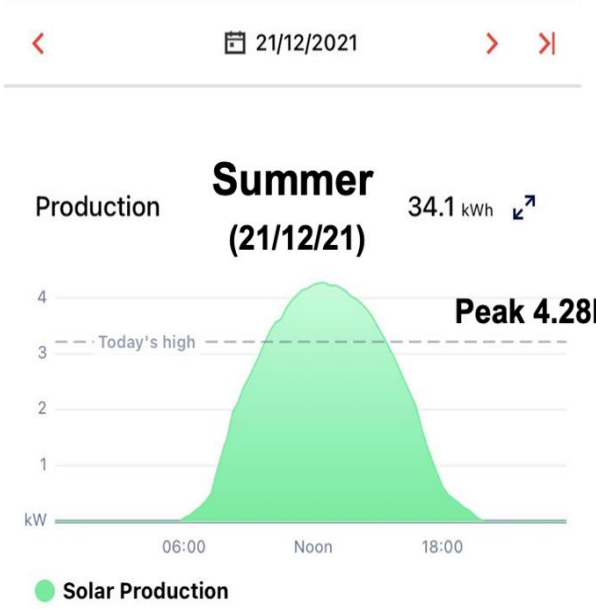


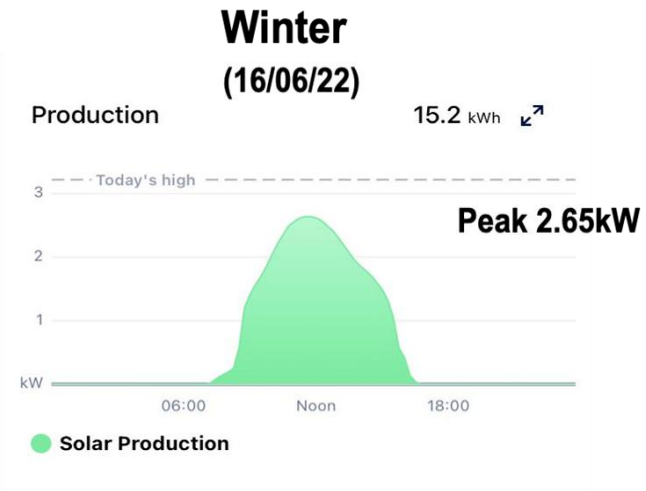
Image credit: Solar Quotes

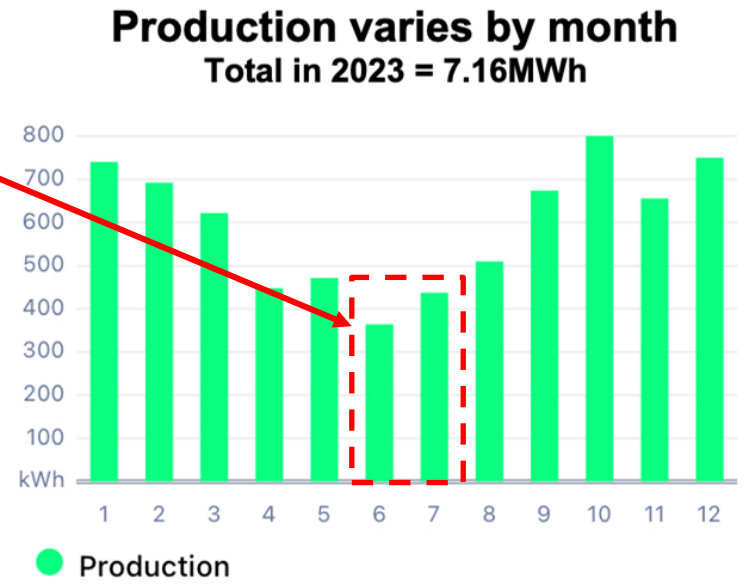
How much to get?

Install enough solar to cover winter usage when solar output is lowest





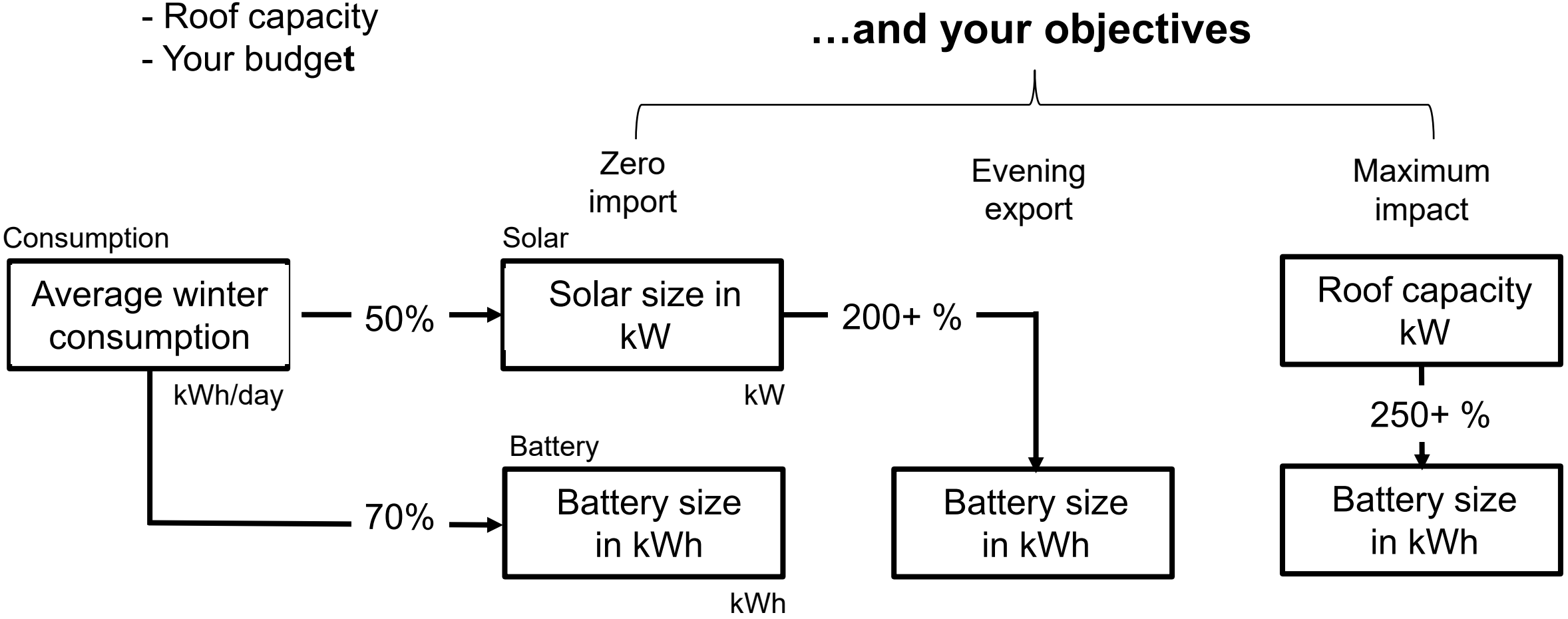




How much to get? It depends…

What's possible…

- Roof capacity
- Your budget



How much solar can I fit on my roof?

Depends on:

1. **Roof size**: length x width
2. **Roof orientaion (direction) and angle**
   - **North**: Most efficient, optimum slope ≈ 30°
   - **East/West**: Approx 85% c.f. optimum
   - **South**: Approx 70% c.f. optimum, but very poor winter output
3. **Roof shading**: shade from trees or other houses

Check out SunSPOT to estimate what you need https://www.sunspot.org.au/

SunSPOT solar and battery calculator estimates your system size, the cost, and how much you'll save

HOW MUCH COULD I SAVE? WHAT WILL IT COST?

How much could you save each year?

System size	Approx cost of solar system (no battery)	Approx savings if use 40% of solar	Approx savings if use 60% of solar	Savings if use 85% of solar, with battery*
6.6kW system	$6,000 to $9,000	$1,500	$1,900	$2,300
10kW system	$9,000 to $13,000	$2,250	$2,900	$3,400

Indicative guidance based on: 30c/kWh fixed tariff and 5c/kWh solar-feed-in tariff

*Indicative battery prices as a guide. Actual price depends on brand and size you choose, and installation

Battery indicative guide:
+ 9.7 kWh stand alone battery approx. $10,200 installed (=$1,050/kWh with rebate)
+ 13.5 kWh stand alone battery approx. $11,650 installed (=$860/kWh with rebate)
+ 16 kWh modular stackable battery approx: $10,000 installed (=$625/kWh with rebate)

Source: https://www.solarquotes.com.au/battery-storage/cost/ 15 August 2025

What will a battery cost?

Price depends on your choice of

1. Size - kWh storage
2. Brand
3. Grid back-up function Y/N
4. Warranty
5. Software upgradable

Price guidance

Approx $600 to $850 per kWh of storage *with Federal rebate*, currently approx 30% discount e.g.

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-> 13.5 kWh stand alone battery approx. $11,650 installed (=$860/kWh with rebate)
-> 16 kWh modular stackable battery approx: $10,000 installed (=$625/kWh with rebate)

Source: https://www.solarquotes.com.au/battery-storage/cost/ 15 August 2025

Case study 1: House, 12.25 kW solar + 13.5 kWh battery

Household: 4 people

- Large unshaded roof
- 12.25 kW system with Tesla battery
- Solaredge inverter with optimisers
- Produces: 25 to 70 kWh/day
- Cost: approx $29,500 in 2019 (no battery rebate)
- Payback: 8+ years
- **$1,145 per (kW+kWh)**

Case study 2: Townhouse, 5.4kW solar + 10kWh battery

Household: 2 people

- Multi direction roof
- 14 Hyundai 390W panels, 5.4kW
- Solaredge 5kW inverter with optimisers
- Sonnen 10kWh battery
- Total cost ≈ $20,000 in 2022 (no battery rebate)
- **$1,370 per (kW+kWh)**

Case study 3: House, 13.3kW solar + 32kWh battery

Household: 4 people (incl 2 children)

- Pitched roof, concrete tiles
- 28 Aiko 475W panels, 13.3kW
- 32kWh Sigenergy battery/inverter
- Total cost ≈ $23,100 in Sept ’25

With battery rebate

- **$510 per (kW+kWh)**

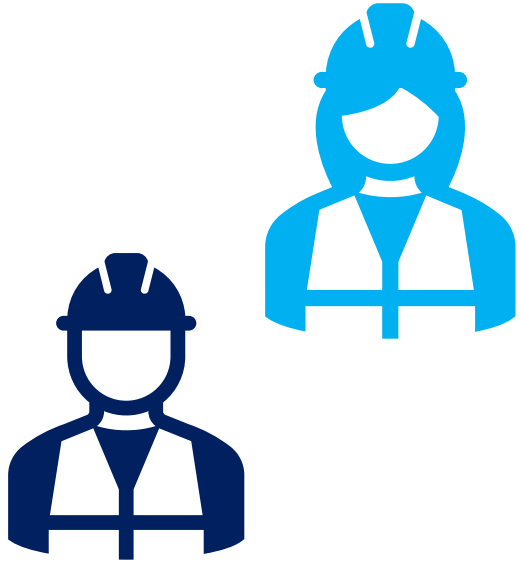
NEXT STEPS

1. Check out your Council's info
2. Choose and contact installers for quotes
3. Work out how you will pay or finance it
4. Choose installer and system, pay deposit, book installation.

Enjoy 25+ years of lower power bills and far less buying and burning coal and gas!

Choose an installer

- **Company accreditation**: Check installer is accredited with Solar Accreditation Australia: saaustralia.com.au/
- **Local**: for home consultation and follow-ups
- **Well-established** business with a good track record
- **Recommendations**: from neighbours and friends
- **Good reviews**: on solar websites and product forums
- **High-quality** products with long product warranties
- Check out: www.solarquotes.com.au and www.zeroemissionssolutions.org



Payment and finance

Here are the most common ways to pay for solar:

1. Pay up-front in cash
2. Green loan: a low-interest loan from your bank or mortgage provider.
   Or $0 upfront loan through your solar installer
   Note: CEFC Household Energy Upgrades Fund $1 billion fund for financiers
3. Add the cost to your mortgage
4. Power Purchase Agreement: have the system installed for no upfront cost, then pay the solar company for the electricity the system generates
5. Personal loan: may have a higher interest rate than alternatives

Example: CBA Green Loan 3.99%
Borrow $5000 x 4% = $50.60 per month to pay back over 10 years
Your solar system will save more than $50 per month

HEUF: https://www.cefc.com.au/where-we-invest/special-investment-programs/household-energy-upgrades-fund/

Zero Emissions Inc Community

Website: www.ZeroEmissionsSolutions.org

Facebook and Instagram: @ZeroEmissionsSolutions

Group: Facebook.com/groups/ZeroEmissionsSolutions

Q&A

Your Questions?