

Introduction to Solar and Batteries



Acknowledgement of Country

I would like to acknowledge the traditional custodians of the land on which we broadcast, the Gadigal & Wangal peoples of the Eora nation and pay my respects to Elders past, present and future as well as all Elders on the lands in which this broadcast is being watched.

This is and will always be Aboriginal land.



What are we doing at Inner West Council?



- Declared a climate emergency in March 2019
- Adopted a Climate + Renewables Strategy, to mitigate carbon emissions and find solutions to the climate emergency
- Community Solar uptake study undertaken
- Supporting our community to Go Solar including Solar my School program
- Engaged Australian Energy Foundation to provide an information and quote service
- Will become a carbon neutral council, powered by renewable energy by 2025
- Currently sourcing daytime energy use via renewable energy from a solar farm through a Power Purchase Agreement



Green Living Centre



An initiative of Inner West Council that supports our community to live sustainably.

How:

- Workshops and events (currently online)
- Footprints Ecofestival
- Community Leaders in Sustainability Course
- Facebook, Instagram and e-newsletter

Engage with us:

- education@greenlivingcentre.org
- www.greenlivingcentre.org
- FB: @GreenLivingCentre
- Instagram: GreenLivingCent
- Subscribe to our newsletter



Overview

1. Why install solar?
2. How do I get the right system?
3. How about battery storage?





Who is the Australian Energy Foundation



The Australian Energy Foundation is leading the way to an equitable zero carbon society.

We are a for-purpose organisation whose work benefits all Australians.



How we help you

From solar to insulation and everything in between, we help you with all areas of your home.

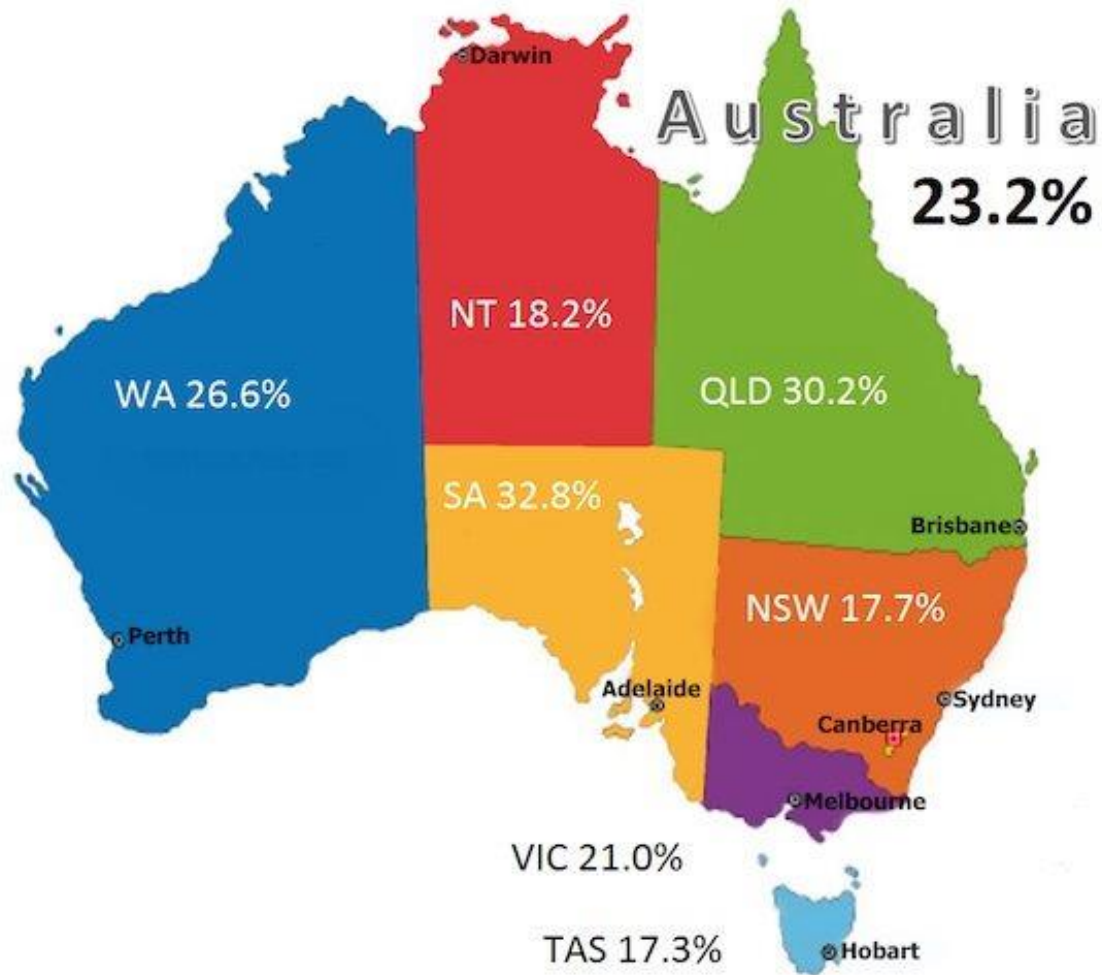
- We can help you understand **how to make your home energy-efficient**
- **Connect you with fully vetted suppliers** so you can buy with ease and confidence
- **Provide trusted, independent advice** helping you make an informed decision



Section 1

Why install solar?

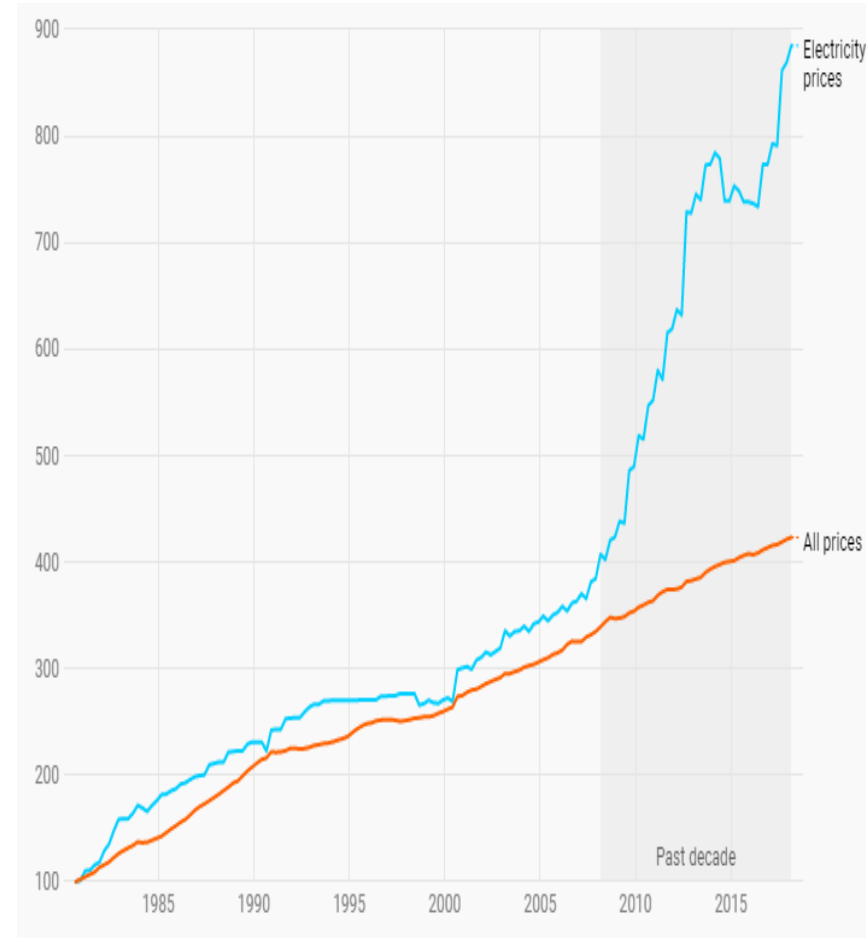
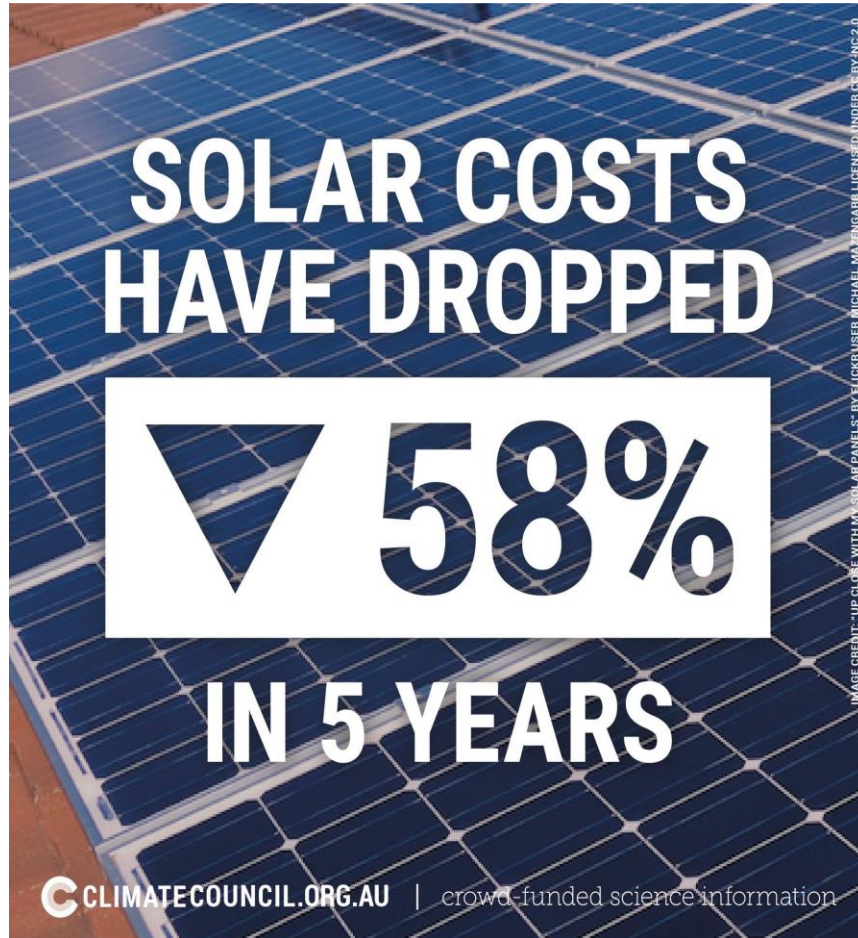
Australia is in a solar boom



2 million homes now have solar power installed

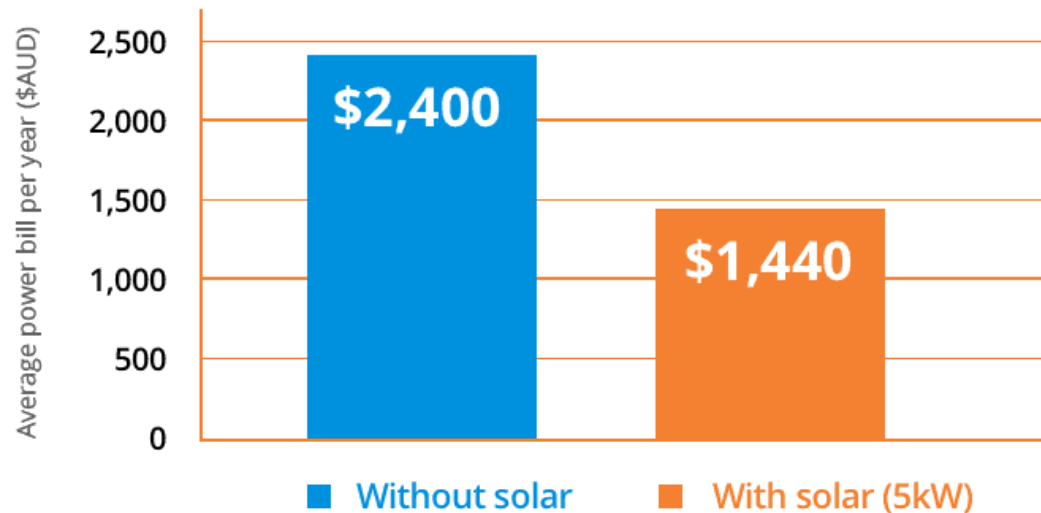


Why has solar become so popular?



Solar leads to great returns

Estimated Average Household Power Bill Per Annum
(daily electricity use of 25kWh)



Source: Curtin University

Payback time is **3-7 years**

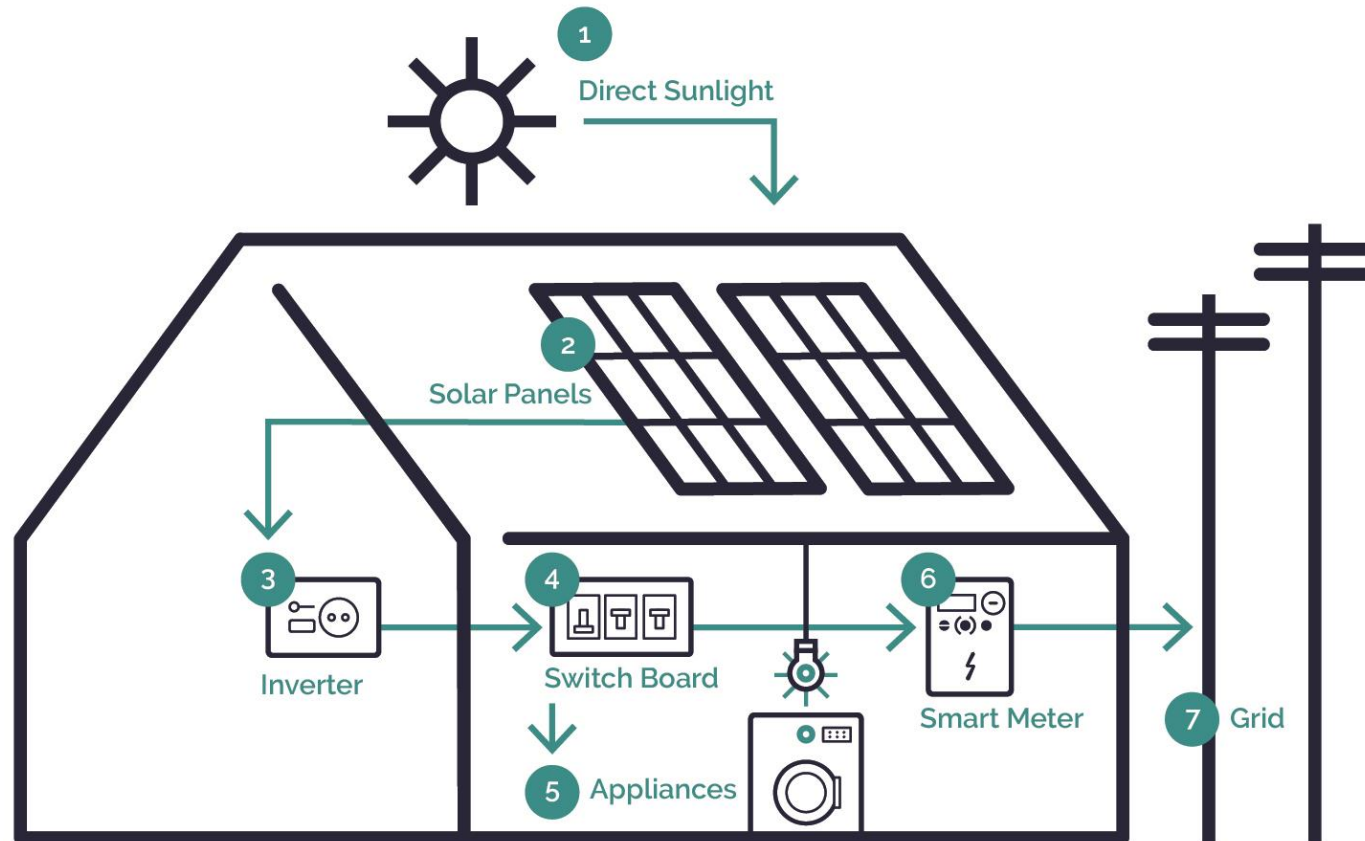
Will vary depending upon:

- Available sunlight
- Electricity prices
- Cost of system
- Amount of self consumption
- Positioning of the panels

Expect to save 30-60% off electricity bills with solar



How Solar Works



So how do I save money with solar?

1. By using your own electricity **generated for free** from the sun you will need to **buy less electricity** from your power company.
 - Self consumed solar energy is about 2-3x more valuable than exported solar
2. You **get paid** for the electricity (a feed-in tariff) that you send out to the grid.
 - Typical **feed-in tariff** is 12c per kWh



Maximising Your Day Time Solar Power Usage

- **Use time delay switches** on your dishwasher or washing machine to run them during the day
- Use a timer to run your **A/C** in the afternoon before you get home (**pre-heat or pre-cool**)
- When it is time to replace your hot water system, consider replacing it with a **hot water heat pump**.



Section 2

**How do I get the
right system for
my home?**

5 things to look for

1. Panels and inverters
2. Size
3. Price
4. Position
5. Supplier



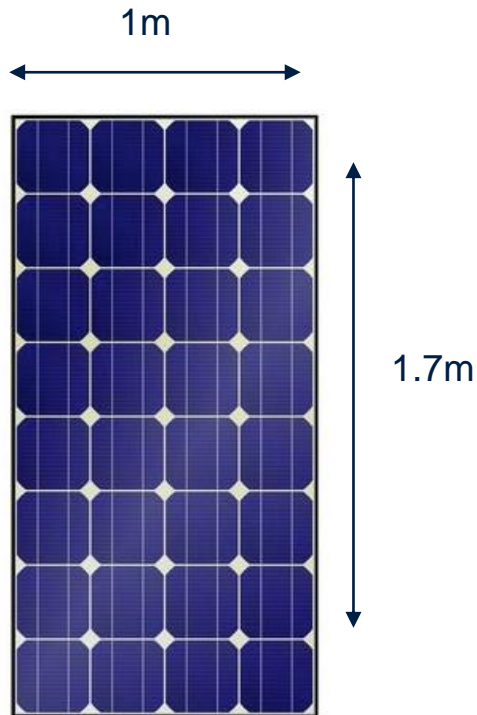
Panels and Inverters

How do I get the right system?

1. Panels and Inverters
2. Size
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Solar Panels

Produce approximately **250W-330W** each under direct sunlight



	Roof Area Required	Average Energy Produced per Day
3kW System	15.3 – 20.4m² Either: 9 x 330W panels or 12 x 250W panels	12kWh per day
5kW System	25.5 - 34m² Either: 15 x 330W panels Or 20 x 250W panels	20kWh per day
7kW System	35.7 - 47.6m² Either: 21 x 330w panels or 28 x 250w panels	28kWh per day



Solar Panels – What to look for

- 25 year performance warranty
- 10 year product warranty
- Reputable brands



Examples of reputable brands

Trinasolar

Jinko^{Solar}
We Build Your Trust in Sun

 **LG**
Life's Good

JASOLAR

 **Solahart**[®]

 **REC**

QCELLS

SUNPOWER[®]



Inverter

Converts **Direct Current (DC)** from solar panels into **Alternating Current (AC)** to use in your home



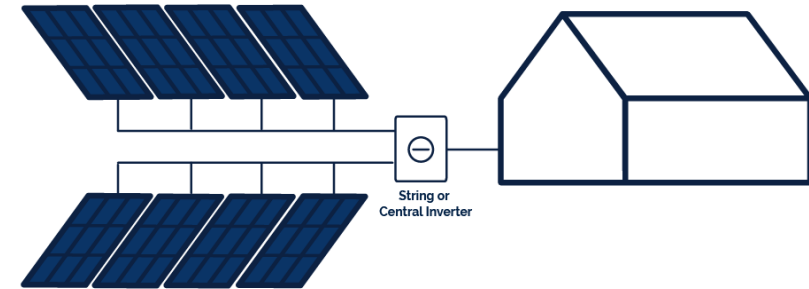
String Inverter
(1 per solar system)

or

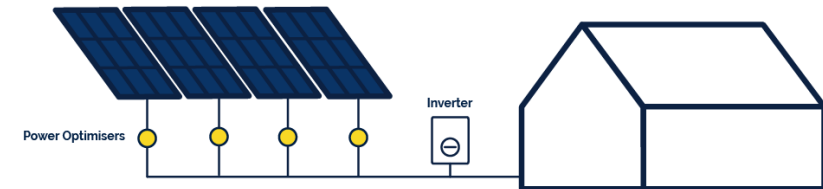


Micro-inverter
(1 per solar panel)

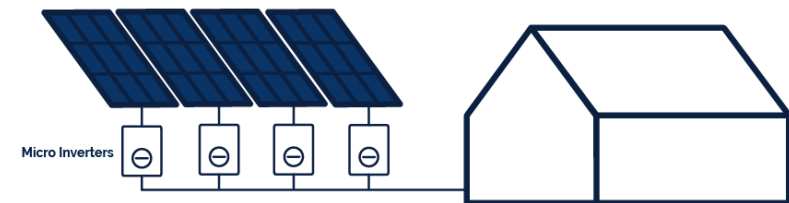
Central (or String) Inverter



Power Optimizers



Micro Inverter



String vs Panel optimised inverter

String Inverter

- Tried and tested technology
- Cheaper
- Unable to monitor each individual panel
- Any underperforming panels impact the output of all panels in the string

Panel Optimized Inverter

- Easy to detect any issues with individual panels
- Greater flexibility in terms of panel layout
- More expensive than string inverters
- Any underperforming panels **do not** impact the output of the other panels



Inverter – What to look for

- Minimum of 10 year product warranty
- Choose a reputable brand



Examples of reputable brands



Size

How do I get the right system?

1. Panels and Inverters
2. Size
3. Price
4. Position
5. Suppliers

Size

- To size your solar panel system the supplier will look at your available roof space and your electricity bill.
- The most commonly installed system size is **5kW**



Sunspot - A tool to see if solar is feasible for your home



Pv-map.apvi.org.au/sunspot



Price

How do I get the right system?

1. Panels and Inverters
2. Size
3. Price
4. Position
5. Suppliers

How much does solar cost?

For a 5kW system you can expect to pay:

- Between **\$5500 to \$8000** for good quality solar panels with a string inverter
- Between **\$8000 to \$9500** for good quality solar panels with microinverters
- These prices include a federal government rebate known as **Small Scale Technology Certificates (STCs)**



Solar Rebates – Federal Government Small Scale Technology Certificates (STCs)

Approximate rebate for a 5kW system:



Source: Solar Quotes

- Rebate included in price quoted by supplier
- About \$3k off for 5kW system in 2019
- Declining by about 7 % each year and phased out by 2031
- Must be Clean Energy Council accredited installer



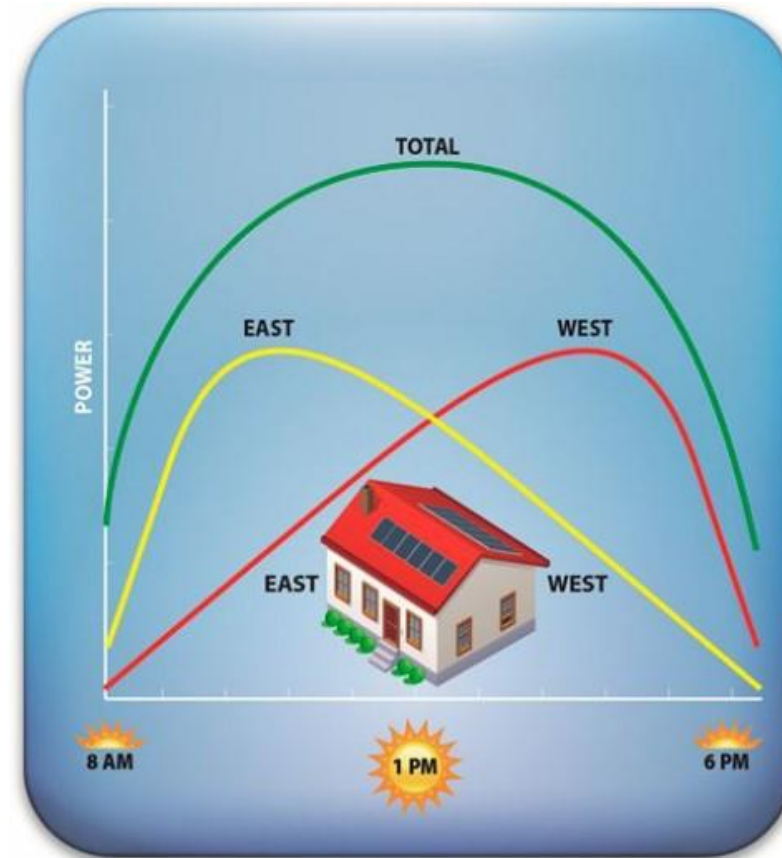
Position

How do I get the right system?

1. Panels and Inverters
2. Size
3. Price
4. Position
5. Suppliers

Where should I put the solar panels?

- North facing is ideal
- Optimum tilt is 34° in Sydney
- Ensure there are no structures shading your roof.
- Find out what local council approval is needed.



Source: Awsolar.com.au



Suppliers

How do I get the right system?

1. Panels and Inverters
2. Size
3. Price
4. Position
5. Suppliers

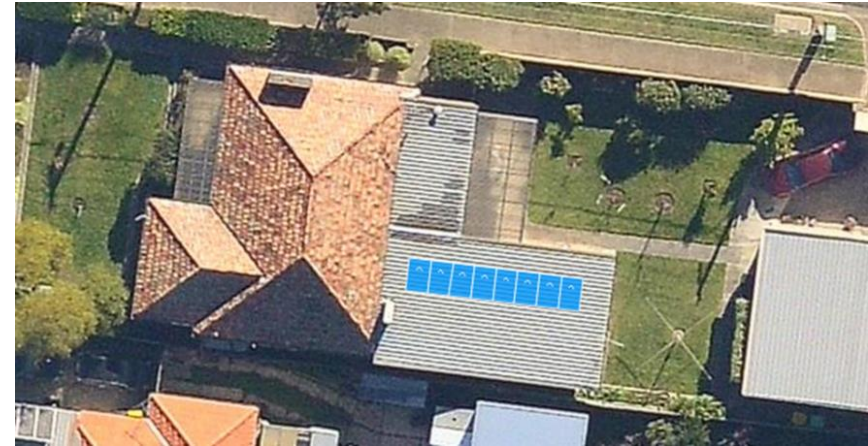
Suppliers – What to look out for

- Longevity and established track record
- Online reviews for good reputation
- Make sure the quote is professional
- Clean Energy Council Approved Solar Retailer
- 5 year installation warranty to guarantee workmanship



Getting a quote

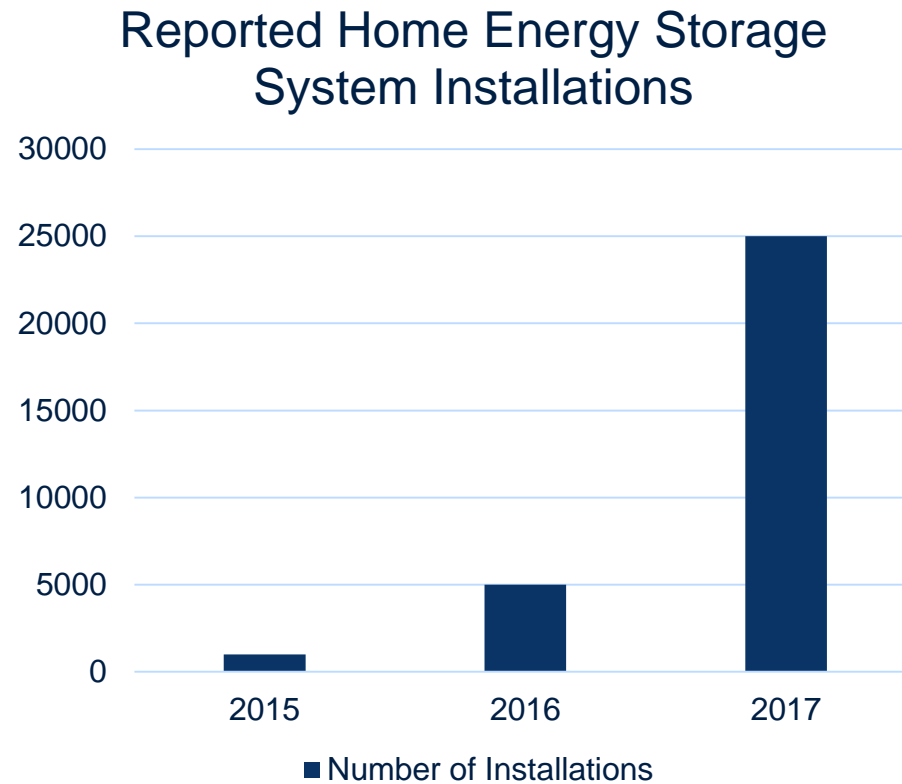
- Installers assess your roof online for space, tilt and orientation.
- Have a recent bill handy so they can understand your energy consumption.
- Visit AEF website to get a free quote from our installers aef.com.au/



Section 3

What about batteries?

Battery Storage is Growing

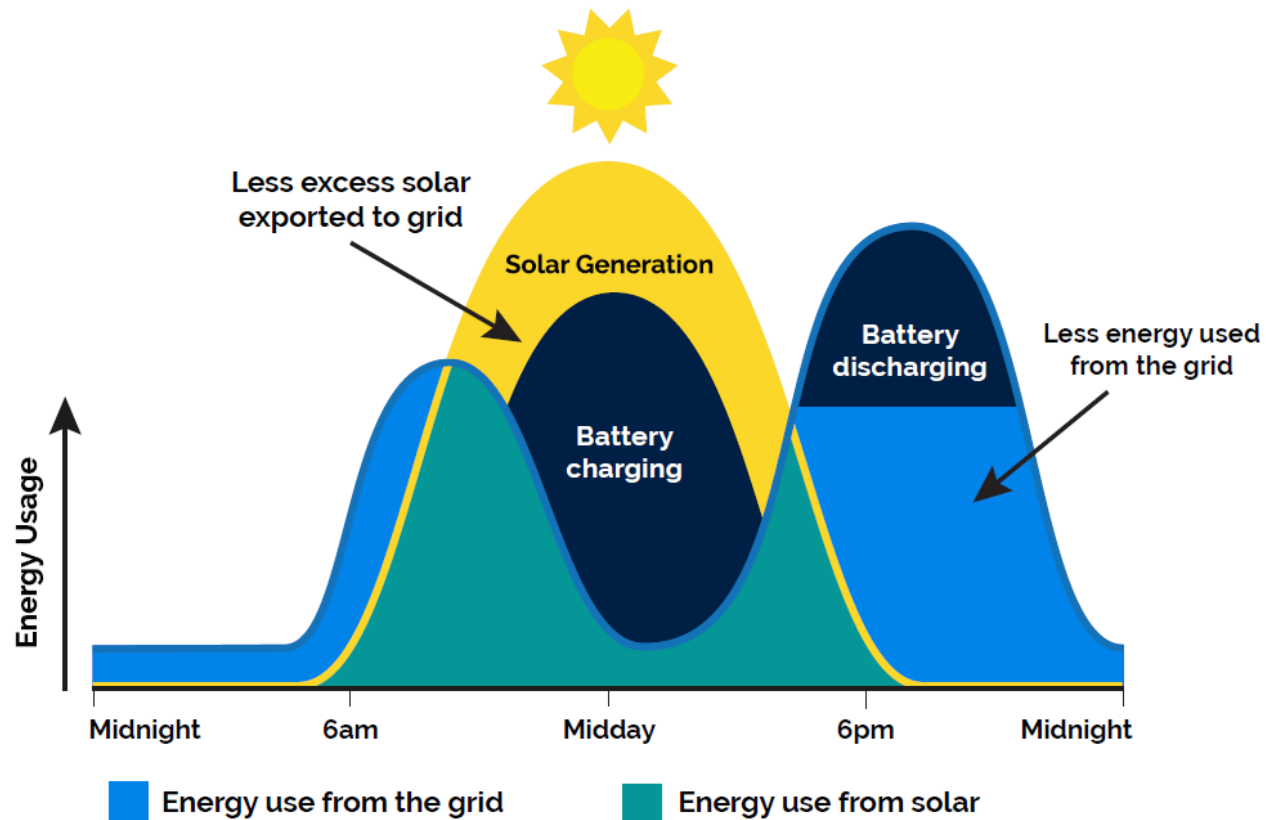


Source: SunWiz



How Do Batteries Work?

Household with solar, plus batteries



What's the financial return on batteries?

- You can expect to reduce your electricity bills by **60-90%** with solar and batteries.
- Batteries cost between **\$1000-\$2000 per kWh**.
- The payback time is currently close to the warranty – **10 years**.

 **ENPHASE**
1.2kWh for approx.
\$2000

 **TESLA**
13.5kWh for approx.
\$12,350

 **LG Chem**
8.8kWh for approx.
\$7,655



So why are people installing batteries?

- To get more **energy independence**
- **Back up power** in case of power outages
- To be part of **Australia's sustainable future**
- To be able to participate in **virtual power plants**



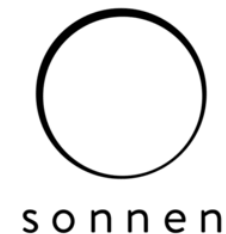
VPP Provider	Discover Energy VPP	AusGrid Power 2U	SonnenFlat VPP	AGL “Bring your own battery”
Currently available	Yes	Yes	Yes	Yes
Batteries approved for use	Any battery that is compatible with eStore, Goodwe, Sungrow or Alpha-ESS hybrid inverters (Coming soon: Tesla, Fronius, SMA & Solar-edge)	TBA	Sonnen Batterie Eco or Hybrid	LG Chem RESU "HV" or Tesla Powerwall 2
VPP subsidy	No battery subsidy - BYO battery	No battery subsidy	Annual allowance of energy (min. 4000kWh) for total household consumption. BYO battery.	\$1,000 off the cost of a battery. \$100 bill credit sign-on bonus. \$45 bill credit per quarter.
Eligibility	NSW, SE QLD or SA residents only	AusGrid network area residents only - must be a Reposit Power customer for stage 1 – stage 2 broader aggregators	Minimum of 3kWp PV and 4kWh sonnenBatterie installed. Offered in NEM states incl NSW	AGL customers in NSW, QLD, SA and VIC only



How to choose the right battery

1. **Reputable brand visit**
smartenergy.org.au/batteryfinder
2. **Warranties:** Look for at least 10 years
3. **Size:** Make sure the '**useable capacity**' matches your evening needs
4. **Backup Power:** Tell your installer if you would like back up power in a black-out

TESLA



I'm not ready yet. What should I do to prepare for batteries?

- Invest in a big solar system (at least 5kW)
- You can add a battery to any existing solar power system.





Key Takeaways

Key Takeaways

1. Why install solar?

Solar leads to excellent returns (3-7 year payback periods)

2. How do I get the right system?

Choose reputable panel and inverter brands with good warranties from a reputable Clean Energy Council approved solar retailer. Install a big solar system (at least 5kW)

3. What about batteries?

Battery storage allows you to get more energy independence and use your solar power at night. But if you're not ready yet, you can install solar now and add a battery later.



We're here to help

From solar to insulation and everything in between, we can help you with all areas of your home.

- Help you understand **how to make your home energy-efficient**
- Provide **trusted, independent advice** helping you make an informed decision
- **Connect you with fully vetted suppliers** so you can buy with ease and confidence



Our Services

- Solar Panels
- Battery Storage
- Insulation & Draught-proofing
- LED lighting
- Hot Water Heat Pumps
- Reverse Cycle Air Conditioners
- Home Energy Assessments
- Window Film



Book a 20 minute phone consultation

- Get your specific questions answered
- Find out if solar is suitable for your home, using satellite imagery
- If you're ready to get a quote, we can support you through the process

Available times: See booking link



Q&A



Ian Moxon

Environmental
Educator

Australian Energy
Foundation

Andrew Newman

Senior Planner,
Development
Assessment

Inner West Council

Sonya Williams

Renewable Energy
Innovation Officer

Inner West Council



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advisor or to request an
obligation-free quote**

**Visit aef.com.au or call
1300 23 68 55**

