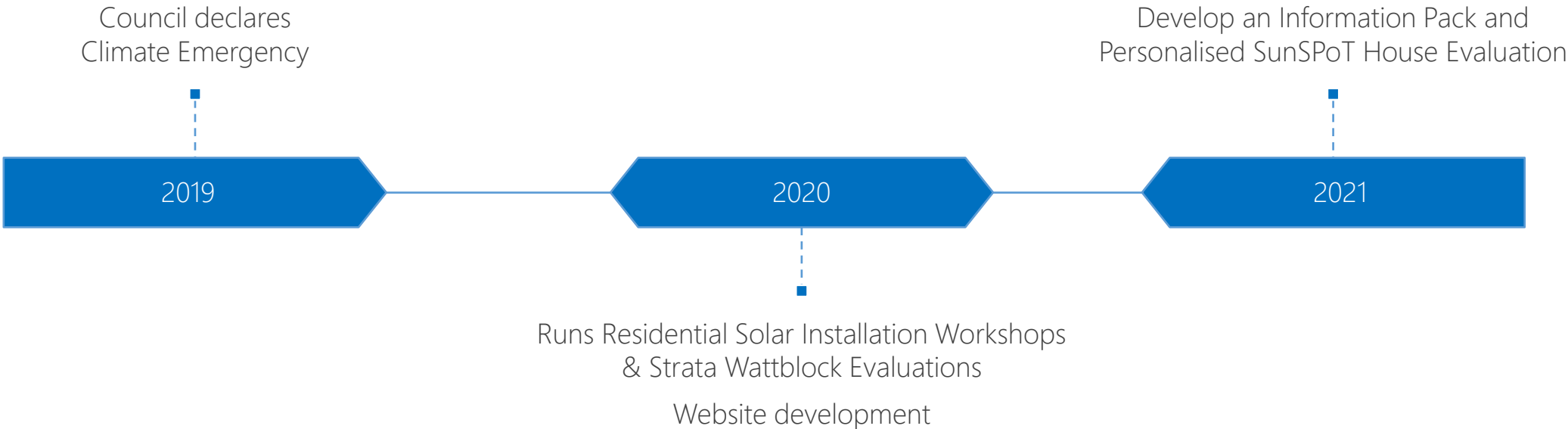


Residential Solar in Mosman

Mosman
COUNCIL

Residential Solar in Mosman



Getting started

- Rooftop suitability
- Cost
- Choose an Installer
- Brand and model of panels (Tier 1), warranty
- Type of inverter and monitoring
- Cost and payback period
- Maintenance
- Battery
- Network tariffs

There are lots of decisions to be made and Council can point to good sources of information but not specific suppliers or installers



Rooftop suitability

So long as your roof is not slate, any unshaded (or impeded by vents, skylights etc) significant North, West and East facing roof sections are suitable for panels.

A system with multiple panel arrays on different roof sections will have a longer payback period as will flat roof systems.

Heritage buildings can gain a free exemption. Just submit a sketch and make sure the panels are not visible from the road.



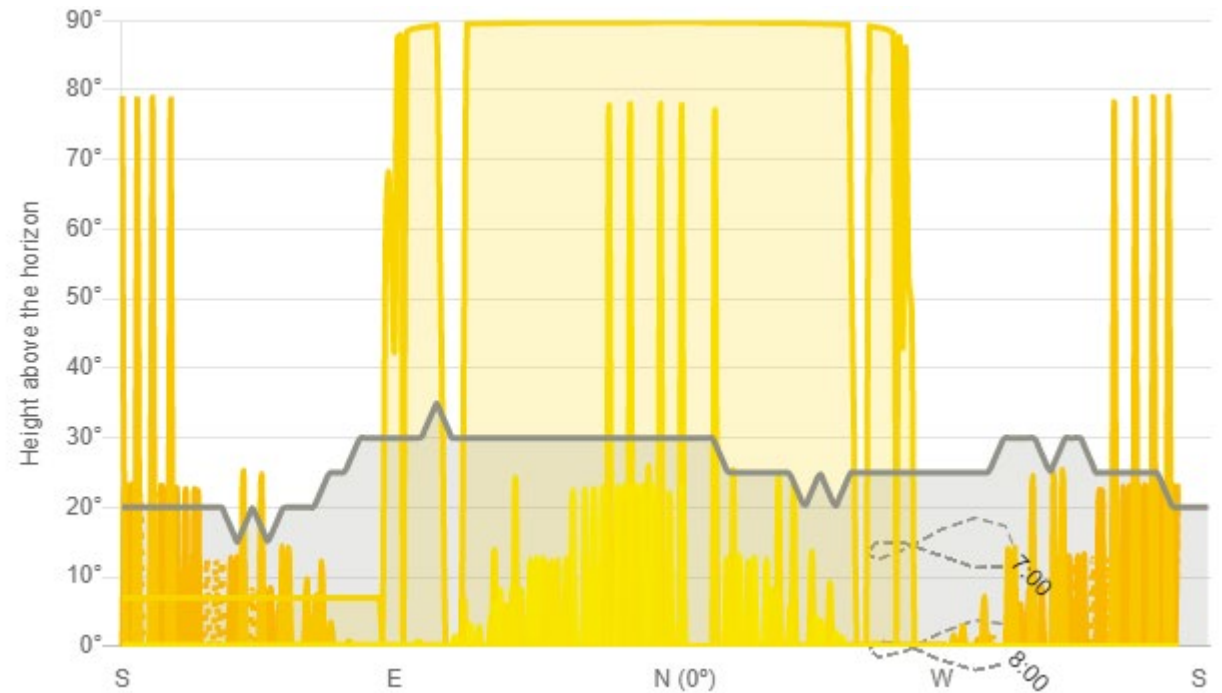
SunSPoT

SunSPoT is a useful site to analyse your requirements. Visit apvi.org.au/sunspot

Total system size 15.5 kW	Installation cost \$15,792 (PV system only) ? based on data from solar choice
Total annual bill savings from PV —	Annual CO ₂ emissions avoided ? 320 kg



- Summer solstice
- Jan/Dec
- Feb/Nov
- Mar/Oct
- Apr/Sep
- May/Aug
- Jun/Jul
- Winter solstice
- Shade



Costs

- For a 10 kW system = \$10,000
- For a 5 kW system = \$5500 to \$8000
- Additional cost for string inverter and micro-inverters
- Though there are cheaper quotes in the market, if the price is very low, it could mean:
 - The company is operating at tight margins
 - Poor quality panels and inverters need to replace the components prematurely
 - After-sales support will be minimal



Choose an installer

There are a lot of cowboys, so source installers that are accredited and less likely to go out of business.

You can get quotes from through a number of websites:

- [Australian Energy Foundation](#)
- [Solar Quotes](#)
- [Solar Choice](#)
- [Solar Calculator](#)

The City of Sydney has a page on [how to find an accredited installer](#). The NSW government has a page of [advice on installing panels](#).



Panels

- Tier 1 panels
- The quality of solar panels varies a lot. The Clean Energy Council has a list of approved suppliers [available here](#).
- The wattage per panel has gone up sharply. You can expect between 325 – 460 Watts, with 20% efficiency.
- Tindo Solar are the only Australian manufacturer
- [NSW Fair Trading's Guide to solar panels for customers](#)
- [The Clean Energy Council's Consumer Guide to Buying Household Solar Panels](#)
- [Choice's Solar Panels buying guide](#)

Reliable Solar Panel Manufactures by Rank	
1	LG Neon
2	Hanwha Q Cells
3	JA Solar
4	LONGi
5	Sunpower
6	Canadian Solar
7	Jinko
8	Suntech
9	Trina
10	Seraphim
11	Tindo Solar
12	GCL
13	Adani/ Mundra
14	Astroenergy
15	Silfab
16	Vikram
17	ZNShine
18	Boviet
19	First Solar
20	HT-SAAE
21	Panasonic
22	Heliene
23	Sunenergy California
24	LG Mono X
25	REC Group
26	Yingli

Inverters

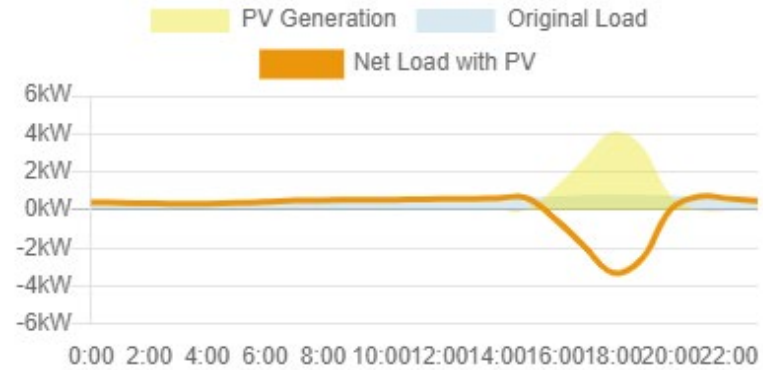
Panel and inverter options

The panels generate dc electricity which has to be converted to ac for use in your home. This conversion is done by an inverter. The lowest cost option is to connect the panels in strings and feed their power into a single inverter. This is like the old fairy lights on your Christmas tree; if one light fails, the whole string stops working. Another option is to have 'optimisers' on each panel which allows the rest of the system to perform normally even when one panel is compromised. A third option is to have microinverters on each panel. Panel optimiser and microinverter systems are more expensive but in addition to avoiding loss of output they allow individual panels to be monitored so faults can be identified.

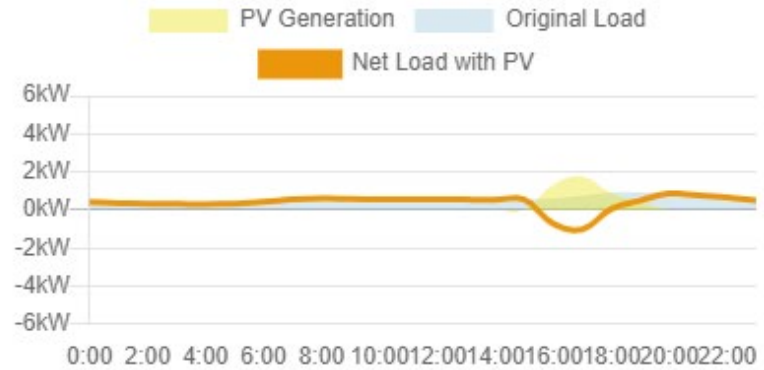
The AEF publishes a list of recommended [panel and inverter](#) brands.

Energy generation

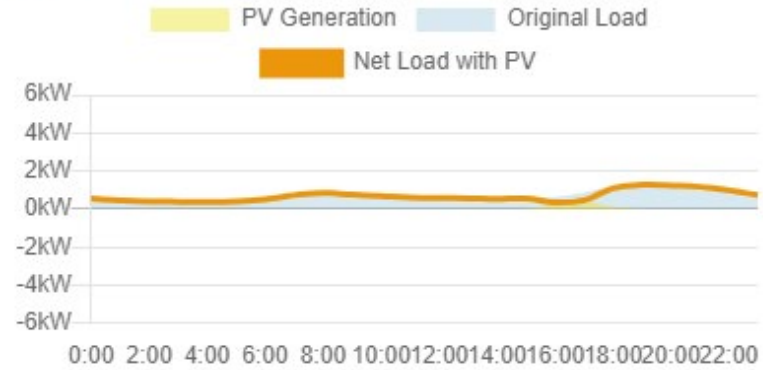
Summer



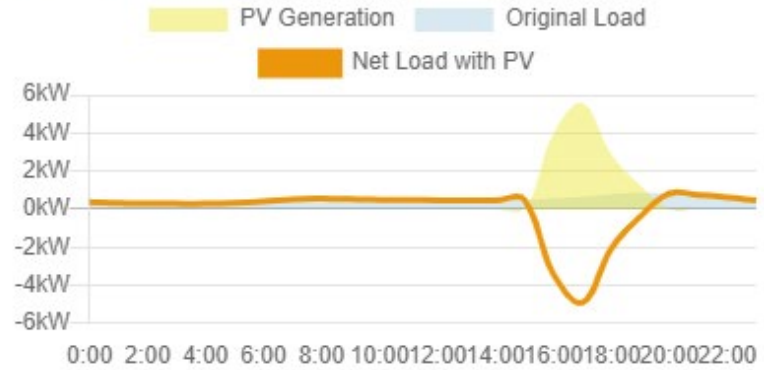
Autumn



Winter



Spring



Negative values indicate energy solar energy exported to the grid.

Maintenance

Panels last about 25 years but need to be regularly maintained or they can stop working. Common issues aside from keeping panels clean for high performance include:

- Faulty inverter
- Cable insulation faults
- Components filling with water
- Corrosion
- Poor workmanship
- DC isolators
- Solar servicing with the original installation, or with separate contractors
- Computer monitoring with a large system



Cost recovery

Most of cost savings are from reducing the consumption from the grid. However, you still have to pay network line costs. A smart meter allows excess power to be sold to the grid, currently at rates between 3 to 10 cents a kW. Tariffs are so low that cost recovery is not the primary reason to put in solar. If you have a battery it is possible to go completely offgrid but they are expensive and take 10 years to cost recover on their own.

A 10 kW system will generate about 360 kWh & save about 285 kg of CO2 emissions annually.



Batteries

Batteries have a 10 year cost recovery but allows you to use up to 100% of solar generation and increases resilience if there is a network blackout. The NSW Government has [this guide](#) on solar costs.

A battery performance review is [available here](#).



Enphase

1.2kWh battery - \$2000



Tesla

13.5kWh Tesla Powerall 2 - \$17-18.5k



LG Chem

8.8.kWh LG Chem RESU - \$7855

Energy tariffs



Shop around to find which retailer and which plan best suits your consumption pattern and solar generation. Each plan has a specific daily charge, and kWh rate for Peak, shoulder and Offpeak periods (if you are on a Time of Use tariff and a feed-in tariff for solar).

You can find the best deal for your circumstances at the government site [Energy Made Easy](#) or comparison sites such as [WattEver](#) and [CanstarBlue](#).

The City of Sydney shows [How to negotiate the best GreenPower electricity](#).

Estimated PV energy generated and savings

The values calculated below are based on a load profile for a typical household in your area.

Annual PV energy generated	2,798 kWh
Total annual bill savings from PV	\$339 based on average user usage and default tariff
PV energy exported to grid 	2,295 kWh earning \$204 according to default Feed in Tariff
PV energy consumed on site 	509 kWh saving \$135 replacing grid power

Estimated changes to your annual bills

Based on an average household

New bill (with PV, no battery) = \$1,323 Made up of current bill \$1,662 – savings of \$339

The values calculated above are based upon average household energy loads in your area. To improve the accuracy of your results, please customise your electricity use by adding an electricity bill or smart meter data.

Energy tariffs

Typically between 3 cents to 10 cents per kWh. Check Australian Government's [Energy Made Easy](#) website.

- Energy Locals
- Energy Australia, Total Plan
- AGL Residential Essentials
- Momentum Energy, Smile Power
- Red Energy, Living Energy Saver
- Ovo Energy, The One Plan
- Powershop
- Origin Go
- Re-Amped Energy
- Diamond Energy



Usage and supply charges	Units	Price	Amount	
General Usage	628.764kWh	\$0.289	\$181.71	
Controlled Load 1	762.472kWh	\$0.1197	\$91.27	
Supply charge	90 days	\$0.84	\$75.60	
CL1 Supply charge	90 days	\$0.06	\$5.40	
<i>Total charges</i>				+ \$353.98
Credits				
Standard Feed-in Tariff	1816.213kWh	\$0.111	\$201.60cr	

Strata Apartments

Smart technology now exists that allows the power generated by [solar panels on an apartment block roof](#) to be equitably shared between participating apartment owners. Renters can go 100% renewable by purchasing [GreenPower](#).

- Powershop
- Diamond Energy
- Energy Locals
- Energy Australia, Total Plan
- AGL Residential Essentials
- Momentum Energy, Smile Power
- Red Energy, Living Energy Saver
- Ovo Energy, The One Plan
- Origin Go
- Re-Amped Energy



Links

Council partnered with Your Energy Friend to produce a series of short videos introducing energy efficiency topics for the community.

- House Batteries HomeEnergySaver Options Mosman Video1
<https://www.youtube.com/watch?v=ZUOCEVRq1tY>
- Heating and Cooling HomeEnergySaverOptions Mosman Video2
<https://www.youtube.com/watch?v=wP1OwPIUCQQ>
- Hot Water HomeEnergySaverOptions Mosman Video3
https://www.youtube.com/watch?v=vctbW_SfH84
- Insulation and Sealing HomeEnergySaverOptions Mosman Video4
<https://www.youtube.com/watch?v=Ww1NuWqkBpo>
- Solar Power HomeEnergySaverOptions Mosman Video5
<https://www.youtube.com/watch?v=OAM2VAZi4E4>
- Standby Power HomeEnergySaverOptions Mosman Video6
<https://www.youtube.com/watch?v=xhKJehUsW5U>
- Understand Energy Bill HomeEnergySaverOptions Mosman Video7
<https://www.youtube.com/watch?v=XlBAQcTBGwA>

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