



COMMUNITY POWER HUB METROPOLITAN MELBOURNE

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YARRA ENERGY FOUNDATION

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Make Solar Easy

How to go solar and make the most of it

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Welcome!

- Lachlan Hensey, Community Energy Project Officer at **Yarra Energy Foundation**
- Support community-led energy projects and provide advice on energy at home.
- Care about climate; love the outdoors; curious about social aspects of technology.
- **YEF**: a not-for-profit working towards a zero-carbon future by helping residents, businesses, councils and everyone in our community across metropolitan Melbourne transition to clean energy.

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Metro Community Power Hub

- 1 of 7 Hubs set up across Victoria
- Funded by Sustainability Victoria on behalf of the Victorian Government
- Accelerate the transition to renewables
- Deliver community energy projects
- Support household energy efficiency and generation (solar, all-electric homes)
- Build 'energy literacy' in the community
- Share knowledge and experiences



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Projects and Programs

- **Solar and All-Electric Home program (next slide)**
- Free personal energy consultations with Renew and YEF
- Energy efficiency/literacy workshops
- Community battery feasibility studies
- Guide to Solar for Apartments

MCPH Solar and All-Electric Home Program

- Support the community to access affordable solar from vetted, trusted providers
- Up to 20% of standard pricing
- Provide advice and guidance throughout the process
- Help households transition to all-electric
- Visit **mcph.org.au** for more information



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What we will cover:

Key considerations regarding solar

- Sizing
- Batteries
- Optimising your system
- Electric vehicles
- Example cases
- Complexities
- *Going all-electric*
- *Energy efficiency*

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Key considerations regarding solar

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- Example cases
- Complexities – segue to Q&A

Typical household energy consumption

- Can be as low as 2.6kWh per day (2 people)
- Can be over 30kWh per day
- Depends on efficiency of home, efficiency of appliances, use patterns, and number of people.



What size system do I need?

- Aim for at least 5kW (6.6kW is ideal)
- There are now 400W panels (1m x 1.7m)
- Bigger is better for morning, evening and winter
- High energy users might look at up to 10kW-15kW
- Upgrading connection to three-phase can allow 15kW of export capacity (5kW per phase)
- Inverters are generally undersized within 25% of total solar array capacity (e.g. 6.6kW system with 5kW inverter)

What size system do I need?

'Average daily insolation' is an estimate of the equivalent hours of sunshine per day across the year (in Melbourne)

Energy generation = system size x insolation x efficiency

Average Daily Insolation	3kW	5kW	6.6kW	10kW	15kW
3.6 hours	10.8kWh	18kWh	23.8kWh	36kWh	54kWh

Are batteries worth it?

- Batteries can increase emissions reductions by further reducing grid consumption
- Generally, payback periods are longer than warranties
- Not a strong return on investment
- Pricing around \$1k per kWh capacity
- Solar Victoria rebates are available for those eligible
- Cheap deals = too good to be true

Optimise your system

Shift as much of your energy use to daylight hours as possible!

- Set timers/program your appliances to run during the day
- E.g. dishwasher, laundry, heating/cooling, **water heating**

Transition to an **all-electric home**

- Heat pump hot water system
- Reverse cycle split systems (heating/cooling)
- Induction cooktop
- Stop paying for your gas connection

or buy an electric vehicle!

- Pairing them with a solar system/all-electric home makes a lot of sense!
- Policy/regulatory issues mean EVs are currently expensive in Australia
- The EV landscape is likely to change a lot very quickly
- EV batteries are far bigger than domestic batteries and multipurpose!

EVs continued

- Don't expect to fully charge your EV with your solar system at home
- If necessary, charge overnight on a cheap, controlled load tariff
- Use bidirectional charging (vehicle-to-grid/home) technology to power your home with your vehicle



Examples cases

1. Large, all-electric home
2. Future-proofing couple
3. Low-consumption household

Large, all-electric home

- Family of five
- Teenage kids (gamers)
- Electric vehicle (planned)
- Hydrotherapy spa
- High support needs (refrigeration, heating and cooling, laundry)
- Three phase connection
- 15kW system
- Hybrid inverter with battery
- All-electric home

Future-proofing couple

- Planning for an energy efficient, all-electric home
- Unsure of future needs
- Generally efficient energy users
- Stay with single phase for now
- No battery, possibly getting an EV
- Opting for HPHWS
- 6.6kW system

Low-consumption household

- Retirees
- Minimal income
- Not planning any renovations
- Aiming to reduce energy expenses
- Upgrading to multi-head split system
- Will replace HWS when it dies
- 5kW system



Question time



Going All-Electric

Energy efficient appliances for
the all-electric home

Heat pump hot water systems

- Electric-powered, but highly efficient
- Transfer heat energy from outside air to a storage tank using a refrigerant with a very low boiling point
- 3 to 5 times more energy efficient than electric or gas hot water systems
- Can be set to operate at specific times (e.g. powered by solar)
- Read the MCPH heat pump FAQ on our website: mcph.org.au/resources/



Reverse cycle split systems

- Air conditioners and heaters
- Also known as heat pumps
 - Uses the same technology as a heat pump hot water system and fridge
- You may already have one!
- About 3 – 5 times as efficient as other heaters
- Rated at 4.6kW might only draw 1.2kW of power, and only for periods of time
- Can come as single units, 'multi-head' units (connected to one heat pump) or ducted units

Multi-head split system





Induction cooktops

- Most efficient form of stove
- Uses electromagnetic waves to heat the cooking vessel
- Works with cast iron, certain stainless steel and induction-specific cookware
- No in-home pollution or health concerns of gas
- Very controllable and programmable, unlike electric resistive
- Doesn't heat the kitchen
- Easy to clean; safer to use



Actions:

- Visit mcph.org.au
- Register for a free, no-obligation quote or a free consultation
- Plan ahead to replace your hot water system at its end of life
- Use your reverse cycle AC as a heater!
- Take a step-by-step approach



Knowing more about how you get your energy and how you use it can save you money and reduce carbon emissions.

It's also one more step towards a zero-carbon future.

For more energy advice for your home, business or community, visit:

- Metro Community Power Hub: <https://www.mcph.org.au>
- Yarra Energy Foundation: <https://www.yef.org.au/>
- Sustainability Victoria: <https://www.sustainability.vic.gov.au/>

Further resources:

- Energy Rating: <https://www.energyrating.gov.au/>
- Renew: <https://www.renew.org.au/>
- Solar Victoria: <https://www.solar.vic.gov.au/>
- Energy (Victorian Government): <https://www.energy.vic.gov.au/>
- Victorian Energy Compare:
<https://www.compare.energy.vic.gov.au/>
- SolarQuotes: <https://solarquotes.com.au/>



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