

Plug in: to using an electric vehicle



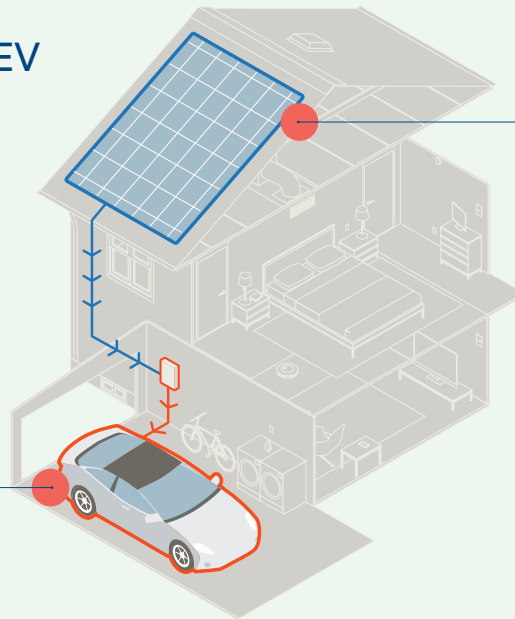
Now that you've got your EV, you're on the path to low-emission and lower-cost driving. This step-by-step guide outlines all you need to know about charging your EV, what your rights and responsibilities are, and what to do if something goes wrong.

1

Step 1: Charging your EV

Where should I charge my EV?

With an EV, you are more likely to fuel-up (charge) where you park – at home, work, the supermarket – than at a service station



If you have solar panels, charging your EV could be extremely cheap, or even free.

How you charge at home depends on where you live:

- **Are you in a house with off-street parking?**
An EV charger can be installed (usually wall-mounted) where you park by any electrician (though it's best to select one with experience with EV chargers) so you can 'refuel' overnight or at any other convenient time.
- **Are you in a house without off-street parking?**
It's tricky, but in some cases it can be done – you'll need to get a specialist to find see if there's a solution for your situation. In the future, some on-street kerbside charging may be available.
- **Are you in an apartment building?**
There are various ways to provide EV charging in parking areas of apartment buildings. For advice on what solutions are possible, you will need to contact both an EV charging specialist and your owners' corporation.



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Plug in: to using an electric vehicle

1

Some workplaces and shopping or community centres already have EV chargers in parking areas. This will probably become more common in time.

You will still be able to charge at roadhouses and specialised charging hubs, using 'Fast Chargers' that can fully charge an EV in 20 minutes. This will be useful when on long trips, or if you can't charge at home – but cost more than home charging.

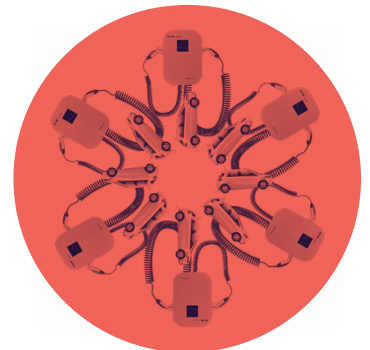
There are different types of chargers for your EV.



- Portable chargers that plug into a regular power point and come standard with new EVs. They charge fairly slowly, but are handy when you need a top-up. You can also buy more powerful portable chargers to use with bigger power outlets like at caravan parks.
- Fixed (usually wall-mounted) chargers at home or work (also sometimes at shopping centres, multilevel car parks, and other public places), can provide a full charge overnight or during the work day. They can also give a 20 – 30% charge in just a few hours.
- Fast Chargers, found at roadhouses and specialised charging hubs, are the equivalent of a petrol pump and recharge the car very quickly – usually 100 km range in about five minutes or close to a full charge in about 20 minutes.

Is there a standard charging plug or are they all different?

Nearly all new EVs delivered to Australia use a standard socket called a Type 2 Combined Charging System (CCS2) socket, and those that don't are adopting it soon. Some older ones have the alternative CHAdeMO socket. Leads for both CHAdeMO and CCS2 are fitted to all Fast Chargers. Some other older EVs and hybrids have different sockets, but adaptors are available to use these with CCS2 chargers.



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1

Is it OK to charge using a regular power point?

EVs charge using high electrical currents for long periods. Ordinary power points aren't designed to do this work on a regular basis. If used regularly, charging an EV from a regular power point can result in heat damage to the socket and plug, which could become a safety risk over time.

You can use a regular power point with a portable charger from time to time, but for convenience, faster charging speeds and safety it's best to install a dedicated EV charging circuit at home, preferably with a wall mounted charger.

Wall mounted chargers (also called EVSEs) cost from around \$800 to \$2500. Installation costs start from about \$500. Some chargers have a 'tethered lead' – the charging cable that is part of the charger. Others have a separate cable.

EVs use quite a bit of electricity when charging, so try to charge during non-peak periods – overnight or during the middle of the day – to keep your energy bills down. Some chargers and some EVs can be programmed to charge at specific times, allowing you to time your charging to match these preferable times, or to make the most of your solar if you have it.



Who can I get advice from?

For a home with off-street parking – any 'EV aware' electrician can advise on and install a home EV charging unit.

Solutions are available for more complicated installations (on-street parking, apartments, commercial developments, etc) but you will need specialist advice on your options – from an EV charger supplier or a specialist EV consultant.



Where can I find charging on the road?

Most new EVs will automatically show you the nearest charger on the navigation system map. There are also apps available to find them – a popular one is PlugShare.com. The major DC Fast Charge networks have their own apps for finding and connecting to them.

If you charge your EV at home you will most likely only need to charge on the road during long trips.



Are there rebates or incentives for installing EV charging?

A few local council areas offer rebates for installing EV chargers. Check with your local council to see if they offer them and what the criteria are.



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2

Step 2: EV, batteries, and solar

Do I need solar panels to have an EV?

No - your EV can charge off the energy network, and its motor is so efficient it gives less carbon emissions than a petrol or diesel car despite the emissions of the electricity grid.

But if you do have solar panels and you can charge your EV while they are generating electricity, powering your EV will be cheaper and create even fewer emissions (or free and with zero emissions if you can fully charge it from your solar.) Some EV chargers can be programmed to make the most of your solar when charging your car.



Can I use my EV to power my home?

EVs have huge batteries, so are a good way to store excess solar electricity. Some new EV models available now have a feature called Vehicle to Load (V2L) – you can plug a household appliance directly into the car to use the power from its battery. In a few years' time you will be able to send power from an EV to the grid (Vehicle to Grid – V2G) or to the appliances in your home (Vehicle to Home – V2H).

3

Step 3: EV rights and responsibilities

Your basic rights

Australian Consumer Law gives you rights and protections when buying products, called consumer guarantees. These apply regardless of the warranty that comes with your electric vehicle, but are different between vehicles bought from manufacturers or dealers, used vehicles bought privately, and vehicles sold at auctions.

One of the consumer guarantees (including vehicles bought from dealers or manufacturers) is that they are 'fit for purpose'. If you have any specific requirements for your vehicle (for example, the distance it can drive on a full charge, the weight it can tow) you should tell the dealer so they can tell you whether it is possible and, if it is, sell you a vehicle that can do it. The expected performance and capabilities of a vehicle should be noted in the manufacturer's specifications – make sure you check these yourself.



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3

Consumer guarantees

The full set of consumer guarantees applies to vehicles purchased from car dealers or manufacturers. They must:

- be of acceptable quality, that is:
- safe, lasting, with no faults
- look acceptable
- do all the things someone would normally expect them to do.
- match descriptions made by the salesperson, on labels, and in promotions or advertising
- match any demonstration model you were shown
- be fit for the purpose the business told you it would be fit for and for any purpose that you made known to the business before purchasing
- come with full title and ownership – the vehicle will belong to you after purchase
- be free of ‘undisclosed securities’ – so there is no debt of any kind attached to the product (e.g. from a previous owner)
- come with ‘undisturbed possession’ – so no one has a right to take it away or prevent you from using it (e.g. being repossessed by a previous owner’s finance provider)
- meet any extra promises made about performance, condition and quality, such as product warranties or money-back offers
- have spare parts and repair facilities available for a reasonable time after purchase.

For vehicles bought from private sellers or auctions, only the consumer guarantees about full title and ownership, undisclosed securities, and undisturbed possession apply. However, some state governments may have additional protections such as an ‘implied warranty’ (a fit-for-purpose requirement, e.g. that a vehicle must work or be roadworthy if the seller said it was). Check with your state or territory consumer protection agency for more information.



Your responsibilities

You may need approval from your local electricity network to install and connect a fixed EV charger, and it may need to meet certain standards that they require. You may also need to register it with the Australian Energy Market Operator. The electrician who installs it should advise you about this and tell you if there’s anything you need to do as part of this process.

If your electricity network or retailer has other requirements of you, they should let you know.

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4

Step 4: If something goes wrong

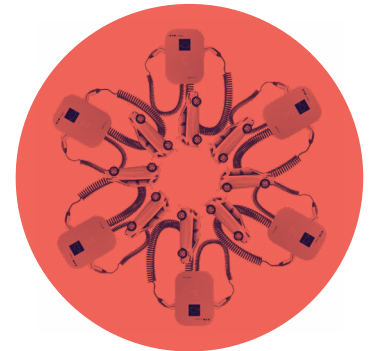
What do I do if there's a problem?

If your EV or charger doesn't perform as expected or completely malfunctions, don't panic! Good dealers and installers want happy customers and will do their best to sort out problems as quickly as possible. Check your warranty terms and contact the dealer (if the car has a problem) or installer (if the charger does). If they won't help, your state or territory consumer protection agency will give you advice and maybe assistance.

Remember that if you bought an EV from a private seller or an auction, you may have fewer options. However if the warranty that the vehicle had when new is still valid, the manufacturer should help you.

What if my installer or dealer isn't around anymore?

If your installer or dealer is no longer in business, you may still be okay. Product manufacturers must honour warranties even if the retailer or installer of the product is no longer in business. Find your product information – which will identify the specific model and have contact details for the manufacturer – and contact them. If they won't help, contact your state or territory consumer protection agency for advice.



Driving an EV can be great for your pocket, and the planet. This guide helps you to make the most of it and lets you know where to turn if something goes wrong.

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