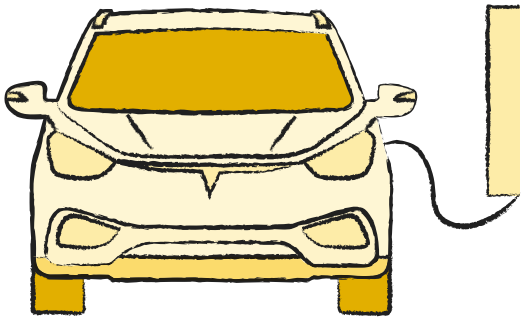
Rewiring Australia

FACT SHEET

# Electric Vehicles



## Snapshot

| | |
|---|---|
| **Emissions Saved** | Extremely high |
| **Lifetime** | 10 - 20 years |
| **Average upfront cost (before rebates)** | $35,000 - $70,000 new |
| **Potential bill savings (with solar)*** | $43,000 over 15 years ($2,500/year in 2024) |
| **Potential bill savings (without solar)*** | $26,100 over 15 years ($1,600/year in 2024) |
| **Rebates available** | Yes (QLD, WA) |
| **Difficulty of installation** | Easy |
| **Electrical upgrade required** | No |
| **Installers** | None (or an electrician if installing a home charger) |

**Assumptions:** Vehicle price comparison and energy prices from 2024. Assumes average vehicle driving distance from ABS Motor Vehicle Survey 2018. Future prices of fuels and electricity assumed to increase at historic real inflation rate based off their associated category in the Consumer Price Index. Vehicle lifetime assumption 15 years. Finance rate 5.5% over 15 years.

# Introduction

The average Aussie home has 1.8 cars parked in their driveway and spends up to $2700 every year filling them up. Collectively, our private cars are responsible for 16% of Australia's domestic emissions. Your first option could be to use active and public transport - electric bikes are really hitting a sweet spot for short trips. But when you need a car, make it electric. Electrifying your vehicles is the single biggest impact your household can make from both a bill savings and emissions savings perspective. With prices dropping rapidly, it won't be long until EVs are also cheaper to buy (By 2030, EV prices are expected to drop to around 80% of the price of their petrol counterparts). EVs are not only cleaner, healthier and cheaper to run, their ability to work as giant storage batteries will play an exciting role in our energy future. Win-win-win-win!

# Why choose an electric vehicle (EV)?

- **They use less energy** - EVs are about 3 ½ times more efficient than petrol and diesel vehicles (aka internal combustion engine - or ICE - vehicles). This is mostly due to an ICE car losing 80% of its energy from the engine converting fuel into heat.
- **They're cheaper to run** - EVs cost half as much to drive if you charge it from the electricity grid and ten times less when charged with rooftop solar (which would save you $22,700 on average over 15 years!). They also require less maintenance due to less parts, so you will save on mechanic costs.
- **They're better for our climate** - Even if you take the embodied emissions of making the new EV into account, EVs are a huge game changer for reducing carbon emissions especially when charged by renewable energy[1].
- **They make less pollution** - University of Melbourne research[2] shows that pollutants from cars cause around 11,000 premature deaths in Australia every year (ten times more than car accidents).
- **They're quieter** - the reduction of noise pollution is another added benefit for our neighbourhoods.
- **Better performance and functionality** - Instant torque delivery provides smooth acceleration and many EVs have attractive functional features such as pre-cooling cars before you enter them or plugging in your fridge during blackouts or when camping.

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[1] https://www.abc.net.au/news/2024-05-27/comparing-electric-cars-and-petrol-cars/103746132
[2] https://www.unimelb.edu.au/__data/assets/pdf_file/0007/4502923/Expert-Position-Statement_Vehicle-emissions_FINAL.pdf

# What to consider

**Options -** the two main options are:

- Battery Electric Vehicles (BEVs or just EVs) which are pure electric vehicles powered solely by batteries - ***recommended***
- Plug-in Hybrid Electric Vehicles (PHEVs): Combine a petrol or diesel engine with an electric motor and battery. If choosing a plug-in hybrid, look for ones with extended electric-only driving ranges to limit the use of petrol/diesel.

  **Note:** There are also common hybrid vehicles which are plugless or 'self-charging'. These have a smaller battery capacity and rely more on fuel-powering, meaning they can never truly be a zero emissions vehicle and therefore better to choose one of the above if possible.

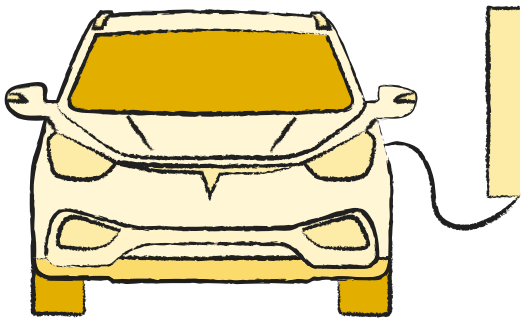
**Range -** Range anxiety should be a thing of the past. There are many who have driven across Australia in an EV and haven't been left stranded! One of the current cheapest new EVs in Australia, the BYD Dolphin, has a range over 340km and the very popular Tesla model Y has a range of over 500km. But you may only need a smaller range if you don't drive long distances, which means it will be cheaper to buy. There are plenty of apps available to help you plan your charging route. Always remember when calculating your range to take into account factors that may reduce your range such as towing a trailer or carrying bikes.

**Charging -** You will experience considerable savings if you can charge your car off your rooftop solar during the day. You can charge it slowly off a regular power point or you can purchase a charger to go faster (about $2000 for an average level 2 charger). Most cars only need charging once a week or so, so even if you drive to work you may be able to coordinate weekend charging or do regular shorter charges. If you don't have solar, time your charging to cheaper energy tariffs with some retailers offering rates specifically for EVs.

Even if home charging isn't an option, EVs can still be for you. There are an increasing amount of workplaces, shopping centres and street chargers installed (lobby your council for more). Fast DC chargers are good for long distance driving (few people only use fast chargers). Note: not all EV models charge at the same speed.

**Batteries and Warranties** - Concerns about EV batteries wearing out and requiring expensive replacements have turned out to basically be a non-issue. Most battery warranties are about 8-10 years but batteries typically last the life of the car. Depending on factors like quality of battery, charging and driving habits, there can be some degradation. One estimate is that on average, batteries lose about 2.3% of their capacity each year, which means a 240 km range car might lose 27 km over five years . You should ask the dealer about the most up-to-date warranties for all aspects of the vehicle you're considering, including basic coverage, battery, and roadside assistance.

# Getting It Installed



1

**Research your options.**

There are so many to choose from!
Test drives can help with decisions.



2

**Buy/Lease and drive away!**

3

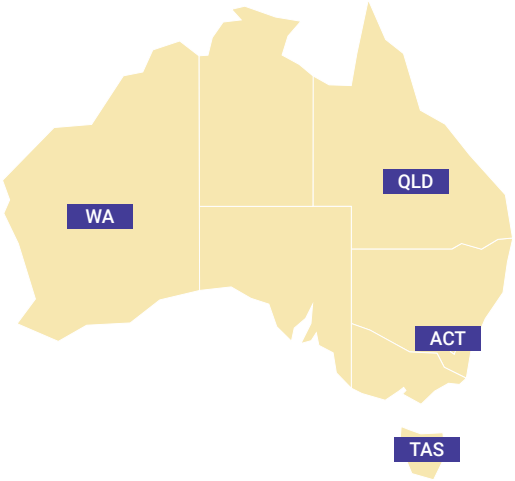
**Optional: Contract an electrician to install a fast charger at home.**



**Did you know?**

The cheapest way to buy a new EV is generally through a novated lease (aka salary sacrifice via your employer). This is because you don't have to pay GST or the Fringe Benefits Tax (if your EV is under $89,332), which can potentially save you thousands.

# Government Assistance




**National** Under the federal government's Household Energy Upgrades Fund you may be eligible to apply for a loan with discounted finance to afford the installation of EV chargers. Employers are exempt from paying the Fringe Benefits Tax on EVs. **Link**

**ACT** Incentives for zero and low emissions vehicle uptakes such as discounted registration, Motor Vehicle Duty exemption and interest free loans. **Link**

**QLD** Rebates up to $6000 for zero emissions vehicle. **Link**

**TAS** No-interest loans to install chargers for electric vehicles. **Link**

**WA** Zero Emissions Rebate Scheme offers a $3,500 rebate for EVs. **Link**

*Rebates current as of September 2024.* Check **energy.gov.au** for latest updates.

# FAQ




### Should I start with a hybrid?

While hybrid cars may give peace of mind for those with range anxiety, hybrids have limitations compared with full EVs, including more moving parts and maintenance, generally less power and efficiency and most notably, the car will still be responsible for emitting pollution. In short, if you can, go straight to an electric vehicle.

### How do I make the most of it?

Some useful tips from EV owners include: keep your battery topped up between 20-80% to keep it in the best condition, utilise regenerative braking (which takes the energy from the process of slowing down and uses it to charge the battery) and remember that extra weight and bulky items (eg bikes on roof racks) will affect your range so take that into consideration when calculating your charging.

### What about the environmental impact of batteries?

Mining of any mineral or materials should be done as ethically and responsibly as possible. In the past, there were some issues with mining of cobalt for batteries. As the industry has matured, however, so has the traceability and sustainability of mining for critical minerals. Today, more batteries have transparent mineral production or using alternatives such as lithium iron phosphate (LFP) batteries. Australia is in a good position to lead the world in ethically and environmentally produced critical minerals. The best news is that most of the components in an EV battery can be recycled, and the rate of recycling will only improve as the industry expands. In sum, even considering battery production, the environmental impact of EVs are light years ahead of fuel-powered cars.

# Useful Resources



→ **Electric Vehicle Council**
electricvehiclecouncil.com.au

→ **The Australian Electric Vehicle Association**
aeva.asn.au/

Rewiring Australia

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Rewiring Australia is a non-profit, independent, non-partisan organisation dedicated to representing the people, households and communities in the energy system.

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