

## How easy is it to charge an Electric Vehicle (EV)?

It's getting easier all the time. Just connect the supplied cable to a plug-in socket at home, your own fast-charge station, or a public charging station.

Only use the charging cable that came with your vehicle and plug it directly into a standard wall socket. Don't use an extension cord or plug adaptor. EV chargers are also weatherproof, so you can still charge your car if it's raining.

Lots of EV owners charge their car overnight for use the next day. If you're taking a long trip, you can find and use a public fast charge station and you'll have a full battery in 30 mins, at the cost of less than \$10.

## How much do they cost to run on average?

It's tricky to give a precise answer because the way you use your EV will have the greatest impact on how much it costs you to run. What we can say with certainty is that you'll make substantial savings on petrol costs. You also gain reduced vehicle running costs from the general lack of servicing that's required for an EV, and the fact that there are no oil expenses.

## What's the difference between an EV and a hybrid (PHEV)?

A hybrid vehicle can run on electric until the battery charge has run out. It then switches from electrical power to run on the petrol engine. Does this make a hybrid the 'best of both worlds' and better than an EV?

A plug-in hybrid is a good option, but it does mean you're not going to have the full economic savings of a fully electric vehicle. You'll still need to buy petrol on a regular basis, and you won't benefit from the lower maintenance costs of a fully electric vehicle which contain less components and doesn't require oil changes. A hybrid is, however, a step in the right direction.

## Is an EV cheaper to own?

Currently, a PHEV/EV costs more to purchase than a normal car, however the price gap is shrinking. The cost of electricity per 100km is much less than petrol/diesel. Recently we investigated the specific costs of ownership and the payoff distance/ownership term to make financial sense. Electricity isn't free, of course, so there are costs involved in running an EV, however it is a fraction the cost of petrol.

EV's also have lower maintenance bills because there's no oil to change, fewer moving parts to wear and replace and extended brake life due to regenerative braking.

## Can the infrastructure handle so many EVs?

EVs only represent a small percentage of yearly new car sales, and given the number of used cars on the road, it remains a tiny fraction of added load. The impact of an EV on a home's power draws are barely measurable, with EV smart chargers prioritising home essentials (lights, heating etc).

Most people and businesses charge their EVs overnight, when there's excess capacity for clean power generation. Many power companies even offer low overnight power rates to encourage this use.



## What's the average range of an EV?

This is the biggest elephant in the room when it comes to EV ownership concerns. People are worried about whether they can get to their destination and back on a single charge, and what the consequences for running out of charge will be. A reasonably priced EV will cover you for at least 120-150km on a single charge. And when you factor in that, the average journey distance covered by drivers on a single day is less than 35km, even the most affordable EVs have got you covered.

## How long will the battery life last?

EV batteries are designed to last for many years. New EVs include a battery warranty that guarantees the battery for a certain amount of time (at least 5-8 years) or distance (e.g. up to 100,000km). An EV battery's capacity will gradually decrease the more it's used. Battery life can also deteriorate if your car is unused for a substantial period. A weakened battery means that your EV won't be able to travel as far on a single charge, but the car should remain a viable option for most daily journey needs. Fast charging is more damaging to battery health and trickle charging helps maintain battery life. Some EVs give you the option to set a limit to charging to 80% - which helps maintain battery life (oxidisation can occur if you regularly charge beyond 80%). The downside is that you lose 20% of range per charge.



## How long does it take to charge an EV?

Many factors influence the charging speed of an EV, such as the kWh size of the battery (bigger takes longer, PHEVs have smaller batteries than BEVs), and the power source: from a 1.2kWh portable charger that plugs into a three-pin wall socket, right up to a 300kW Hyper Charger.



## What sort of range do they have and what is "range anxiety"?

Range anxiety is a real thing that affects most would-be EV owners. Simply put, it's the feeling of dread that comes when going out for a drive but not knowing if you'll make it home.

Range depends on the car itself, and can vary quite a bit. Second-hand Leaf models going for below the \$10k mark will typically offer between 100 and 150km of range while Tesla is claiming the upcoming \$265k Model Plaid Plus will go more than 800km on a full charge.

