Central NSW JOINT ORGANISATION

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Electric Vehicle FAQs

Do electric vehicles have enough driving range?

Today's EVs often have enough battery range to meet the average Australian's driving needs for a week. The average Australian drives 38km per day, with most EVs capable of travelling 200 km per charge.

Where can EVs charge?

Most EV charging occurs at home or work, with no change to the driver's routine. For people without a home charger, a routine stop at a public charger is required. This may coincide with a weekly grocery shop or a quick stop at an ultra fast charger often located nearby highly visited locations. Charging networks are growing rapidly, with charging stations easily located via map applications.

How long does it take to charge an EV?

Charging times are falling quickly as technology advances. Residential chargers are able to fully charge EVs in around six to eight hours, depending on the vehicle's battery size. This means you can easily charge your car overnight, even from completely flat to completely full.

Public fast chargers are able to get you back on the road much faster. A typical 100 kW public fast charger will provide enough charge for 100 km of driving range in 12 minutes.

Are EVs expensive to run?

EVs have lower running costs than traditional combustion engine vehicles, generally only costing 20-25% as much as traditionally powered vehicles per kilometer. The average Australian drives 15,000 km and spends around $2,160 on petrol per year ($0.14/km). An EV travelling 15,000km would cost around $600 per year ($0.04/km) in electricity costs. Fewer moving parts also mean that EVs require less maintenance.

Contrary to a popular myth, EV batteries last as long as the lifetime of your car and come with strong warranty protection. Another popular myth is that EV batteries degrade over their lifetime, however battery degradation is very low, and is typically unnoticeable.

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Are EVs more expensive?

EVs include a large battery, which is currently relatively expensive to make. Battery prices are coming down in price rapidly as EVs grow in popularity across the world. In some cases, the total cost of ownership for EVs is already superior to traditionally powered vehicles due to their lower running costs, especially for those that drive regularly. By the mid 2020s EVs are predicted to cost the same as traditionally powered vehicles.

Are EVs capable of replacing ICE vehicles?

Yes! And no. The number of EVs available today lacks the diversity of what is available in traditionally powered vehicles and so at times, there may not be an EV that meets every need. All vehicle manufacturers are working hard to introduce a diverse range of EVs and these are becoming available regularly.

Most EV drivers are highly satisfied with their EVs, particularly as EVs offer a smoother, quieter driving experience, low centre of gravity and strong torque that means driving is more relaxing.

Are EVs are a passing fad?

EVs sales are relatively low now, but as new models at lower prices become available and as less traditionally powered vehicles are made available, EV sales are expected to grow exponentially. By 2030, it is predicted that half of new vehicles sold will be electric.

Is it true that EVs are just as bad for the environment?

The overall environmental impact of an EV depends mostly on how clean the electricity is that charges the vehicle. Research shows that even if an EV is charged by dirty coal-fired electricity, it still generates slightly lower net emissions than an equivalent sized traditionally powered vehicle. By charging an EV using renewable energy, the environmental impact is much lower than for an equivalent sized traditionally powered vehicle.

A popular myth is that EV battery production is dirty and that at the end of vehicles useful life the battery just adds to landfill. Modern EV battery production is streamlined, clean and efficient, with battery recycling technology advancing to the point that most of the contents of a battery can be cost-effectively recycled into new EV batteries. Another trend across the world is to repurpose EV batteries as cost-effective and high-quality energy stores for home and business solar energy production.

Are EV batteries dangerous?

Driving a vehicle with a battery is no more dangerous than driving a traditionally powered vehicle, as all vehicles must pass the same Australian Design Rules. There are numerous studies that show that fires in EVs are less likely to occur than fires in traditionally powered vehicles, as battery modules are designed to disconnect in an accident scenario. In Australia, Fire and Rescue organisations are trained to know how to enter electrified vehicles that have been involved in an accident.

Charging and Energy FAQs

What is the difference between a kilowatt (kW) and a kilowatt-hour (kWh)?

A kilowatt (kW) is a measure of power, and describes the *rate* of energy consumption at any one point in time. A kilowatt-hour (kWh) is a measure of energy, and describes the total amount of energy consumed over a period of time.

What is the difference between AC and DC?

AC and DC describe the way electricity is transmitted through a power system. Energy networks and household circuits are mostly Alternating Current (AC) which is effective at transmitting electricity. EV batteries use DC electricity, which means a conversion must happen during charging. EVs come with the conversion technology built-in, but DC chargers also exist and these can allow very rapid charging to occur.

What is the difference between single-phase and three-phase AC?

Three-phase power is commonly used in very high powered equipment such as air conditioners, pumps and very large electric motors, whereas single-phase power is what powers most homes and businesses. Three-phase power can be run to a house or business by an appropriately qualified electrician, which has the benefit of allowing high-power equipment to connect and operate, including some faster charging EV-charging systems.

Who uses public chargers?

One of the best features of electric vehicles is that they can be charged at home, which means owners of electric cars mostly begin each trip with a full charge. The same also applies for fleet cars kept on work premises. The main groups of drivers that will use public chargers are locals with limited home charging, tourists, high-workload commercial vehicles and long-distance commuters.

How much power does an AC charger use?

Chargers are highly efficient, and so the power that they deliver to the vehicle is about the same as the power that they draw from the supply. There are varying sized charging systems available, each with their own charging rates, but an AC charger will typically draw between 2.3 and 22 kW of power when in use.

How much energy does an AC charger use?

The amount of energy depends on how long the charger is in use. To work out how much energy is used, simply multiply the power by the time (in hours). For example, a 7 kW charger in use for 1 hour will use about 7 kWh of energy.

Why use a 3-phase charger?

A 3-phase charger can deliver up to 22 kW of power via a standard Type 2 plug whereas a single phase charger is limited to about 7.4 kW. Most vehicles today cannot accept more than 7 kW of power through AC charging, and so single phase is suitable for most applications. Installing a 3-phase charger is more versatile and may future-proof the charging station.

Which charger should I select?

The following features should be considered when selecting a charger:

- Indoor or outdoor use?
- Tethered or untethered charging cable?
- Wall-mounted or pedestal-mounted charger?
- Networked or standalone charger?
- Slow or fast charging capability?