Electric Vehicle FAQ's

Charged with Knowledge

Reflex

reflexvehiclehire.com

Contents

Are you *considering* an Electric Vehicle?

Thinking about making the switch to electric vehicles?

We get it, you probably have some burning questions. But fear not, we're here to guide you through a seamless transition.

This handy document addresses many common queries, but if you've got more on your mind, don't hesitate to reach out.

Reflex are here to ensure you're fully charged for your electrification journey, with continued support through our EV:IE (Electric Vehicle Information Exchange) tool, our hands-on Reflex Renewable Drive programme, a variety of useful resources including Road Test Reviews and informative blogs, and our team's extensive in-house fleet expertise.

Benefits & Drawbacks

→ Lower Carbon Footprint

Even though an EV currently creates a higher carbon footprint than an Internal Combustion Engine (ICE) vehicle in its manufacturing process (largely due to the battery production), the overall carbon footprint including driving the vehicle can be up to 50% lower than petrol and diesel vehicles over the lifetime of the vehicle. This reduction can be even greater if the electricity used to power the vehicle comes from renewable sources such as solar or wind energy.

→ Potential Cost Savings

When the running costs and tax efficiencies of an EV are compared with ICE vehicles, the savings can be considerable. These depend on the type of vehicle chosen, and the number of miles driven – more mileage in an EV delivers a greater saving.

→ Increased Interior Space

Due to the removal of traditional vehicle engine components such as the transmission tunnel and the engine, EVs can offer a more spacious interior.

→ Instant Torque & Quiet Interior

Electric motors power the vehicle, providing instant torque and removing the need to change gears, providing a quieter driving experience.

→ Re-Generative Braking

By harvesting the energy from braking, this can be turned into supplementary range to help extend your journey distance.

→ Charging at Home

Charging your vehicle at home enables you to wake up with a full charge every morning.

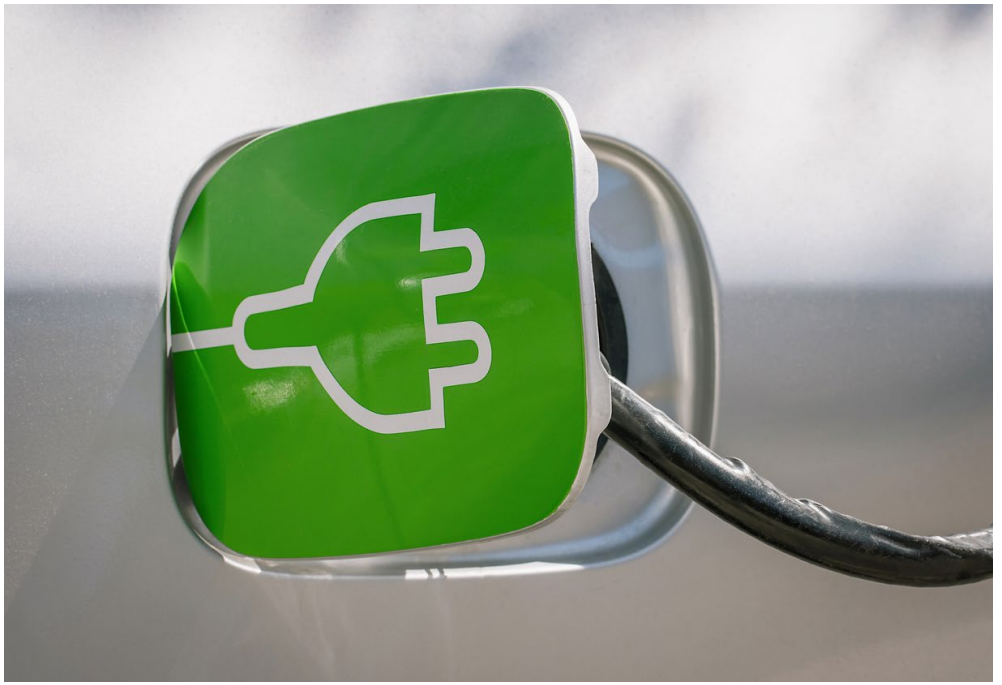
→ Range anxiety

The range of an EV has traditionally been a concern, giving rise to the term ‘range anxiety’. However, the latest developments in battery technologies mean that many of the electric vehicles available in the UK are now a realistic option for most people.

For longer distance journeys, a stop may be necessary to recharge the battery.

This may require some advanced planning, but with over 50,000 public chargers (and growing rapidly), finding a convenient public charge continues to become easier.

Many supermarkets, restaurants and retail outlets have electric vehicle charge points to allow their customers to charge as they shop or eat.

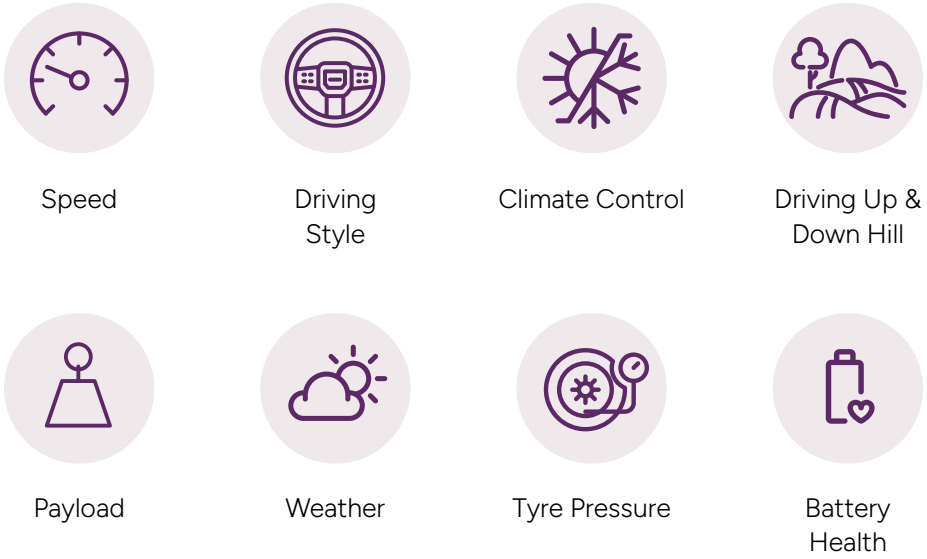


Range

If the battery runs out of charge, will the car just stop?

Once the battery is drained of energy, the vehicle will slow down and come to a complete halt. But before things get to that stage, you'll typically receive three or four separate and distinct alerts, including when there's typically 10% (depending on manufacturer) of charge left and when there's 0% of charge. You should always pull over when you receive these warnings to avoid running out of charge. You wouldn't let your petrol or diesel vehicle run out of fuel and it is the same discipline with EVs – running close to 0% charge should always be avoided.

What factors affect range?



Driving

How does the 'feel' of an EV differ?

The first thing you'll notice when driving an EV is the silence. Apart from a faint hum when accelerating, the only noises come from the wind and tyres.

Acceleration is also instant, so EVs will feel much quicker than you may have thought.

Take care with this acceleration though, as it will affect the range you get out of the vehicle, in the same way that fuel consumption in a petrol or diesel vehicle is affected by harsh acceleration.

EVs are easy to drive. The gears are automatic, while regenerative braking slows the vehicle down when you lift off the accelerator to top-up the battery.

What is regenerative braking?

Electric motors use energy to create movement. When this motion is no longer required, for example when the vehicle is slowing, the force of braking can be used to make the motor work in reverse, producing electricity instead. This generated electricity can then be stored back in the battery, which can help to extend the vehicle range.

Battery

What does kilowatt-hour (kWh) mean?

Kilowatt-hours are a measure of how much energy can be stored in a battery. A comparison for an ICE vehicle would be the size of the fuel tank in litres. For a given vehicle, a battery with greater capacity (more kWh) will have greater range.

Is the battery flammable?

An EV battery would only become flammable through misuse or outside intervention. EV batteries are less flammable than petrol or diesel and have safety systems that maintain safe temperatures.

Does temperature affect the battery?

Batteries can be stored as low as -40°C but must be plugged in and heated to -20°C before driving. In long-lasting hot or cold temperatures an EVs range is reduced because energy is required to keep the battery at an efficient operating temperature. Energy is also needed to warm up the cabin when the temperature is low.

Using the cabin heating or cooling (A/C) functions while the vehicle is still charging before you set off will help maximise the battery range in your vehicle.

How are batteries disposed of/recycled?

The time that batteries spend in an electric vehicle is often just the beginning of their useful life. Once removed from a car, most batteries will still be fit for other purposes like energy storage in the electricity network, or in the home – a growing area of demand.

When batteries do reach the end of their working life, they'll be recycled, which typically involves separating out valuable materials such as cobalt and lithium salts, stainless steel, copper, aluminium, and plastic. At the moment, around 75% of the materials in an EV battery pack can be recycled and with EVs expected to become more popular over the next decade or so, vehicle manufacturers are looking to further enhance this.

The government's Faraday Battery Challenge aims to increase the recyclability of batteries to 95% by 2035.

Can you jump start a car using an EV?

You should not use your EV to jump start another vehicle as you can risk damaging the battery.

You can however, use a hybrid vehicle to jump start another vehicle, so long as your battery is in good working condition.

Does the battery get hot during operation?

EVs have an efficient thermal management system that maintains the temperature of the battery. An EV battery will typically be between 15°C and 30°C, which is considerably cooler than an ICE.

Charging

How do you charge an EV?

Just like with any other electrical appliance, it really is as simple as plugging your vehicle in to a charging point. As well as your home charging point, you can charge up at public charging stations. You can use sites like Zap Map to locate charging points across the UK, while some workplaces also have them. The connector types vary a little, so Zap Map enables you to filter this to find charge points compatible with your EV.

How much does it cost to charge an EV?

The price of electricity fluctuates according to market influences. To calculate the cost for a full charge, simply multiply the rate you are charged per kWh by the battery capacity of your vehicle.

Can EVs be driven with a charging cable still plugged in?

No, EVs cannot be driven while a charging cable is plugged in. A dashboard warning light will appear, asking you to unplug before the vehicle can move.

Why is the first 80 per cent charge faster than the final 20 percent?

You'll find the rate of battery charge is influenced by the chemistry and physics of the battery itself. The battery management system controls the rate at which electricity comes into the vehicle – to preserve the battery when it is at low states of charge and high states of charge. To preserve the health of the battery, it is best to keep the 'State of Charge' between 20% and 80%.

How many days can an EV be left without charging? For instance, Can I leave it parked at the airport?

Most EVs can be left unattended for at least six months, however plugging in once a month is optimal. The battery management system is electronically controlled and uses very little energy. EVs, like any vehicle, also have a 12V battery to power internal features such as central locking, electric seats, entertainment and interior lighting.

This 12V battery can go flat just like in any car and should therefore be monitored carefully during long periods of downtime.

Can the National Grid handle the increasing number of EVs?

Motor manufacturers are working with governments and energy providers to ensure that increases in electric vehicle usage does not cause issues with electricity networks. The National Grid has publicly confirmed that they have no concerns over whether they will be able to cope with mass EV adoption, citing that energy efficiency (LED lightbulbs, energy efficient white goods in the house etc) over the past 15-20 years has improved so much that there is a remaining capacity to accommodate such activity.

It is fair to say that some local areas that require extensive rapid EV charging capability may need to upgrade their local electricity supply to facilitate this.

What are 'destination charging' and 'journey charging'?

Destination charging refers to charging stations that can be found at local shopping centres, hotels, gyms and other destinations you may visit for extended periods of time.

Journey charging refers to charging stations at service stations or dedicated EV charging stations, which provide the maximum charge in the shortest time.

Energy cost x battery size = charging cost

For example, if the charger you are using is charged at 22p per kWh and your battery is 64kWh, this will cost you approximately £14 for a full charge.

The cost will vary dependent on provider and, also charger type (fast, rapid, ultra rapid). You will also need to factor in other users around you, as this can impact charging time.

How much does it cost to install a home electric chargepoint?

Depending on the provider and the energy output you go for, the costs can vary. Charge points can go up to the region of around £1,500.

What is the difference between AC and DC?

Alternating Current (AC) charging delivers power to the vehicle's on-board charger, which then coverts this energy to Direct Current (DC) for the battery. Direct Current (DC) charging supplies the power directly to the electric vehicle battery. AC is typically slower and provides less power than DC charging.

Can passers-by unplug or steal my charging cable when charging in public or on my drive?

Most vehicles will have a locking mechanism when the charger is plugged in to the port and the car is locked. Along with the fact that chargepoints are usually in a public place and may have other users around, the likelihood of someone stealing your cable is extremely low. It is worth checking your insurance policy does cover your charging cable, just in case of theft or accidental damage.

Safety & Performance

Are EVs safe in a flood?

In general, EVs are as safe as all other vehicles when going through deep water. The battery pack is sealed off, as is the drive train (e.g. the electric motor and controller). So, electrocution isn't a risk when taking an EV through deep water. Indeed, many electric vehicles have been driven through fairly deep water as part of their exhaustive testing. This water is deeper than most conventional vehicles could drive through, and the electric vehicles handled it well.

It is never recommended to drive any vehicle persistently through deep water, but electric vehicle manufacturers claim that some electric vehicles are actually better equipped for floods.

The BMW i3 manual says:

"Drive through calm water only and only if it is not deeper than 9.8 inches/25 cm and at this height, no faster than walking speed, up to 3 mph/5 km/h."

Are EVs safe in general?

All electric vehicles are designed and engineered to meet the most stringent global safety standards. In fact under Euro NCAP testing conditions, all 17 safest vehicles tested in 2023 were either hybrid or EVs. It is also important to note that technology is improving and a lot of EV come kitted out with the latest safety features such as automatic emergency braking, lane assist and blind spot monitoring.

Can I use an EV in a car wash?

Yes, EVs are designed and tested to the same standards as conventional combustion engine vehicles, so taking them through a car wash is no different to taking an ICE vehicle through.

Can EVs be charged in the rain?

Yes, customers and bystanders are not exposed to any risk of electric shock.

Are EVs prone to catching fire?

Whilst there is some uncertainty around EVs catching fire, it is important to note that research shows there is a very low risk of this happening. In fact, EV FireSafe reveals lots of reassuring data that EVs are actually less likely to catch fire than ICE vehicles. They do not carry petrol and diesel which is highly combustible and car fires that are not due to fuel occur with the 12v battery, which is the same in an ICE as an EV.

How does the handling compare to 'conventional' vehicles?

EVs generate maximum torque from standstill, delivering impressive acceleration. The battery's location, between the two axles, also provides a lower centre of gravity and an even weight distribution for improved handling. And, without the need to package a big engine in the front, the wheels can be positioned nearer to the outermost corners of the vehicle enhancing stability and steering feel.

Environment

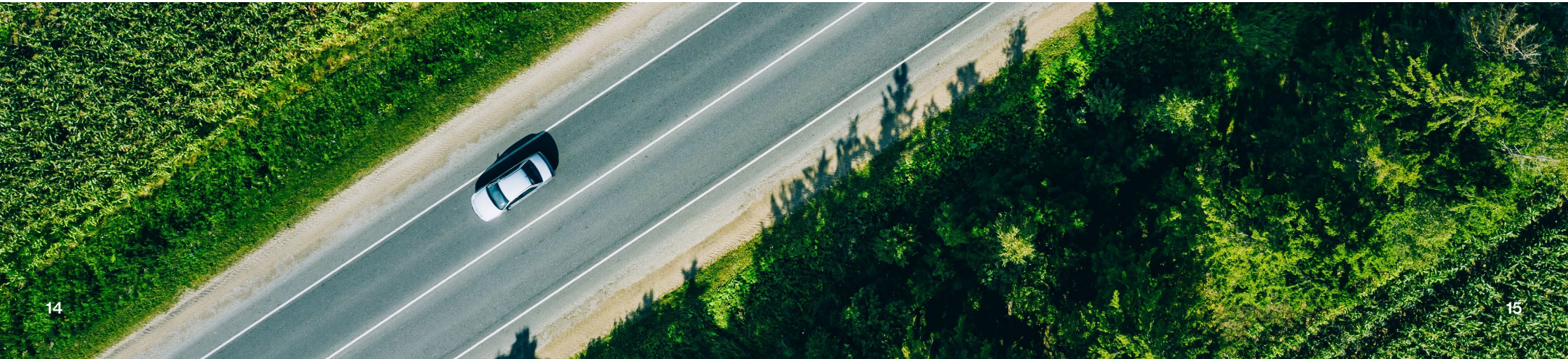
Are EVs really better for the environment?

With no emissions from an exhaust, EVs are brilliant for reducing pollution in cities. Forget the nasty particulates belched out by diesels, EVs (when driven) are as emission free as walking or cycling.

Detractors will point to the pollution created by producing electricity, but this varies widely depending on the type of power generation used. A wind farm is vastly cleaner than a coalfired power station, for example.

However, even the 'dirtiest' electricity is still less damaging to the environment than hundreds of individual petrol or diesel engines.

Also, if environmental friendliness is high on your agenda, certain energy companies offer 'green' tariffs, using electricity produced from sustainable sources. Some charging units are also smart enough to prioritise energy taken from sustainable sources such as wind, water and solar energy.



Maintenance

Are EVs difficult to maintain?

Compared to an ICE vehicle, EVs require less maintenance as they have fewer moving parts, so there is less that can be prone to wear and tear.

Does an electric vehicle need a regular MOT?

You don't escape the MOT test by choosing an EV. Like all vehicles, EVs have to pass an annual road-worthiness inspection after they are three years old. The main difference is that there is no emissions test, so that's one less area to potentially fail on.

Can an EV be towed if there is an electrical fault or the battery has no remaining charge?

No – this will damage the motor in the vehicle. If the vehicle needs to be removed from the road, it must be lifted up and carried away.

Alternatively, recovery providers are innovating other solutions, such as the AA and RAC who have both developed solutions that allow EVs to be towed by lifting their wheels off the ground to avoid any motor damage.

Insurance

How much are EVs to insure?

EVs can be a little more expensive to insure than comparatively sized traditional vehicles. The key reason for this is that they can be more expensive to repair, especially if the battery is damaged.

There are a number of other factors that affect the insurance rating, as with other vehicles (your age, mileage, location etc) so you should check with your insurer that they can/will insure electric vehicles.

Tax

Full EVs are currently exempt from Vehicle Excise Duty (VED), but this will change in April 2025, when they will be required to pay VED at the prevailing rate. Drivers still have to pay Benefit-in-Kind (BiK) tax if they are going to run one as a company vehicle.

Will the BiK rate for fully electric cars change?

The key to BiK tax is the BiK band, based on the CO2 emissions of the vehicle. The government sets this, and it is 2% for all fully electric cars and this rate is fixed until 2025.

In 2025, the BiK rate for these vehicles will rise to 3% and will increase by 1% each year until 2027/2028 when it will be 5% so an electric company car will continue to be a very affordable pick.

How does company-car tax work on EVs?

There are two parts to company-car tax – what the company pays and what the employee pays – and the amounts depend on the car's value, its CO2 emissions and the income-tax bracket of the employee.

The amount the company has to pay is determined by the car's 'P11D' value (the value of the car including VAT, options and the delivery fee) and its CO2 emissions.

By contrast, the amount that the employee has to pay is slightly more complicated and is calculated using the following formula:

(P11D value) x (BiK band) x (tax bracket).

Are vans liable for company-car tax?

If a driver is given an electric van as a company vehicle, they pay a 'van benefit charge' instead of company-car tax. Currently, BiK on electric vans is set at 0%.

For vans there is no upper vehicle price limit and the vehicle must have emissions of less than 75g/km and zero emissions range of at least 10 miles.

Grants

There are multiple grants available to support staff, fleets and businesses with charging infrastructure and the cost of purchasing Electric Vehicles.

As it stands, the following grants are available:

Electric vehicle infrastructure grant for staff and fleets

Electric vehicle infrastructure grant for staff and fleets - GOV-UK Find a grant (find-government-grants.service.gov.uk)

This grant expires on 31st March 2025

Workplace Charging Scheme

Workplace Charging Scheme - GOV-UK Find a grant (find-government-grants.service.gov.uk)

This grant expires on 31st March 2025

Electric Vehicle ChargePoint grant for renters and flat owners

Electric vehicle chargepoint grant for renters and flat owners - GOV-UK Find a grant (find-government-grants.service.gov.uk)

This grant expires on 31st March 2025

Plug-in Van and Truck Grant

Plug-in Van and Truck Grant - GOV-UK Find a grant (find-government-grants.service.gov.uk)

This grant expires on 31st March 2025

Electric Vehicle ChargePoint grant for households with on-street parking

Electric Vehicle Chargepoint Grant for Households with On-Street Parking - GOV-UK Find a grant (find-government-grants.service.gov.uk)

This grant expires on 31st March 2025

Warranties

Which EVs offer the best warranties?

An EVs battery pack, arguably its most costly component, is typically covered for at least eight years or 100,000 miles. For its part, Hyundai extends this to lifetime coverage on the 2019 Kona Electric.

Be aware, however, that every new vehicle warranty contains exceptions and exclusions. For example, some manufacturers only cover an EVs battery pack against total failure, while others, including BMW, Nissan, Tesla (Model 3) and Volkswagen will replace it if it reaches a specified reduced capacity percentage, usually 60-70%, while under warranty.

Some brands will transfer whatever remains of the original warranty to a second owner, while others may impose limitations on this.

For example, the 10-year powertrain warranty on Hyundai and Kia models applies only to the original buyer, with a subsequent owner receiving whatever remains of five years' coverage from the date on which it was originally sold.

Also, selected components, most notably tyres and dealer-installed accessories, can have separate warranties backed by the original equipment manufacturers, and come with their own exclusions.

Be sure to check the fine print at the dealership or via the manufacturer's website (usually under an 'owners' tab) to get the full story on any model you're considering.

Licensing

Electric batteries are heavy, will this take 3.5t vehicles over the weight and how will this affect me?

Because EV batteries do have some extra weight to them, since 2018 standard Category B licence holders are able to drive EVs up to 4.25t to account for the difference in vehicle weight.

The vehicle must not be driven outside of Great Britain, used for the transportation of goods, is not towing and the driver has completed 5 hours minimum training on alternatively fulled vehicles.

This rule also applies to range extender, Plug-in Hybrid (PHEV), Hydrogen Fuel Cell Vehicles (FCEV), Compressed Natural Gas (CNG) and Liquified Petroleum Gas (LPG) vans.