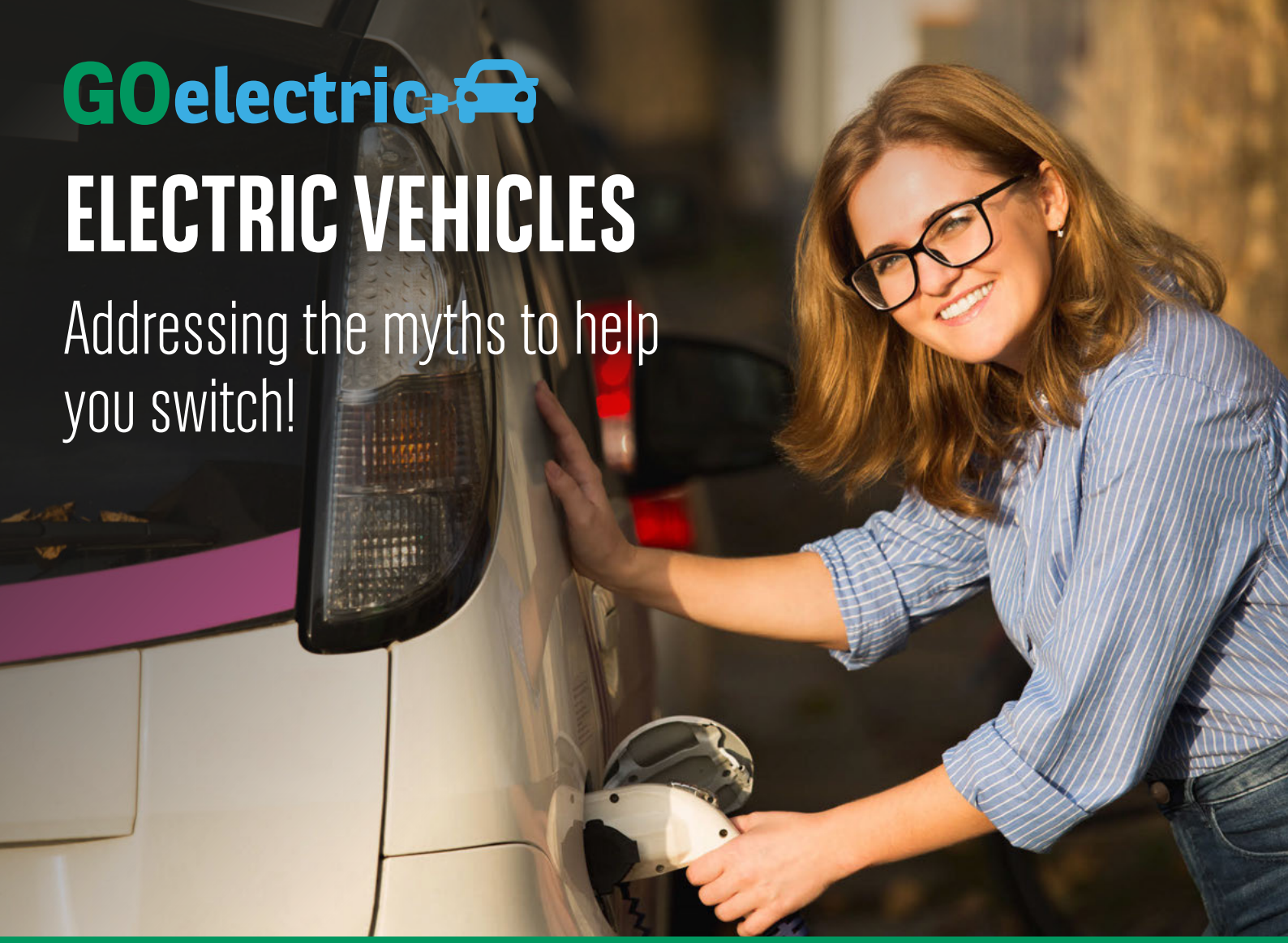
GOelectric

ELECTRIC VEHICLES

Addressing the myths to help you switch!



We want to support you in making the switch to an electric vehicle (EV), so we've put together this guide to help tackle the most common myths surrounding EVs, including:

- Battery life
- Charging points
- Cost
- Emissions

We've also added in some Frequently Asked Questions (FAQs) to answer any questions we've missed.

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For the many journeys in life

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Myth 1: Battery life

A common misconception about EVs is that the battery doesn't last, making them an unsuitable option for longer journeys.

How far can I travel on a single charge?

Although EVs may need to be charged more frequently than you would fill up a petrol or diesel car, the range of an EV varies by make and model. The website **ev-database.org** shows that average real-life range of all EVs as being around 190 miles.

However, it's important to note that the real-life driving performance of an EV will be different to the published Worldwide Harmonised Light Vehicle Test Procedure (WLTP) range figures, so you need to think carefully about the model you decide to choose. This is also particularly important when planning longer journeys. As with petrol or diesel cars, the range of an EV is also affected by factors such as weather, driving style and excess load.

For more information on EV range, please visit **ev-database.org.**

Does it take a long time for an EV to charge?

The time it takes to charge an EV depends on the speed of the charging unit and battery size (or how much electricity is needed), as well as the capability of the on-board charger (OBC) in the car, which varies by model.

So what are the types of chargers available and what does this mean in terms of charge times?

- **Slow charge (domestic 3-pin socket)** = approx. 2.5kW
- **Fast charge unit (home, workplace and public)** = approx. 7kW
- **Rapid charge unit** = approx. 50kW
- **Super/Ultra charger** = 100-350kW

Charge units are either AC (Alternating Current) or high power DC (Direct Current). AC charge units are normally found at home, the workplace and public locations and not all cars have a DC connection so can't take a rapid or super charge.

A home fast charger takes around 8-9 hours so you can do this at night, whereas a rapid charge unit charges a 50kWh battery to 80 per cent in about 50 minutes.

It isn't necessary to always fully charge your battery, particularly if you're running low on time. It's recommended that you don't fully charge your EV unless you need to and is best to keep your battery at between 50 and 80 per cent.

How long do EV batteries last?

It's inevitable that EV batteries won't last forever. How long a battery lasts varies depending on make, model and external conditions. However, the average loss is only around 2.3 per cent per year. New EVs normally have a battery warranty of at least eight years or up to 100,000 miles (whichever comes first). This means that batteries will not only last for significantly longer than the warranty period and mileage, but will also outlive the usable life of the vehicle.

TO RECAP...

- The average real-life range of all EVs is around 190 miles, however weather, road conditions and type of journey will impact this
- The range of an EV depends on the make and model, so it's important to check this (manufacturer websites often also include a range calculator to help you understand the impact of temperature and speed on the real-life range)
- The time it takes to charge an EV depends on the speed of the charging unit and the size of the battery (or how much electricity is needed) as well as the capability of the OBC in the car, which varies by model
- EVs normally have a battery warranty of at least eight years or up to 100,000 miles – whichever comes first.

Myth 2: Charging points

Many people avoid choosing an EV due to the belief that they won't be able to travel very far as there are currently insufficient public charging points.

Are EVs suitable for driving long distances?

As you can see from the number of charging points now available, longer journeys can be made in EVs. You just need to make sure that you plan for them in advance.

Some top tips for long journeys include:

- Planning ahead for journeys that are beyond the range of your EV to avoid charging problems en route
- Ensuring that you know what the real-life range of your EV is and that you also take into consideration the weather, load and type of driving
- Working out how much extra range and electricity you need. This will tell you whether you need more than one stop
- Planning any stops well under the range of your car in case of problems. You should be stopping around every two hours (100 miles), so use this time to charge
- Stopping wherever possible at a location that has more than one charge unit to reduce the chance of a queue or broken charge point
- Keeping your rapid charging between 20-80 per cent of the battery as either side of that will make the charging speed noticeably slower
- Making the most of free fast chargers at supermarkets and retail outlets when you are parked up during the day.

There are many useful web and app-based resources available to help you plan your journey and locate public charge points. These include:

WattsUp! – a dedicated UK EV route-planning app that calculates a route in real-time for your specific EV model and shows the live operational status of rapid chargers en route. It also has a 'low charge' feature to show the location of the nearest rapid chargers

Zap Map – a very popular charging resource, which not only has an interactive charge point map that includes a journey planning tool, but also enables you to filter the map by both charge point type (i.e. rapid chargers) and individual networks. If you click on an individual charge unit (coloured pin) within the map, it details the network operator, type of charge unit, any access restrictions, charging rates and live availability.

For journeys outside of the UK, there are several European route planning web tools and apps available. **These include A Better Route Planner, Plugshare and Plugsurfing.**

Are there enough public charging points available?

The number of charging points across the UK is increasing rapidly. Many can be found at motorway service stations, but there are now a rapidly growing number appearing at supermarkets and retail outlets as well as conventional fuel stations. It's important to note that only one car can charge at a time, even if there is more than one connector available on the unit. You can see the number of charging points that are available across the UK here: **zap-map.com/live/.**

Once I've worked out where I can charge my car on my journey, how do I pay?

There are both small regional networks and larger national networks available. The table below lists the main open-access rapid charge networks and whether you can access them via an app or contactless payment card (radio-frequency identification (RFID) cards and subscriptions may also be available). For more information on charging networks, visit **zap-map.com**.

Network	App access	Contactless
polar instant	✓	✓
charge your car	✓	✗
ecotricity	✓	✗
Osprey	✗	✓
Genie Point	✓	✗
INSTAVOLT	✗	✓
pod POINT	✓	✗
Shell Recharge	✓	✓

In addition to public charging points, some people may avoid EVs as they don't have a charging point at home. Even if you don't have your own charging unit, EVs are still a suitable option as there are an increasing number of charging points now available. It just means that you need to understand your daily driving patterns in terms of how far you are driving, where you might be able to regularly charge and the types of charger available. You'll also need to research your local charging options in car parks, supermarkets, retail outlets and fuel stations, together with the charging options on your regular longer journeys.

Bear in mind that public charging, particularly rapid and super charging, is more expensive than home charging and will impact your mileage costs.

TO RECAP...

- EVs are suitable for everyone – even if you don't have a home charging point
- There are many charging points available across the UK (some of which are free), including at supermarkets and retail outlets
- Always plan for long journeys in advance by stopping well under your car's range and working out where the nearest charging points are, using the apps available
- There are a variety of networks available for you to pay at public charging points. These include both app and contactless payments.

Myth 3: Cost

One of the biggest barriers people have when deciding whether to switch to an EV is that they're too expensive.

Are EVs considerably more expensive than petrol and diesel cars?

EVs are still noticeably more expensive in terms of the upfront cost. However, you also need to take into account running costs, such as road tax, service and maintenance, and fuel cost. The running costs of an EV are lower than those of a petrol or diesel car.

How much do EVs cost per mile?

Just like petrol and diesel cars, not all EVs are the same in terms of their cost per mile, so this is something to consider when choosing an EV that's most suitable for your needs.

It's important to note that the types of journey, driving style, load weight, temperature and weather will all affect the cost per mile together with use of public charge points.

You can find out more at **ev-database.org.**

How much does it cost to charge an EV using a home charging point?

The cost to charge an EV using a home charging point depends on your electricity tariff and the amount of electricity (kWh) used. A domestic tariff is around 14p/kWh. So it would cost about £7 to fully charge a car with a 50kWh battery, whereas a car with an 80kWh battery would cost around £11.

Energy suppliers are increasingly offering off-peak tariffs to encourage EV drivers to charge their cars at different times of the day, particularly late at night. These rates can be as low as 5p/kWh.

TO RECAP...

- EVs have lower running costs compared to petrol and diesel cars
- The cost to charge your EV using a home charging point depends on your electricity tariff and the amount of electricity (kWh) used
- Energy suppliers are increasingly offering off-peak tariffs at lower costs to EV drivers
- Not all EVs are the same in terms of their cost per mile, so this is something to consider when choosing your EV.

Myth 4: Emissions

Another question surrounding EVs is just how environmentally-friendly they really are.

Does the manufacturing of EVs release a lot of CO_2?

EVs have embedded CO_2 in the manufacturing process prior to the CO_2 that's emitted through production and fuel use when driving.

The manufacturing of an EV is roughly equal to petrol and diesel cars. However, the production of EV batteries accounts for a significant increase in the embedded CO_2. This level of CO_2 varies depending on where the battery is produced.

In terms of the production of an EV and its fuel use, an EV is much more environmentally-friendly compared to petrol and diesel cars. Although the generation of EVs is not completely at zero emissions yet, both the production of petrol and diesel cars together with their fuel use far outweigh the CO_2 generated from producing an EV battery.

Do EVs have zero emissions?

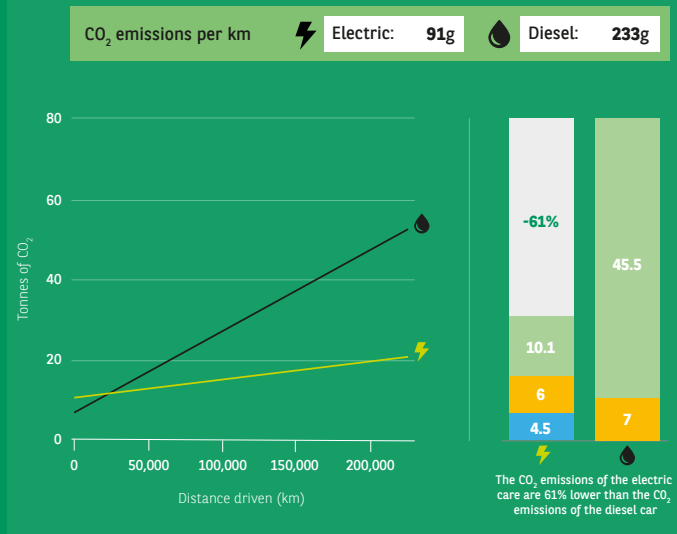
EVs have no tailpipe emissions and so, from an air quality perspective, EVs are 100 per cent better for the environment than petrol and diesel cars, particularly in urban areas.

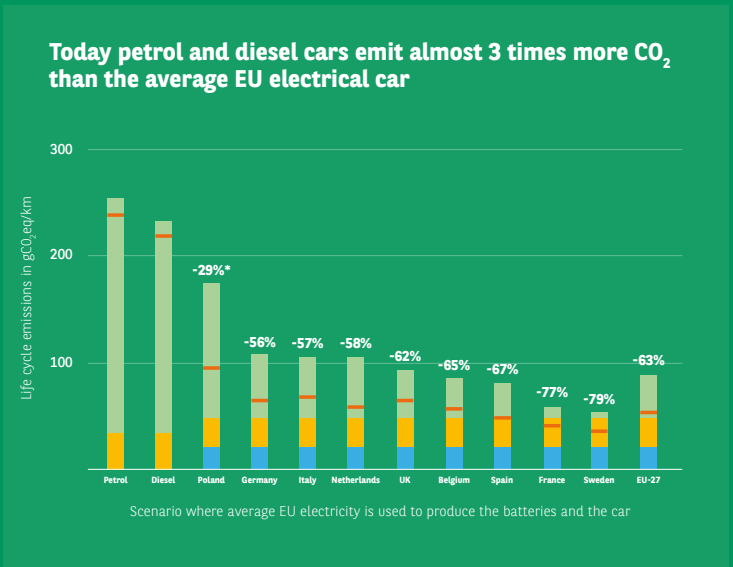
TO RECAP...

- An EV is much more environmentally-friendly compared to petrol and diesel cars
- EVs are great for helping to improve the air quality in urban areas
- The production of an EV's battery still contributes much less CO_2 compared to petrol and diesel cars
- On average, an EV breaks even against a diesel on CO_2 after only around 23,000 miles and emits significantly less for every mile after.

How much CO_2 do EVs emit?

The latest research from Transport & Environment shows that in Europe, on average, an EV breaks even against a diesel on CO_2 after only around 23,000 miles and emits significantly less for every mile after. You can find out more at **transportenvironment.org/what-we-do/electric-cars/ how-clean-are-electric-cars**.





/// Frequently Asked Questions

Where can I find reliable and impartial information about EVs?

There are a number of websites providing a huge amount of essential information and guidance on choosing and running an EV:

goultralow.com – a joint campaign between the government and car industry to provide all the facts and information you need to make an informed decision about switching to an EV

ev-database.org – an independent website providing comprehensive information and data on every EV available, including both real-world and official data

zap-map.com – the UK's leading charging point website, providing both an interactive charge point map and general supporting information on EVs and charging.

What happens if I run out of electricity or breakdown in an EV?

Just like a petrol or diesel car, an EV has a 'fuel' gauge or range indicator, so the chances of running out of charge are minimal or no more likely than in your petrol or diesel car.

As you near low battery levels, your car will alert you to this fact with obvious warning signs and graphics on the dashboard. Many EVs will also alert you to this or will have the ability to direct you to the nearest charging point.

If you do run out of electricity, then you should treat this like any other breakdown and call your breakdown number. The major breakdown recovery suppliers all now provide services for EVs in the same way as conventional vehicles and their mechanics are High Voltage Awareness trained.

Some recovery vehicles are equipped with a power pack, which will give an electric boost. However, it's perhaps more likely that you'll be taken to the nearest charging station or your destination. It's recommended that EVs are not towed as this can cause damage to the electric motors.

Is it safe to drive an EV through standing water?

Normal safety precautions should always be taken when driving through standing water, such as checking the depth with a stick or watching another car go through. If there are other cars ahead, then you should wait until they have left the water.

EVs, unlike petrol or diesel cars, don't have an air intake and so the propulsion system isn't impacted in the same way as an engine is when immersed in water.

Batteries, particularly high voltage ones, and water generally don't go well together. Lithium is also highly flammable when exposed to water.

However, in an EV, the high voltage battery and electrical systems, such as the traction motor and inverter, are fully sealed and waterproof so there's no additional safety risk of driving an EV through standing water compared to a petrol or diesel car.

Can I tow a caravan, horsebox or trailer in an EV?

Only some EVs have manufacturer-type approval for towing, so you should always check this together with your chosen EV's weight capacity prior to order.

In many ways, EVs are perfect for towing as they can produce maximum torque immediately, making it easier to pull away with a heavy load. The use of braking regeneration alongside conventional brakes means that an EV has greater ability and control to slow down with an additional load.

However, battery packs are very heavy, so EVs weigh much more than the equivalent petrol or diesel car, which significantly limits any potential towing weight capacity. The additional weight can also overload the electrical system during braking regeneration when slowing down or when driving down a steep hill.

For those that can tow, it's extremely important to recognise that towing will significantly affect the range of the vehicle in the same way that the fuel consumption on a petrol or diesel car will increase. The heavier/larger the load, the greater the impact on energy consumption.

STILL HAVE QUESTIONS?

For more information, please get in touch with your Sales Manager.

Arval UK Limited (Whitehill House, Windmill Hill, Swindon, SN5 6PE. Registration number 1073098. VAT Registration GB 202 1441 76) | Email: info@arval.co.uk | Telephone: 01793 887000

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