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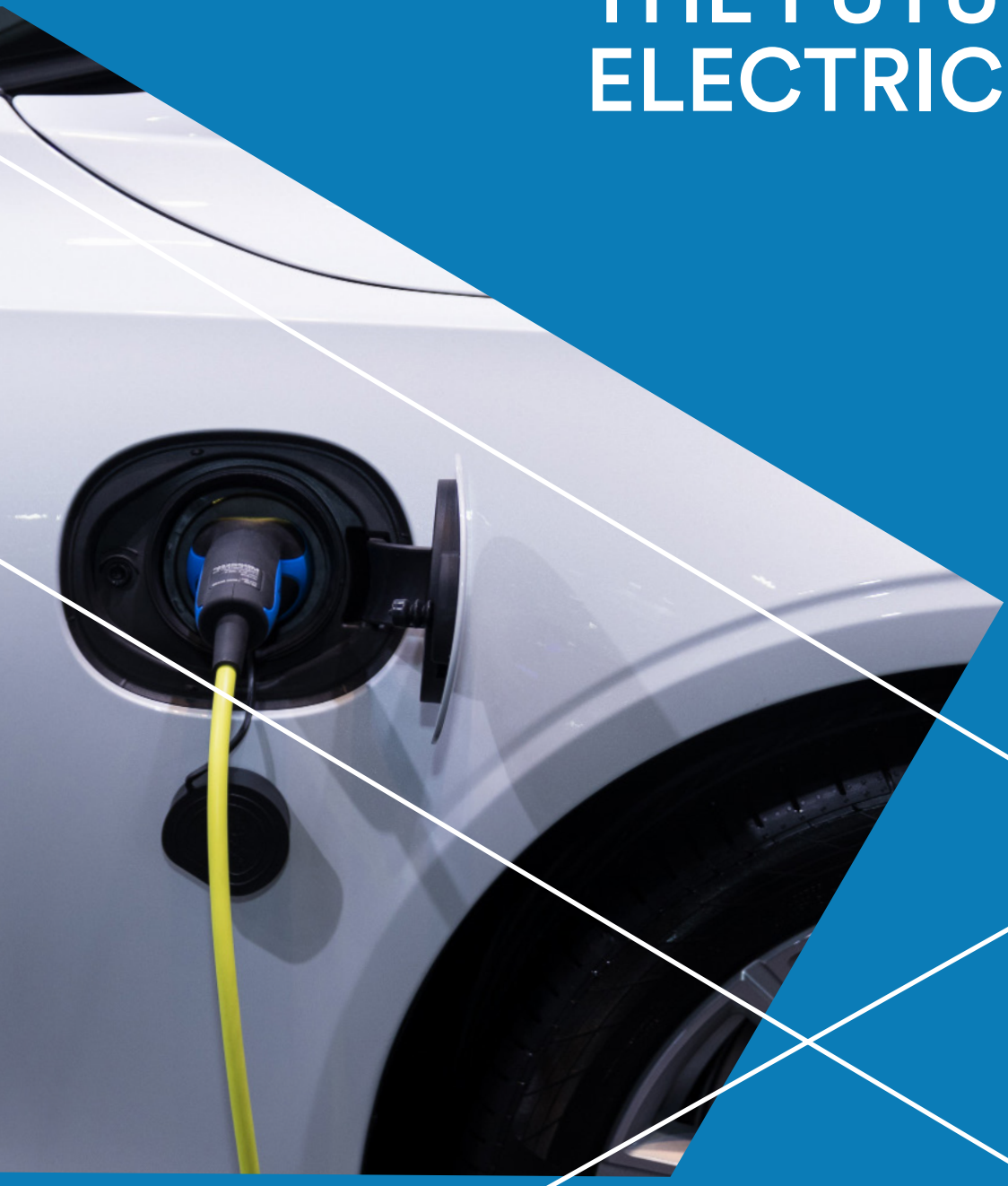
THEME OF THE MONTH
SEPTEMBER 2021

THE FUTURE OF ELECTRIC CARS



ELECTRIC CARS

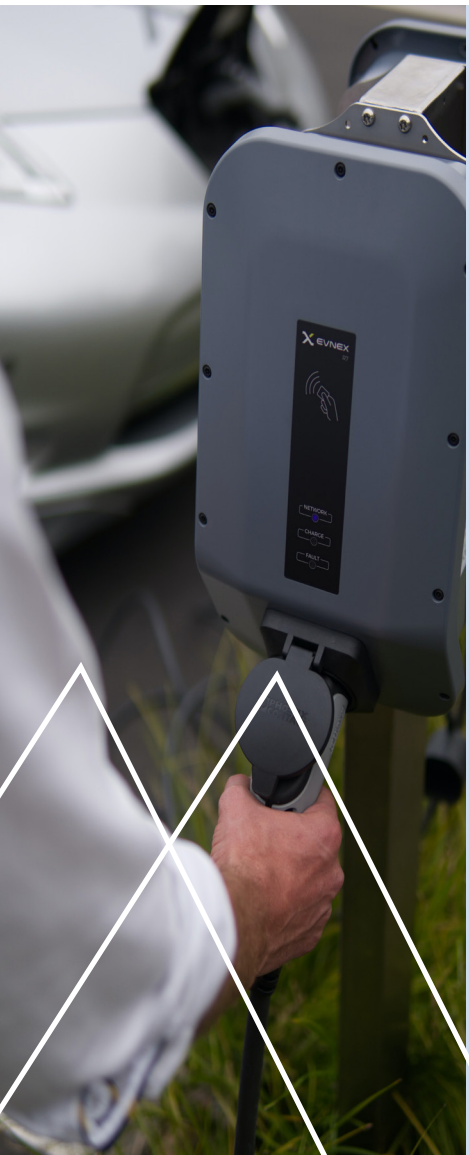
Electric cars are the future. With the rapid development in technology, designs becoming more eye-catching and the world becoming more environmentally conscious, a new era of electric vehicles has been born.

HOW DO ELECTRIC CARS WORK?

Electric vehicles have an on-board battery which gets charged through an electricity supply. The battery then stores and uses the energy to power an electric motor. This means that the car does not have a clutch, gearbox or exhaust pipe, making it much quieter and smoother to drive.

WHAT ARE THE BENEFITS OF ELECTRIC CARS?

One of the main reasons for buying an electric car is to protect the environment. Electric cars generate fewer emissions and are proven to be more efficient. Another benefit is that they offer lower operating costs, as a fully charged battery costs significantly less than a full tank of gas. Maintenance costs are also lower as electric cars have less moveable parts.



TYPES OF ELECTRIC CARS

There are generally three types of cars that are considered 'electric'.

1. **Conventional Hybrids** include cars like the Toyota Prius that requires a petrol tank but also has an electric motor powered by a battery that charges when the vehicle brakes.

2. **Plug-in Hybrids** cars which also have both petrol engines and electric motors but can be plugged-in to charge and can generally run for a short period on electric power before the battery is drained.

3. **Battery Electric Vehicles** which run only on electricity. Many major car manufacturers offer one of these, from traditional names like Renault to specialist manufacturers like Tesla.

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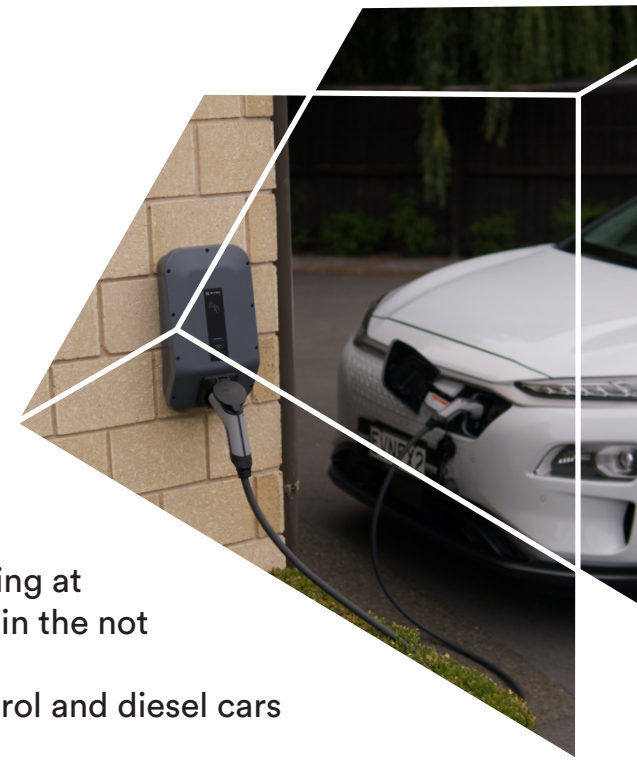


It is clear that we are nearing the future of electric vehicles. Over the next few years we expect to see the infrastructure, costs and speed of charging to improve dramatically. Driving an electric car will become the norm as the Government sets goals to phase out the sales of petrol and diesel cars.

- **In Germany**, the German government is actively looking at a complete move from diesel and gasoline to electric in the not too distant future.
- **France and the UK** already plan to ban all sales of petrol and diesel cars by 2040.
- **Denmark** now has more electric car charging docks than petrol stations.
- **Italy** has exempted electric vehicles from the annual circulation tax or ownership tax for five years from the date of their first registration.

HOW ARE ELECTRIC VEHICLES BETTER FOR THE ENVIRONMENT?

The pollution caused by internal combustion engines (conventional cars) isn't limited to the exhaust coming from their tailpipes. The process of extracting oil, refining it into fuel, and transporting it to gas stations also generates a large amount of air pollution. These emissions are known as well-to-wheel emissions or upstream emissions. Even though modern ICE manufacturers have lowered their CO2 emissions, the manufacturing process continues to have a negative impact on the environment.

The production of electric vehicle (EV) batteries also creates upstream emissions. In fact, the production process for EVs can be more taxing on the environment than that of ICEs. Still, EVs remain the cleanest option for transportation as their entire life cycle is much more sustainable overall. Due to their use of electricity as fuel, driving makes up for their higher manufacturing emissions. On average, an EV produces half of a conventional vehicle's carbon emissions over its lifetime, completely outperforming from a sustainability standpoint.

HOW TO CHARGE AN ELECTRIC CAR

Charging an electric car is different from filling up a petrol/diesel vehicle with fuel; electric car drivers plug-in whenever they park and return to a vehicle with a fuller battery than when they left it.

CHARGING AN ELECTRIC CAR AT HOME

As long as you have off-street parking, you can charge your electric car at home by having a dedicated home charger installed. This is usually the most convenient place to charge, particularly when you can plug-in overnight.

- A dedicated home charging point will give you the fastest possible charging speeds, typically between 10 and 30 miles of range per hour plugged in.
- It will have built-in safety features and, if it's Wi-Fi enabled, access to additional smart features like energy monitoring and over-the-air software updates.
- Most home chargers have a cable attached, which you typically just plug in to your vehicle to start charging.
- Home chargers are also available with a universal 'Type 2' socket that accepts a separate cable and plugs into your car in the same way.

Electric cars can also be plugged into a standard 3-pin plug at home, however it takes longer to charge and the sockets do not have the required safety features of a dedicated charger, therefore it is not considered best practice.

CHARGING AN ELECTRIC CAR AT WORK

It is highly convenient to charge at work as your car is often parked for an extended period during the day, just like being at home.

Many organisations are now installing charging stations for staff and visitors as a perk, for sustainability reasons or to facilitate the switch to an electric fleet.

- Workplace chargers typically offer the same charging speeds as home charging and normally have universal "Type 2" sockets, which means you will need to take your own cable to the units.
- Depending on your organisation's preference, your charge may be started by simply plugging in, as with a homecharger, or by using an RFID swipe card or an app on your smartphone.
- Very occasionally your workplace might install higher powered 50kW style rapid chargers, but given the cost, these would usually be installed for highly utilised, return to base fleet vehicles, rather than employee cars.

OTHER WAYS TO CHARGE

You can charge your car when parked in public locations, like at the supermarket, gym, cinema, retail parks or town-centre car parks. On long distance journeys you will also find high power rapid chargers at motorway service stations - this is known as en-route charging.

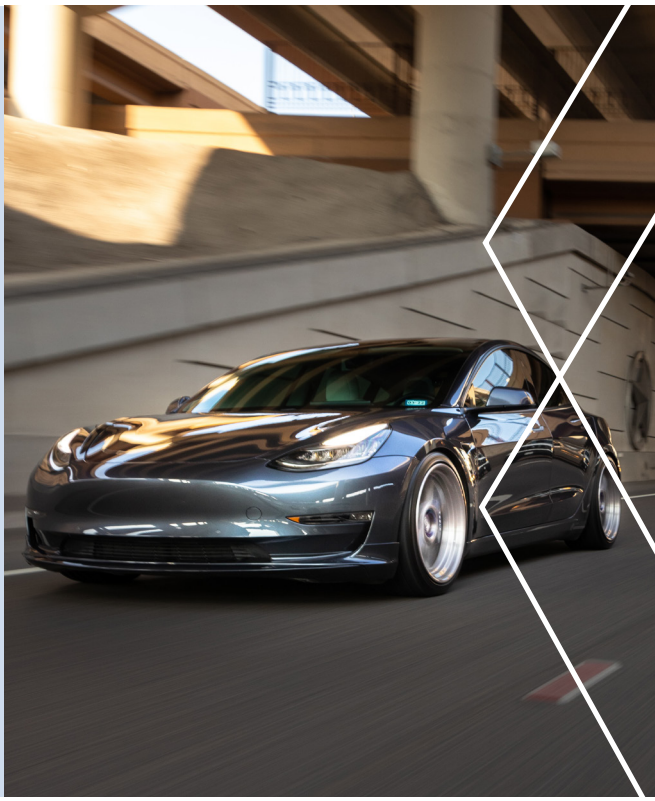
ELECTRIC CAR STATISTICS

The European countries with the most passenger electric vehicles as of July 2017.

1. Norway
2. UK
3. Germany
4. France
5. Sweden

The five best selling battery electric vehicles across Europe between January and March 2017:

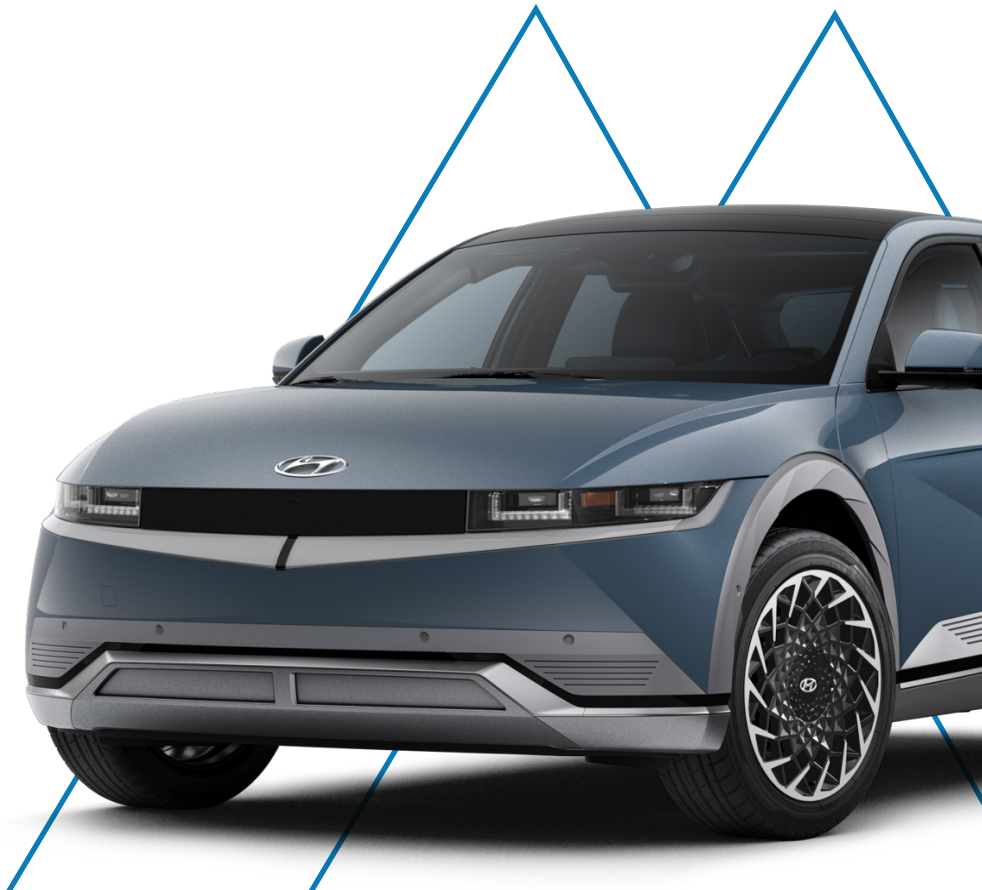
1. Renault Zoe
2. Nissan Leaf
3. BMW i3
4. Tesla Model S
5. Tesla Model X



BEST ELECTRIC CARS TO BUY IN 2021

Pressure is growing on UK motorists to ditch their petrol and diesel-powered vehicles and switch to pure-electric cars, but which are the best electric cars available to buy now on the UK car market? Below are some of the best, picked by Auto Express.

- Hyundai Ioniq 5
- Tesla Model 3
- Porsche Taycan
- Ford Mustang Mach-E
- Renault Zoe
- Tesla Model S
- Kia e-Niro
- Volkswagen ID.3
- Polestar 2
- Jaguar I-Pace



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