



Motor Guides:

Electric Vehicles - Charging Ahead



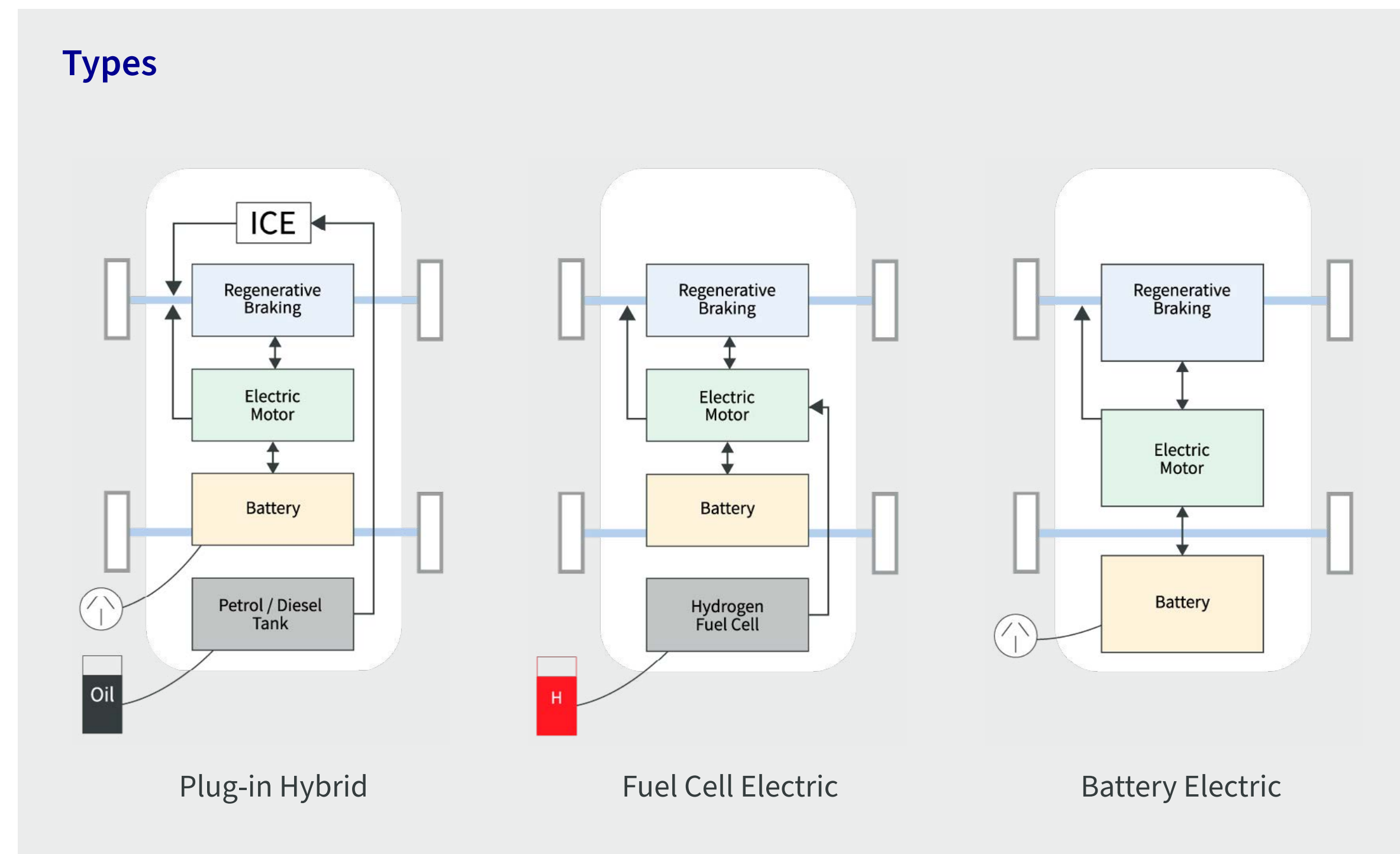
Electric Vehicles

The development of electric vehicle options within the fleet market is growing by the day.

The popularity of electric vehicles in the UK has increased over the last few years. In 2020 there were more than 164,000 pure-electric cars on the road, and over 373,600 plug-in cars, pure-electric vehicles & PHEV, compared with just 3,500 in 2013.

Demand for electric vans has also increased, from 1% in 2020 to 69% in 2021.

With electric vehicles becoming an increasingly viable option for fleet markets in the passenger car space, and even more so with vans, our quick reference guide gives you useful information if you're thinking about adding electric vehicles to your fleet.





Choice

For fleet purchases, the selection of electric vehicles raises many of the same questions that you'd consider for standard vehicles. But, you might want to include these to your list:

Firstly, is there access to a garage, drive or other off-street parking area? The electric vehicle can be safely charged overnight (the most commonly used recharging method).

A lack of off-street parking means that it would be necessary to trail an electric cable across pavements or other public areas, this is clearly not advisable. However, if on-street parking is the only option, government funding allows owners to apply for a public on-street charge point close to where they live. You'll also need to think about how you'll charge your vehicle. Why not charge it if you are at a location with this option, or a customer premises etc.

Secondly, the range of each full charge of an electric vehicle is quite broad, ranging from around 80 miles to over 350 miles. Also, the same battery, say a typical 40kwh one, may offer different ranges based on the vehicle type. A sporty vehicle may state 200 miles, but a SUV may state 300 miles. Be aware that the ranges offered are usually on the low side because that's the minimum vehicle manufacturers expect you could achieve.





Range

An electric vehicle's range is how far it can travel before recharging.

For a plug-in hybrid, the range is how far it can travel on battery power, before switching to the petrol engine, or very rarely the diesel engine. Battery technology is developing quickly and the driving range on new ultra-low emission vehicle models is increasing rapidly.

Typical ranges for the different vehicle types are:

- battery or pure electric vehicle: 100 to 370 miles, depending on the model
- plug-in hybrid: an electric-only range of 10 to 30 miles, and a total range of over 500 miles using the petrol or diesel engine
- range extended: around 150 miles on electric-only power, and a further 80 to 90 miles powered by electricity generated by the petrol or diesel engine

Ranges vary depending on:

- how efficiently you drive – anticipating the road ahead and making full use of regenerative braking increases range
- how you heat or cool the car (preconditioning) – heating or cooling the car while plugged-in and using heated seats, rather than heating the cabin, increases range
- how fast you drive – driving at high speeds reduces range
- the vehicle's payload – heavily loaded electric vehicles will have a shorter range





Charging

There are three main types of electric vehicle charging – rapid, fast, and slow. These represent the power outputs and therefore, charging speeds available to charge an electric vehicle. Power is measured in kilowatts (kW).

Each charger type has an associated set of connectors which are designed for low or high-power use, and for either AC or DC charging.

Rapid chargers are the fastest way to charge an electric vehicle. They're often found at motorway services or locations close to main routes. Rapid devices supply high power current to recharge a car as fast as possible.

Depending on the model, electric vehicles can be recharged to 80% in as little as 20 minutes, though an average new electric vehicle would take around an hour on a standard 50 kW rapid charge point. Power from a unit represents the maximum charging speed available, though the car will reduce charging speed as the battery gets closer to full charge. As such, times are quoted for a charge to 80%, after which the charging speed tails off significantly. This maximises charging efficiency and helps protect the battery.





Regenerative braking: what is it and how does it work?

Regenerative braking turns your car's kinetic energy into electricity, charging its battery and boosting efficiency.

When you step on your petrol or diesel car's brake pedal, hydraulic fluid pushes brake pads against brake discs or drums on each wheel. The resulting friction works to slow the car down, generating heat and wearing away at the material on the pads and discs in the process.

Regenerative braking is a way of taking the wasted energy from the process of slowing down a car and using it to recharge the car's batteries. On a nonelectric car, braking simply wastes energy but with regenerative braking, some of the energy can be reused. In hybrid and pure electric cars regenerative braking takes a more active and obvious role. In these models, brake regeneration can help charge the larger batteries that directly drive the car.

When this process kicks in, you can feel the car start to slow down. It's a different sensation in each car that has this function, because manufacturers can program-in how much regenerative braking occurs when you lift off the pedal. All cars still have normal brakes, so if you push the pedal hard enough then the hydraulic system will kick in to get you stopped quickly, depending on your speed. Again, different cars will have different amounts of force on the pedal needed to get the brakes to kick in.





What does regenerative braking feel like?

There are many cars with regenerative braking, and they all feel a little bit different to use.

In fact, in most electric cars you can even tailor the way it feels to your own preference. It's important to note that the settings and effectiveness of this system is different with the various models of vehicle available, so ensure you understand the options before trying them out.

If you want to harvest as much lost energy as possible you can set it to the maximum setting, or if you hate the sensation of the car braking itself, you can turn it off. In most cases the car's brake lights will come on if the car is slowing quickly, even if you're not even touching the brake pedal. Again, this will change with the speed at which you are slowing down, so don't think the brake lights are on every time you use regenerative braking.

The main point is that when used correctly, this can extend the range of the vehicle, by how much will be dependent on the settings you choose. If you accelerate and brake in your normal driving, this might not be for you, but with some slight changes to driving styles, range anxiety could be a thing of the past.

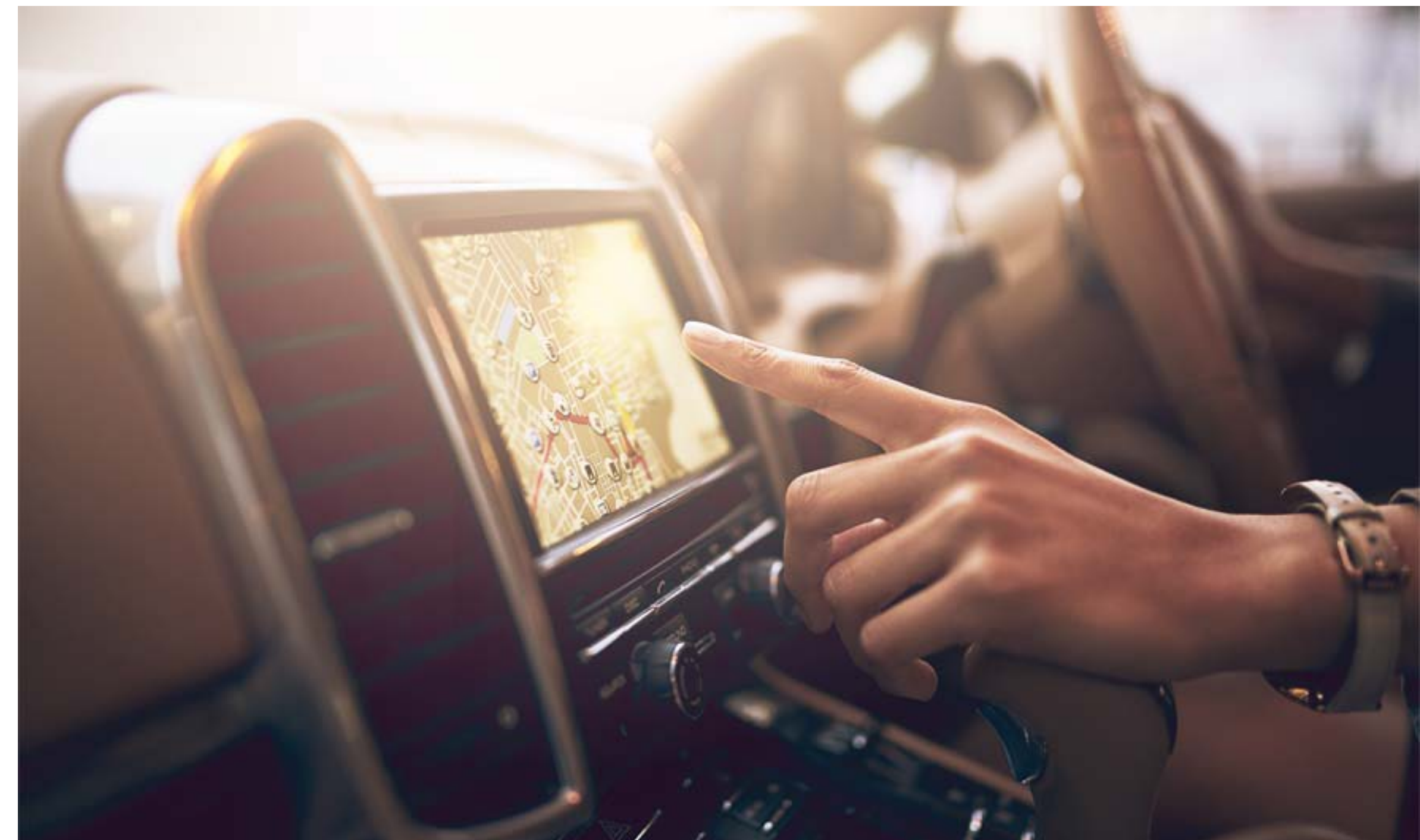




Journey planning

There are several options for journey planning, including some very intuitive apps, that include appropriate chargers for your vehicle. It's best to use a planner initially until you're familiar with the vehicle.

Most electric vehicles will have a on-board navigation service with most looking at your current range. If your predicted journey is above the mileage you have remaining in your vehicle battery, it should offer an alternative with charging options to ensure you get to your destination. Just be aware that the time for a full charge will vary but you don't always have to have a full charge, just 20% more than you need, and you can always stop twice.





Contacts

If you're interested in diversifying your motor fleet into the electric vehicle space, please get in touch with us.

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