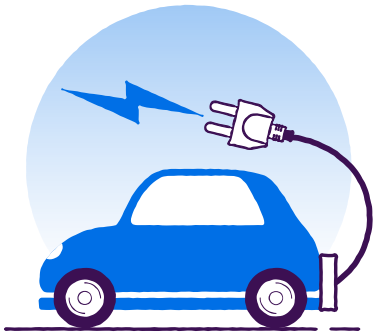
The benefits of BEVs and PHEVs

Lombard

Tomorrow Begins Today

If you're thinking of an electric vehicle, you generally have two options:



Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs).

But which one is best for you?
Let's start with working out what each of them provide:

BEVs

BEVs, or Battery Electric Vehicles, are seen as a 'pure electric vehicle' because they are powered purely by electricity and nothing else.

Instead of a traditional internal combustion engine (ICE), a BEV contains a large battery, which is charged by plugging it into the electrical grid. This battery then powers the vehicle's electric motor.

One of the major benefits of this setup is its cleanliness. BEVs produce no tailpipe emissions, so they are all classed as 'zero emission vehicles', or 'zero emission from the tailpipe' vehicles.

Not only is this better for the environment, it also entitles BEVs and their drivers to a range of money-saving incentives.

PHEVs

A PHEV has both an electric battery and an ICE, making it a hybrid vehicle.

However, unlike older hybrids, the electric battery is primarily charged by plugging it into the electrical grid. This means the PHEV can run entirely on the electric battery, entirely on the ICE, or by using both.

One of the major benefits of hybrid vehicles is their driving range. For a PHEV, they can travel considerable distances as they can rely on their petrol or diesel tank when their electric battery runs out of power, rather than having to stop to recharge.

But this fuel-flexibility comes at a cost. PHEVs are cleaner than traditional cars but their reliance on fossil fuels means they are not zero emission vehicles, like BEVs. This is why the Government are banning the sale of them from 2035, so that after this time, you will only be able to buy zero emission vehicles.

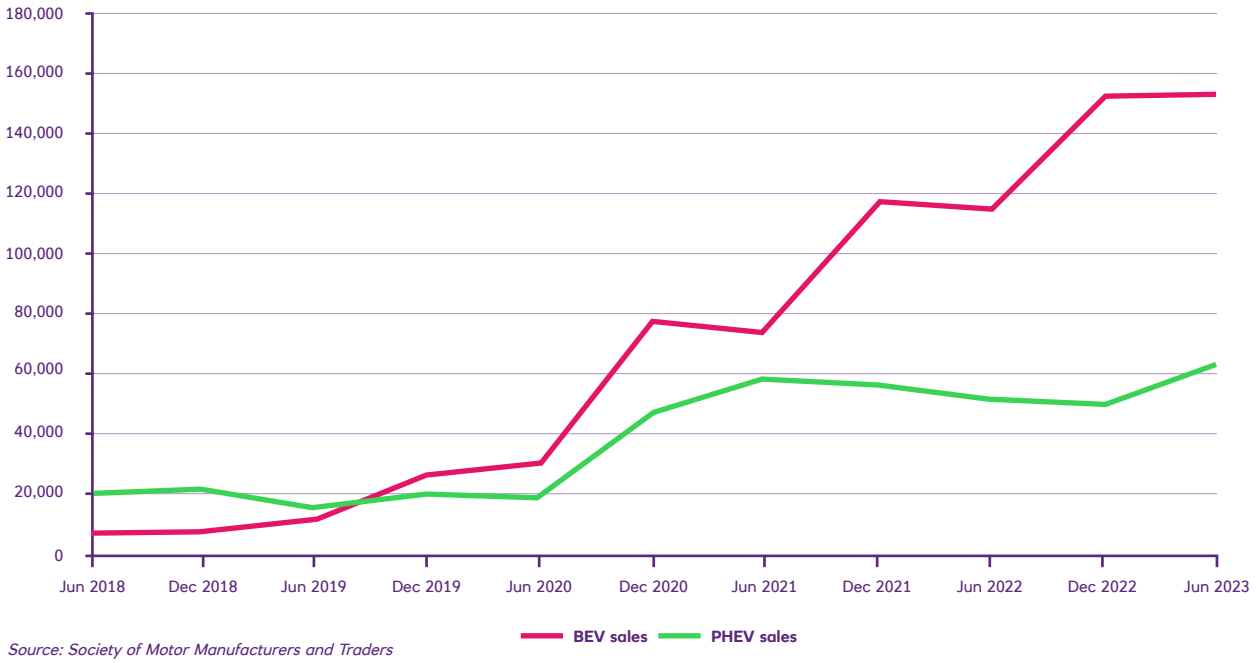
To give you an idea of how the powertrains work together, and how PHEVs are not zero emission we can look at one of the most popular models of PHEV; the BMW 3 Series.

The BMW 3 Series can travel nearly 40 miles powered by electricity and without emissions before it needs to be charged again. However, when using its ICE, it is considered to emit about 39g CO_2/km on average.

Registrations of BEVs and PHEVs

There's no doubt that both BEVs and PHEVs have become more popular.

The annual total of BEV registrations rose by more than 1,600% over the past five years. The total for PHEVs is 140%.



Source: Society of Motor Manufacturers and Traders

BEV and PHEV registrations

During that time, there has been an eye-catching shift: more BEVs are now being sold than PHEVs.

This is likely because people recognise BEVs' environmental and cost benefits, as well as the increasing convenience of pure electric motoring, and the Government push towards zero emission vehicles.

What's more, the growth of BEVs and PHEVs is at the cost of petrol and diesel cars.

The number of annual petrol registrations has fallen by more than 50% over the past five years while diesel registrations have fallen by 89%.

Of course, both diesel and petrol still account for most of the marketplace. But this is already changing, and is likely to change faster now that the Government has announced the end of new petrol and diesel sales by 2035.

Savings and costs

We encourage all our customers to focus on Total Cost of Ownership (TCO) – that is, the money spent and saved over a vehicle's full working life.

When considered from a TCO perspective, both BEVs and PHEVs can make a lot of sense for fleets.

While forecourt prices for a BEV or PHEV are higher than their fossil-fuelled counterpart, you save in other areas like maintenance and fuel.

For example, electricity is much cheaper than either petrol or diesel. According to EDF, it costs £8.50 to travel 100 miles on electricity, while it costs about £12 for petrol. Given that some charge points offer free electricity, the savings could be even greater.

Because they are fully electric, BEVs will benefit from these savings more than PHEVs – but PHEVs will also benefit with the electric part of their fuel mix.

There are grants available for installing charge points at home or at work.

Although the **Electric Vehicle Homecharge Scheme (EVHS)** came to an end on 31 March 2022 for homeowners, it has been replaced by the **EV Chargepoint Grant**.

This grant provides funding of up to 75% towards the cost of installing electric vehicle smart chargepoints at domestic properties across the UK, and is available to landlords, flat owner-occupiers or people living in rented accommodation.

The Workplace Charging Scheme (WCS) offers vouchers worth £350 for each of the first 40 charge points installed by an employer. At the moment there are no plans for this to end.

100% First-Year Allowance (FYA) applies for businesses installing charge points, and is currently scheduled to continue until 31 March 2025 for Corporation Tax purposes and 5 April 2025 for Income Tax purposes.

Capital allowances

The First Year Allowance isn't restricted to charge points.

In the 2020 Budget, the Government announced that they would extend the 100% First Year Allowance until March 2025 for zero emission cars and zero emission goods vehicles.

1. **First Year Allowances (FYA's):** 100% FYA's for zero emission cars, zero emission goods vehicles and equipment for gas refuelling stations.

2. **Writing Down Allowances (WDA's):** cars are grouped into pools depending on which rate they qualify for:
   - Main Rate Allowance 18% – cars with emissions between 1g/km and 50g/km
   - Special Rate Allowance 6% – cars with CO_2 emissions 51g/km+

The table below shows the WDA allowance as a percentage based on the official CO_2 g/km figure for the vehicle in the pool:

	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026
100% First Year Allowance	50 or below	0 or below	0 or below	0 or below	0 or below
18% WDA - Main Pool	51 to 110	1 to 50	1 to 50	1 to 50	1 to 50
6% WDA - Special Pool	Above 110	Above 50	Above 50	Above 50	Above 50

Super deduction: between 1 April 2021 and 31 March 2023, companies investigating in qualifying new plant and machinery will benefit from new first year capital allowances. Under this measure a company will be allowed to claim:

a. A super-deduction providing allowances of 130% on most new plant and machinery investments that ordinarily qualify for 18% main rate writing down allowances.

b. A first year allowance of 50% on most new plant and machinery in investments that ordinarily qualify for 6% special rate writing down allowances.

NB: The 130% relief can be claimed against the new equipment, including vans and trucks, but only if the company is a limited company using a funding method that means they obtain outright ownership at the end.

Other considerations

BEVs and PHEVs are also on the right side of various measures being introduced by local politicians around the country.

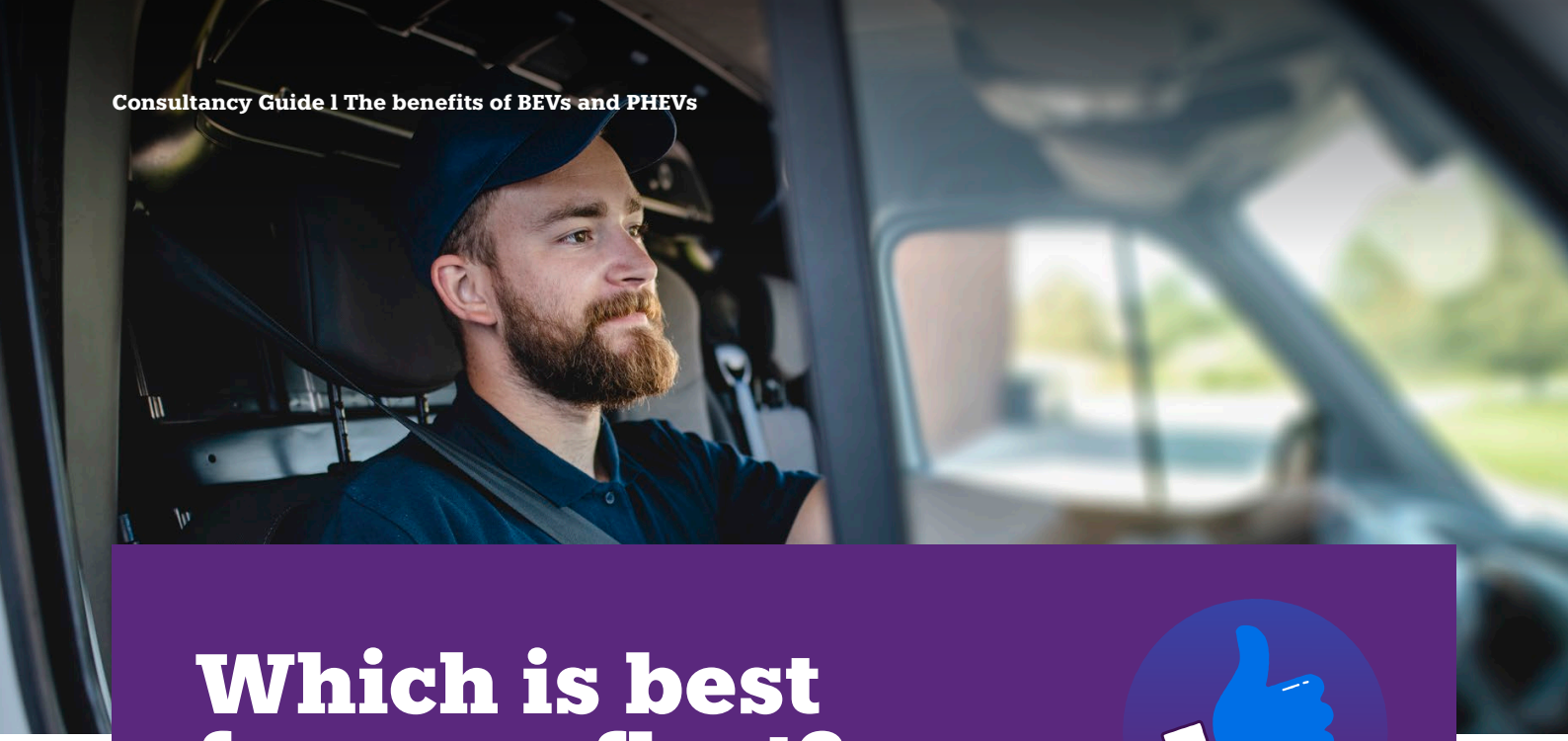
For example, there is a 'cleaner vehicle discount' in London – which means that BEVs or hydrogen fuel cell vehicles are exempt from the city's Congestion Charge.

With improved (and constantly improving) battery technology in electric cars, range anxiety should now mostly be a thing of the past. A real-world range of 200 to 250 miles is now pretty standard, while some new models of electric vehicle, such as the Tesla Model 3 Long-Range, can go up to or even beyond 300 miles. This is more than enough for most purposes, particularly given that the average car journey is **about 8 miles long**.

Range anxiety can also be lessened by the fact that the public charging network is steadily growing. There are now **over 45,000 charge points** on the national road network, a 314% increase over the past five years. What's more, nearly 9,000 of these charge points are either rapid or ultra-rapid chargers, which are able to bring a car to four-fifths charge in 25 to 40 minutes – or quicker. Plus, there's a lot more expected in coming years.

While charge points may not be as prevalent as we would like across the UK, even Scotland are installing more. In fact, the amount of charge points Scotland has is now second to London with 72 devices for every 100,000. In comparison, London has 145 per 100,000 people, and the UK average is 60 per 100,000 people. Still, some drivers who make frequent long trips, whether through those areas or not, may feel more secure having the back-up of a petrol engine, as offered by a PHEV. A typical PHEV can travel about 30 miles on just electric power, but might add another 300 miles on petrol – and there's usually the option of filling up at a petrol station.

Another consideration is maintenance and repair. Because electric vehicles have fewer moving parts they have lower maintenance and repair bills than their ICE equivalents. In fact, **a recent US study** found that the lifetime maintenance and repair bills for BEVs are PHEVs are practically identical and half the size of those for ICE vehicles.



Which is best for your fleet?

There is no one-size-fits-all approach. Different fleets and different drivers will have different requirements.

However, there are some general principles you should stick to when adding BEVs and PHEVs to your vehicle mix:

- **Your organisation's needs:**
  Do you have specific carbon targets? Or participate in energy assessment schemes? The difference between no-emission BEVs and low-emission PHEVs could be crucial.
- **Your drivers' needs:**
  Do they or could they have ready access to charge points, perhaps at home or work? If so, then either a BEV or PHEV could be right for them. Do they only make relatively short journeys? Again, that might strengthen the case for either a BEV or a PHEV. Finally, will they be making long journeys through rural areas? That could mean a PHEV is better for their needs.
- **Include drivers in the process:**
  Some might be concerned about making the leap to electric, so a hybrid might be a happy middle point. Many will need educating about the potential of electric vehicles, and training in the actual use of them.

We must all travel along the Road to Zero together.

Final thoughts

BEVs are powered entirely by electricity and are charged by being plugged into the grid. They are zero emission vehicles.

PHEVs combine a traditional ICE with an electric motor. The electric motor is also charged by plugging it into the grid. They are zero emission when they are using their electric battery, but emit CO_2 while using their ICE.

Both **BEVs and PHEVs** save money on fuel, maintenance and repair – in most cases, more than compensating for their higher sticker prices.

BEVs and PHEVs also benefit from a number of government incentives, including the EV Chargepoint Grant.

While range anxiety should be a thing of the past, drivers with longer or rural journeys may prefer **PHEVs.**

Keep in mind your business' environmental targets, your drivers' access to charge points and your drivers' confidence in electric motoring, and work to their level or support them with education.

If you would like to talk more about electric motoring – BEVs, PHEVs and beyond – why not give one of our Lombard Vehicle Solutions (LVS) staff a call.

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