PESTLE
Report 2022

FUTURE MOBILITY INSIGHTS

Lombard

INTRODUCTION

The past two years have delivered unprecedented change. The global pandemic has either accelerated or created fundamental changes in the ways we do business, travel, and socialise. Even now, with the country opening up again, we're left with the long after-effects, like broken supply chains and delayed production schedules.

In the automotive sector, in particular, there's more change due in the years ahead. In fact, we're only part way through one of the biggest changes in motoring history: the shift from the internal combustion engine to electric power. In a few years – and they will be short years for many businesses – the Government will end the sale of new, conventional petrol and diesel cars in the UK. Electric won't just be an alternative; it will be the key element in our transport mix.

Here at Lombard Vehicle Solutions (LVS), we're optimistic about this development. We know that it will help with a bigger cause: the fight against climate change. We also know that many fleets and motorists are embracing the challenge.

Yet we're also aware that any period of change is difficult. It throws up constant questions and demands new solutions. In the past few years, we've collectively had to grapple with dozens of new policies, regulations and technologies along the Road to Zero, from Clean Air Zones to new bands of Company Car Tax, from plug-in vehicle grants to the COP26 declarations.

Which is why we're publishing this report, to provide a comprehensive analysis of the key factors influencing corporate mobility now and tomorrow. The report looks at six key areas: Politics, Economics, Social, Technology, Legislation, and the Environment (a PESTLE analysis). We hope it offers you a fixed point in a changing landscape, assists you in reaching key mobility policy decisions, and demonstrates the importance of approaching the future with a clear strategy.

Please do let us know what you think of this report. We intend to update its contents in the future, so your feedback will shape what we publish and how we deliver it.

Please don't hesitate to get in touch with us at LVS. The shift to electric is nothing new to us; we've been helping our customers with it for years. We're here to help you, too.

Mark Evans
Head of Consultancy
Business Intelligence and Consultancy

Contents

1. POLITICS

1.1 The pandemic

- The past two years has been defined by a singular event: the COVID-19 pandemic that spread around the world. Across the UK, a series of lockdowns has changed the way we all work, travel and socialise. The human toll has been significant, as has the economic one (see Section 2.1. below).
- Overall, in 2021, the situation improved dramatically in the UK – in large part because of the development and then introduction of vaccines.
  Over 55 million people have now received their second dose under the UK's vaccination programme, with over 19 million having also received a booster or third dose.
- This has, in turn, led to a general easing of social and business restrictions, as well as the winding down of many of the Government's multi-billion pound coronavirus support measures. For example, the Coronavirus Job Retention Scheme – commonly known as the furlough scheme – ended on 30 September 2021.
- However, it should be emphasised that the pandemic is not over. This is true in an epidemiological sense: over 1.2 million new cases were reported in the UK in November 2021, as well as almost 16 million around the world – and these numbers rising sharply due to the high transmissibility of the Omicron variant.
- It is also true in an economic sense: many jobs have been lost during the pandemic, and numerous supply chains severed. For example, and due in large part to the shortage of semiconductors, it is thought that the production of electric vehicles will continue to be affected throughout 2022.
- The limited ability to acquire new vehicles caused, and is still causing, fleets to hold on to older vehicles longer, making expensive repairs they may have not found worthwhile pre-pandemic.
- COVID-19 has also had an impact on mileage — both increasing it in certain cases and decreasing it in others. For example, before COVID-19, company drivers made frequent trips to visit customers and prospects, but now phone calls and virtual meetings continue to replace in-person visits. As a result, some drivers simply aren't completing the miles like they used to. Delivery drivers faced the opposite problem, with the number of stops - and miles - per day increasing at unprecedented rates.
- Fluctuations in mileage, whether less or more per vehicle, has an impact on maintenance. For vehicles that previously relied on mileage as the marker for servicing, traveling fewer miles than usual can be problematic for maintenance schedules. Equally, for those drivers whose mileage increased during the pandemic the additional mileage increases maintenance costs.

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Remote working

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The pandemic forced many people to work remotely from home, but the end of the pandemic won't see everyone rush back to their offices and other workplaces. Many companies are now shifting permanently to 'hybrid' working models, with some work done on site and some remotely. This will, of course, have ramifications for corporate mobility. The jobs that required vehicles before will still require them, but other solutions might be better for some employees.
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Tash Turner
Fleet Consultant

1. POLITICS

1.2 Brexit

- The UK's departure from the European Union on 31 January 2020 triggered a transition period lasting until 31 December of the same year. During that transition period, the two sides negotiated their future relationship – particularly on the issue of trade.
- Close to the end of the transition period, and despite fears that UK and EU negotiators were at an impasse, a trade agreement was reached, thereby avoiding a no-deal Brexit. This was a positive outcome, not least because a no-deal Brexit would have seen the UK's trading relationship with the EU defaulting to World Trade Organisation (WTO) terms – and imposing a 10% import tariff on cars. Such a tariff would have increased costs for the entire automotive sector, including motorists.
- As it is, under the terms of the agreement that was reached, there is no blanket tariff: vehicles qualify for tariff-free trade. However, it's important to highlight that word – qualify. The trade agreement also sets out "preferential" rules of origin, which mean that certain goods, including some vehicles and vehicle parts, will only avoid tariffs if a percentage of their components originate in the UK or the EU. For example, electric vehicles are expected to be at least 40% UK or EU in origin to qualify for tariff-free trade. This proportion is rising, in stages, to 55% in 2027 – a phased approach designed to give manufacturers more time to adjust to the new rules.
- Failure to meet these preferential rules of origin could mean that manufacturers end up paying tariffs, with the expectation that costs will be passed on to consumers. But even if the rules are met, there is likely to be a high administrative burden when working out each part's origin.
- There are other potential ramifications from Brexit that have been obscured by the pandemic and its effect on global trade. We should have more clarity over the next several months.

1. POLITICS

1.3 Transport issues

- In the three years he has occupied the role, Grant Shapps' main priority as Secretary of State for Transport has been the Road to Zero – as exemplified by bringing forward the end of sales of new fossil-fuelled cars and vans from 2040 to 2030 (see Section 6.2.).
- This effort led to the publication of the *Decarbonising Transport* report (see Section 6.3.). This sets out various measures to help achieve that 2030 date.
- But the Transport Secretary has also inherited a number of big, incomplete projects from his predecessors, and these remain major areas of focus. These include HS2, Crossrail, and the renovation of the country's strategic road network.
- Indeed, in November 2021, the Government published its new Integrated Rail Plan, which received a mixed reception. This involved the scrapping of the "Eastern leg" of HS2 – which would have joined Leeds to the rest of the line – and changes to other regional rail proposals.

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2. ECONOMICS

2.1 Economic growth

- The pandemic has, of course, had a shuddering effect on the economy. Lockdowns have curtailed economic activity and, even where that activity could continue, businesses and consumers have had to adjust to new ways of working.
- This effect was most noticeable during the first national lockdown, which began at the end of March 2020 and started to unwind in May and June of that year. Across that time, in Q2 2020, economic growth declined by 19.6% – the largest quarterly contraction on record.
- After the first lockdown came to an end, and businesses not only reopened but started adjusting to the parameters of the pandemic, the economy grew sharply. In Q3 2020, the economy grew by 17.4% – the largest quarterly increase on record.
- However, with the economy struggling to pick up much pace in the quarters since, the output lost during the first lockdown is only just being recovered. As the indexed line in figure 1 shows, the economy in Q2 2021 was around 3% smaller than it had been before the pandemic.

GDP growth, seasonally adjusted ■ Quarter-on quarter ■ Indexed time series

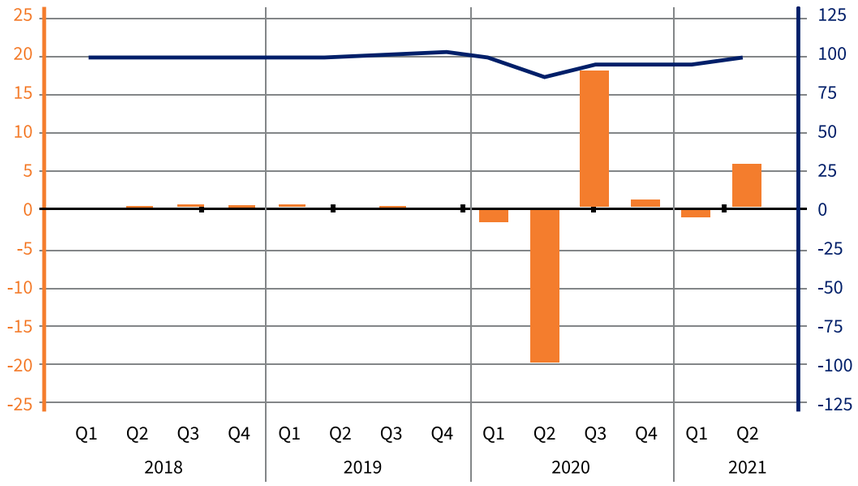

figure 1. Source: Department for Business, Energy & Industrial Strategy

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2. ECONOMICS

2.2 Fuel prices and inflation

- Fuel prices plummeted during early months of the pandemic: the cost of a litre of petrol fell by almost 17% between the start of 2020 and the last week of May that year, while there was a 15% fall for diesel. This reflected reduced demand for fuel as road traffic declined during the first lockdown.
- However, that demand has gradually returned – and at a time when the price of oil, the major constituent element of road fuel, has been rising. Since November 2020, the price of a litre of petrol has increased by 27%, while the equivalent figure for diesel is 25%.
- The cost of petrol at the start of November 2021 (144 pence per litre) was the highest it has been on record. The cost of diesel (147 pence per litre) was at its highest since 2012.
- The Government announced in their Spring Statement that they will be reducing Fuel Duty by 5p to offset the increasing diesel and petrol prices.
- What's more, thanks in large part to the supply issues brought on by the pandemic, there is general concern about prices and the cost of living. The Government's independent forecasting arm, the Office for Budget Responsibility (OBR), anticipates that the main measure of inflation, the Consumer Price Index (CPI), will rise by an average of 4% in 2022, which is twice the level targeted by the Bank of England.
- However, the OBR also expects that inflation will reduce to 2.6% in 2023, and that the growth in people's average earnings will mostly keep pace with these rising costs.

Weekly road fuel prices, pence per litre

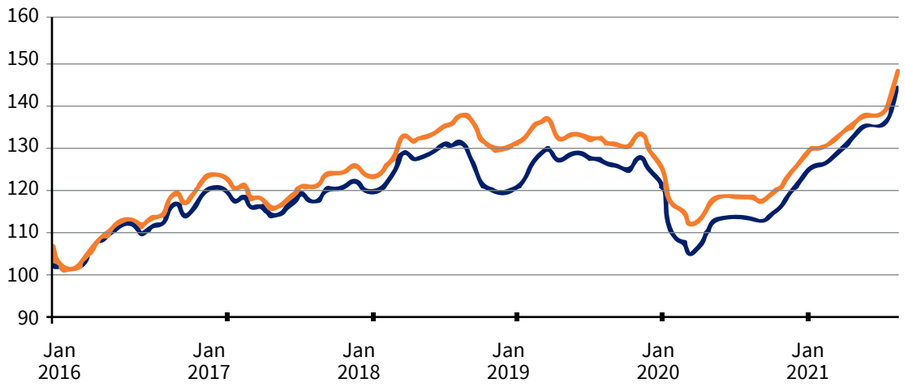

figure 2. Source: Department for Business, Energy & Industrial Strategy

2. ECONOMICS

What the energy crisis means for electric vehicles

The words “energy crisis” appeared frequently in the headlines in 2021. They refer to a number of factors – in particular, a sharp increase in wholesale gas prices – that are putting pressure on energy suppliers and pushing up prices for consumers.

This is reflected by the energy price cap set by Ofgem, the sector regulator in Britain. This cap, which was first introduced in 2019, applies to the “standard variable tariffs” offered by energy suppliers. It stood at £1,042 (per year) over the winter of 2021-22, but, as a result of market forces, this has since risen to £1,277 – its highest ever level.

Most of the major suppliers have increased their standard variable tariffs, to just under the level of the cap, as a result. But even fixed-price tariffs have been increased – and, in many cases, are now higher than the level of the cap.

What does this mean for electric vehicle charging costs? Specific answers, of course, depend on numerous variables, including the type of vehicle, the way in which it is used, and the charging solution.

But, at a time of rising energy tariffs, it is generally true that those who pay directly for the electricity used to charge an EV – whether that’s a business or an individual charging at home – will face rising bills. What’s more, there is additional upwards pressure on bills because energy companies have withdrawn some of their special tariffs for EV owners.

When the average price of electricity was 17.2p per kilowatt-hour (kWh), the energy company EDF wrote that “if you assume an electric car will travel 3.5 miles per kWh on average, to travel 100 miles would cost around £5 or £4.91p”.

According to Department for Business, Energy & Industrial Strategy’s data, the average price of electricity has since risen to 28p per kWh. Using this number and EDF’s example would yield an outcome of £8 for 100 miles of travel.

However, it is important to note that this is still considerably cheaper than fossil-fuelled road travel – especially at a time of rising petrol and diesel prices (see Section 2.2). In fact, 100 miles in a petrol car is likely to be at least twice as expensive.

Ofgem’s energy price cap

figure 3. Source: Ofgem

2. ECONOMICS

2.3 Car registrations

- There is a pattern emerging with most of our metrics: they decline rapidly during the early months of the pandemic. This is also true of car registrations. In the 12 months to June 2020, 1.7 million new cars were registered – over 600,000 fewer than a year before.
- However, in the case of car registrations, the decline during the pandemic – while sudden – was also part of a longer trend. Annual totals have mostly fallen since the record numbers achieved in 2017.
- There has been some recovery since the start of the pandemic. In the 12 months to June 2021, almost 1.9 million new cars were registered – almost 200,000 more than a year before. However, the totals have started dipping in the months since.
- There have been tremendous gains in one area in particular: alternatively fuelled vehicles, which are mostly plug-in hybrid and battery electric vehicles. Their registrations have gone from 175,000 in the 12 months to October 2019, to 251,000 in October 2020, to 430,000 in October 2021. Their market share, at 25.7%, is now more than twice that of diesel.
- Who is buying these vehicles? In the year to October 2021, fleets accounted for over half – 51.6% – of all new car sales, compared to 46.4% for private buyers and 2.0% for business buyers.

Car registrations: 12-month rolling

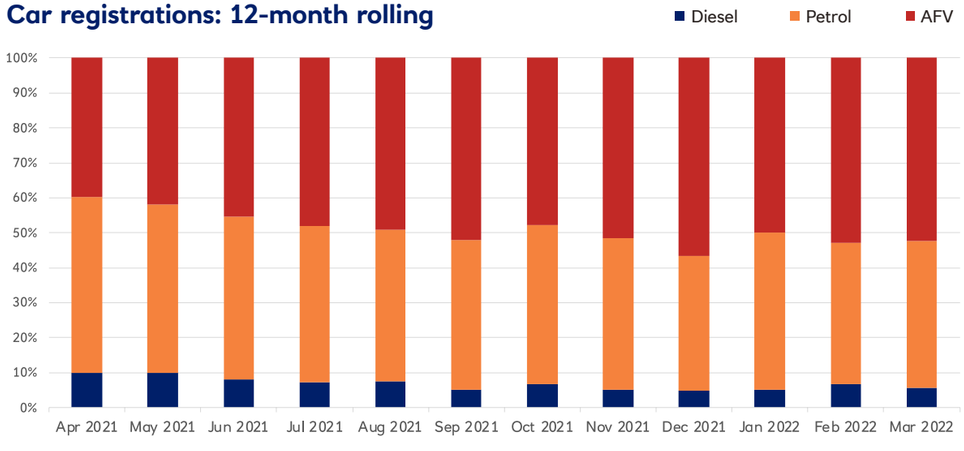

figure 4. Source: SMMT

2.4 Van registrations

- A similar story holds for van registrations: the numbers plummeted during the early months of the pandemic. In the 12 months to June 2020, a total of 278,000 new vans were registered – 105,000 fewer than a year before.
- However, there are some differences. Thanks in part to increased demand for home deliveries, van registrations have already recovered to their pre-pandemic highs. In the 12 months to October 2021, around 350,000 new vans were registered – 60,000 more than a year before.
- While the market share of alternatively fuelled vans has been steadily increasing, they still only account for a small proportion of total sales (2.8% in the year to October 2021). The market remains dominated by diesel.

Van registrations, 12-month rolling totals

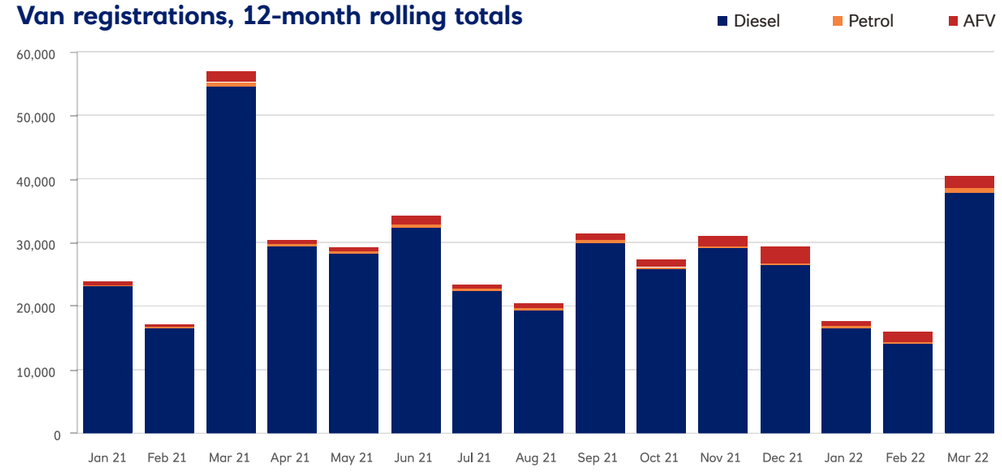

figure 5. Source: SMMT

3. SOCIAL

3.1 Speed limits

- The Welsh Government is moving ahead with plans to impose a 20mph speed limit on all residential roads, down from 30mph. Eight pilot areas have been confirmed, ahead of a potential national roll-out in 2023.
- Wales has generally lagged behind the other nations of the UK in introducing 20mph limits over the past few years. However, its proposed blanket approach is different from the patchwork approach that's followed in England and Scotland – where individual councils are encouraged to set their own policy.

3.2 Green cards and the EU

- In July 2021, the European Commission confirmed that UK motorists will no longer need to apply for a green card to drive their vehicle within the EU.
- A green card is a document that indicates a driver has valid motor insurance in place for their vehicle. As part of the Brexit process, it had been thought that they would always be required for motoring on the continent.
- This concession by the EU is significant for all Europe-bound drivers, but perhaps especially for hauliers – who otherwise would have had to apply for green cards multiple times a year.

3.3 Mobile phones

- Since 2003, it has been illegal to use a handheld phone – i.e. not a handsfree device – while driving. However, a legal case in 2019 exposed a loophole in the existing legislation: it technically didn't prevent motorists from using handheld phones to do things other than calling, such as taking a photograph or playing a game, while behind the wheel.
- The law changed in March 2022 so that any use of a handheld phone while driving will result in a minimum of six penalty points and a £200 fine. This has also been added to the Highway Code.

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3. SOCIAL

3.4 Micromobility

- Micromobility devices – such as electric scooters (e-scooters) – could help to solve the urban transport challenge of poor air quality stemming from increased congestion. However, private devices are currently banned from UK roads and pavements.
- According to the consultancy Berg Insight, the number of e-scooters available around the world as part of "scootersharing" schemes is likely to increase from 774,000 at the end of 2019 to 4.6 million in 2024.
- To investigate the potential of such schemes – and to work out the legal practicalities around the use of these vehicles – the UK Government announced in September 2020 that e-scooters would be trialled in 50 cities around the country. Many of those trials have now begun, and were expected to end in August 2021.
- However, ministers have now said that the trials will continue until March 2022, with the knock-on effect that legislation for governing scootersharing schemes may not be introduced until 2023.

3.5 Highway code

- Updated Highway Code laws came into force on 29 January 2022. It affects driver priority, pedestrian and cyclist rights of way, mobile phone use behind the wheel and broader use of fines for poor or dangerous driving. The biggest notable change—likely coming into play in anticipation of Autonomous Vehicles (AVs) — in the law will require 'those who can do the greatest harm to others to have a higher level of responsibility to reduce the danger'.
- This "Hierarchy of Road Users", known as Rule H1, is a concept that places those road users most at risk in the event of a collision at the top of the hierarchy. This doesn't remove people's responsibility when using the road, but does mean that pedestrians, horse riders and cyclists are prioritised on the road above vehicles.
- This means that the rules have changed so that drivers no longer have priority at junctions, all traffic must stop for pedestrians at crossings and cyclists can ride wherever they feel most comfortable, with drivers needing to give them a safe amount of space (the same as if overtaking another vehicle) when passing.
- There was also an amendment, as talked of in 3.3, that make any mobile phone use (with limited exceptions) banned while being in the driver seat - whether the motor is running or not.

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4. TECHNOLOGY

4.1 Autonomous vehicles

- SAE International, a global leader in technical learning for the mobility industry, has set out six levels of driving automation, from Level 0 (the lowest level of automation, including features such as automatic emergency braking) to Level 5 (what we would imagine as full automation).
- After a period of consultation, the Government has announced that they intend to allow a Level 2/Level 3 technology on UK roads in 2022. This technology is built into some modern cars and is known as an Automatic Lane-Keeping System (ALKS) – it can effectively control the car when driving at low speeds in single lanes.
- Under the Government's directives, the ALKS speed would be limited to 37mph, and the driver would not have to have their hands on the wheel while the technology is operating. However, the driver will have to remain alert and take over within 10 seconds if warned by the system.
- The transport minister Rachel Maclean has described this measure as "a major step for the safe use of self-driving vehicles in the UK" – although some observers, such as the Association of British Insurers, dispute the use of the phrase "self-driving", believing that this could encourage motorists to take not just their hands off the wheel, but also their minds off the drive. They prefer the term "assisted driving".
- In the meantime, work continues on developing the regulatory framework for higher levels of automation. On behalf of the Government, the Law Commission is currently reviewing driving legislation to better accommodate autonomous vehicles, with their final recommendations due soon.

Six levels of driving automation as defined by SAE International:

Level 0:
No driving automation. "The performance by the driver of the entire dynamic driving task (DDT), even when enhanced by active safety systems."

Level 1:

Specific execution by a driving automation system (ADS) of either lateral or the longitudinal vehicle motion control substack of the DDT (but not both simultaneously) with the expectation that the driver performs the remainder of the DDT."

Level 2:
Partial driving automation. "The sustained and ODD-specific execution by an ADS of both the lateral and longitudinal vehicle motion control subtasks of the DDT with the expectation that the driver completes the object and event detection and response (OEDR) subtask and supervises the driving automation system."

Level 3:
Conditional driving automation. "The sustained and ODD-specific performance by an ADS of the entire DDT with the expectation that the DDT fallback-ready user is receptive to ADS-issued requests to intervene, as well as to DDT performance-relevant system failures in other vehicle systems, and will respond appropriately."

Level 4:
High driving automation. "The sustained and ODD-specific performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will need to intervene."

Level 5:
Full driving automation. "The sustained and unconditional (i.e., not ODD-specific) performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will need to intervene."

4. TECHNOLOGY

4.2 Speed limiters

- Intelligent speed assistance (ISA) is a system that, through GPS and cameras, recognises the speed limit in an area and works to slow down the vehicle if that limit is being exceeded, though the driver can override the system by pressing firmly on the accelerator.
- Under European Commission legislation, ISA will be required in all new types of vehicle from 6 July 2022, then all new vehicles from 7 July 2024. It's expected that, even after Brexit, the UK will match this policy.

4.3 Battery technology

- Spurred on by the growth of electric motoring, there have been numerous innovations in battery technology over the past two years. These include the "4680 cell" that's expected to power future models of Tesla, and which has been indicated to have five times the storage capacity of the batteries in the manufacturer's current vehicles while costing less to produce.
- But perhaps the most significant development is the solid-state battery. These differ from current lithium-ion batteries as they use their solid, rather than liquid, electrolytes. This makes them safer, not least because there is no possibility of leakage.
- Solid-state batteries have many other potential benefits. They're likely to have twice the driving range of current batteries, and perhaps take as little time as 10 minutes to charge. Manufacturers such as Toyota and Nissan are currently working on deploying the technology in their vehicles – with the former hoping to achieve its goal "in the early 2020s".
- There are impediments to the development of solid-state batteries – and, indeed, other types of battery. Foremost among them is cost: new battery technologies often start off more expensive for manufacturers than the current lithium-ion technologies, particularly at a time of global supply shortages.

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Gigafactories

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With electric cars due to overtake their fossil-fuelled counterparts in the years ahead, batteries are set to become the new oil – we're going to need a lot of them to keep businesses and individuals in motion. This explains why there's currently a global race underway to build 'gigafactories', giant plants where batteries for electric vehicles can be produced. Currently, countries such as Japan, South Korea and China are further ahead than the UK. As Parliament's Environmental Audit Committee said in the summer, the British Government should be looking to invest more in these factories in order to close the gap.

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Tony Greig
Fleet Consultant

4. TECHNOLOGY

4.4 Telematics and 5G

- 5G, the fifth generation of mobile network, came to the UK at the end of May 2019. It has the potential to achieve data transfer speeds of 10 gigabytes per second, which is 100 times faster than 4G's maximum speed.
- Over the past two years, four providers in particular have rolled out their own 5G networks across the country: EE, O2, Three and Vodafone. Combined, their networks now cover around 400 towns and cities. It's expected that most of the UK will have 5G coverage in 2022.
- The faster speeds of 5G have huge ramifications for fleets and motorists – particularly when it comes to telematics. The potential for vehicles to communicate to each other or to their workplaces in real-time will be greatly enhanced, which will improve everything from driver safety to company operational productivity.
- The same principles will eventually apply to autonomous motoring, where vehicles will need to communicate not just with each other – quickly – but also with the infrastructure and scenery around them. 5G will enable this to happen.

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4. TECHNOLOGY

The semiconductor shortage

Semiconductors were in high demand even before the pandemic struck. They're essential to most electronic products, specifically to the computer chips that now reside in everything from smartphones to household appliances.

However, the pandemic upped the demand for semiconductors even more, not least because people required various electronic devices in order to work from home. At the same time, the supply of semiconductors was reduced as manufacturers rushed to buy up as many as they could and global supply chains broke down.

The consequence was - and still is - a global shortage of semiconductors.

This matters for fleets because those semiconductors are essential for modern vehicles with all their computing systems, and especially for electric vehicles that have twice the semiconductor content as their fossil-fuelled counterparts.

As a result, some vehicle delivery timescales have been extended to 2022 – or even 2023. These longer lead times require careful planning on the part of fleet managers. Can vehicles be ordered earlier? Are alternatives available? What does it mean for electrification strategies?

Of course, you are not alone when it comes to answering these questions. Lombard Vehicle Solutions will continue to monitor the situation as it unfolds and will work with our customers to offer a range of solutions that help mitigate the cost and risk associated with this shortage.

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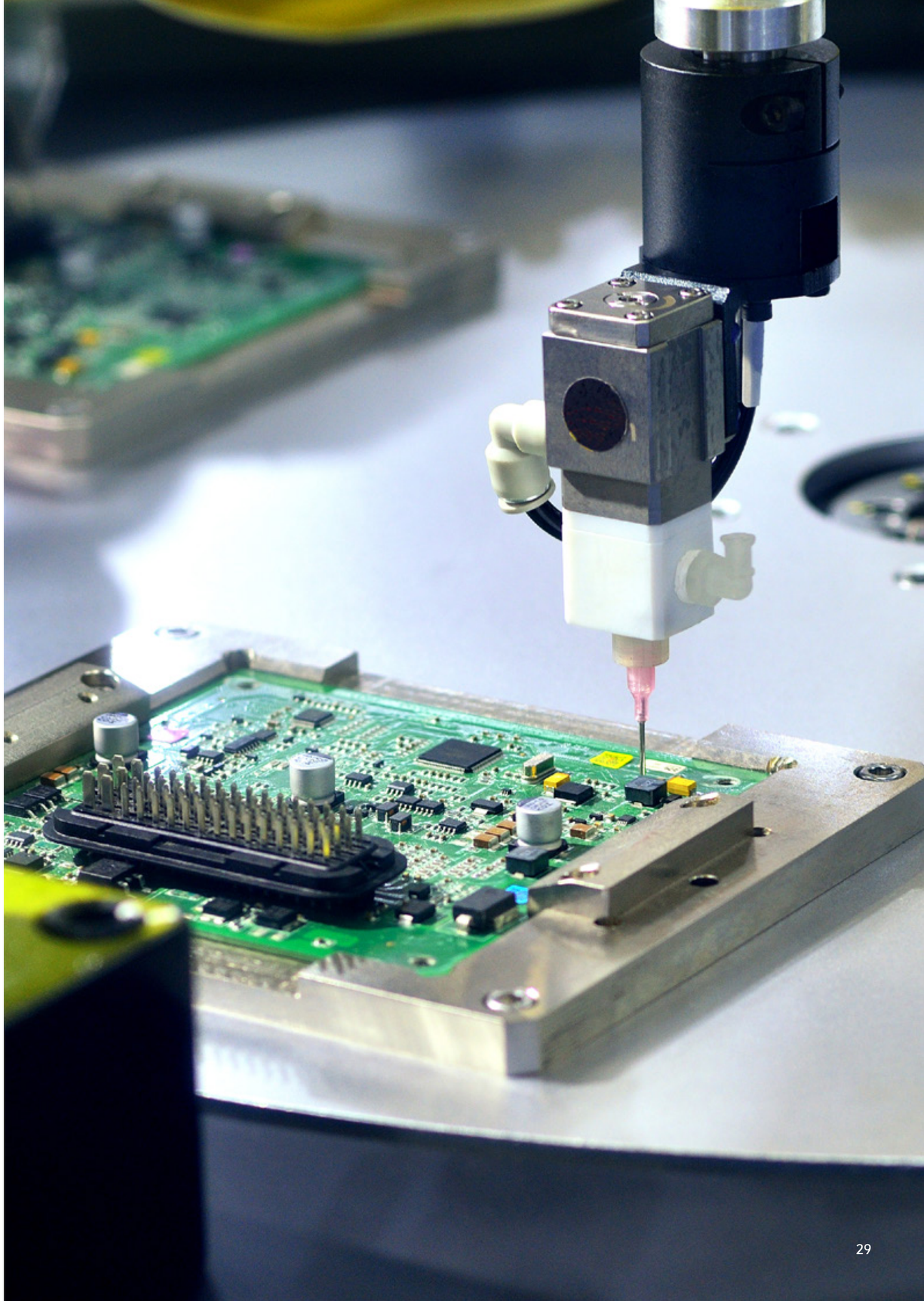

5. LEGISLATION

5.1 Fuel duty

- The main rate of Fuel Duty was cut to 57.95 pence per litre in 2011. It has been frozen at that level ever since, with each successive Budget extending the freeze for another year – rather than increasing the duty in line with inflation.
- In this way, successive Governments have forgone billions in extra tax revenues. The Resolution Foundation estimates that, if the freeze were to continue until 2024-25, it would effectively cost the Exchequer around £3 billion a year.
- Even so, the Chancellor, Rishi Sunak, extended the freeze for another year in his Autumn Budget 2021. The main rate of Fuel Duty will remain at 57.95 pence per litre until at least April 2023.
- However, there is a bigger question surrounding Fuel Duty: given that it is levied on petrol and diesel, and not on electricity, how long can the Government continue to rely on it as a source of revenue while the country continues along the Road to Zero? Accordingly, there are calls for an alternative that applies to all vehicles, such as Road Pricing – direct charges for the use of roads.
- However, in the 2022 Spring Statement, the Chancellor cut the Fuel Duty by 5p to try to mitigate rising fuel prices.

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Fuel Duty and EV adoption

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The Government’s continuing freeze on Fuel Duty risks sending out a mixed message: they want people to drive electric vehicles, yet they’re also trying to reduce the cost of fossil fuels? However, we think that the truth is more straightforward. Not only does the Fuel Duty freeze not take much off the cost of petrol and diesel – particularly at a time of record-high prices – but the incoming 2030 ban on new sales of conventional, fossil-fuelled cars and vans means that the trends are only going in one direction. Electric is going to be an essential part of any fleet’s mix.
”

Mark Evans
Head of Business Intelligence and Consultancy

5. LEGISLATION

5.2 Company car tax

- The last financial year, 2020-21, saw the introduction of a reformed system of Company Car Tax (CCT), with new, lower bands for low-emission vehicles. The rates are different for cars registered after 6 April 2020 (see figure 6) and those registered before (figure 7).
- This new system included the first ever 0% CCT rate – for fully zero-emission cars – though that rate has since increased to 1%.
- For other cars with emissions lower than 50 grams of CO_2 per kilometre, the rates are based on how many zero-emission miles those cars can travel. For example, a car that was registered after 6 April 2020 and that can travel between 40 and 69 zero-emission miles faces a CCT rate of 7% in the current financial year.
- The rates have been announced until 2024-25. This means that most fleets and company car drivers will know what CCT they're paying for the full duration of their contracts.
- A 4-percentage-point supplement still applies for diesel vehicles – although diesels that meet the RDE2 standard are exempt.

CCT rates for cars registered

From 6 April 2020

Emissions (g CO_2/km)			2022-23	2023-24
0			2%	2%
1-50	Zero emission miles	130+	2%	2%
		70-129	5%	5%
		40-69	8%	8%
		30-39	12%	12%
		<30	14%	14%
51-54			15%	15%
55-59			16%	16%
60-64			17%	17%
65-69			18%	18%
70-74			19%	19%
75-79			20%	20%
80-84			21%	21%
85-89			22%	22%
90-94			23%	23%
95-99			24%	24%
100-104			25%	25%
105-109			26%	26%
110-114			27%	27%
115-119			28%	28%
120-124			29%	29%
125-129			30%	30%
130-134			31%	31%
135-139			32%	32%
140-144			33%	33%
145-149			34%	34%
150-154			35%	35%
155-159			36%	36%
160-164			37%	37%
165-169			37%	37%
170+			37%	37%

figure 6

Before 6 April 2020

Emissions (g CO_2/km)			2022-23	2023-24
0			2%	2%
1-50	Zero emission miles	130+	2%	2%
		70-129	5%	5%
		40-69	8%	8%
		30-39	12%	12%
		<30	14%	14%
51-54			15%	15%
55-59			16%	16%
60-64			17%	17%
65-69			18%	18%
70-74			19%	19%
75-79			20%	20%
80-84			21%	21%
85-89			22%	22%
90-94			23%	23%
95-99			24%	24%
100-104			25%	25%
105-109			26%	26%
110-114			27%	27%
115-119			28%	28%
120-124			29%	29%
125-129			30%	30%
130-134			31%	31%
135-139			32%	32%
140-144			33%	33%
145-149			34%	34%
150-154			35%	35%
155-159			36%	36%
160+			37%	37%

figure 7

A 4-percentage-point supplement applies to diesel cars, to a maximum of 37%. Diesels that meet the RDE2 standard are exempt

5. LEGISLATION

5.3 Vehicle excise duty

- The "first-year" Vehicle Excise Duty (VED) rates for newly registered cars are based on both CO_2 emissions and fuel type. The latest first-year rates are shown in figure 8, on the next page.
- A "standard" rate then applies in subsequent years; these are shown in figure 9. There is a supplement to the standard rate – called the "additional rate" – for cars worth more than £40,000, though zero-emission vehicles are exempt.
- In Autumn Budget 2021, the Government confirmed that these rates will rise in line with the Retail Price Index (RPI) measure of inflation in the 2022-23 financial year.
- It's possible that the VED system might be reformed in coming years. The Government has already held two significant consultations on how the uptake of zero-emission vehicles – both cars and vans – can be further encouraged through VED, though this hasn't yet translated into actual policy.
- The Government has also opened various other consultations on the transition to electric vehicles – see Section 6.3.

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First-year VED rates for cars registered on or after 1 April 2021

CO_2 emissions (g CO_2 /km)	Petrol	Diesel	Alternative
Zero	£0	£0	£0
1 to 50	£10	£10	£0
51 to 75	£25	£25	£15
76 to 90	£115	£115	£105
91 to 100	£140	£140	£130
101 to 110	£160	£160	£150
111 to 130	£180	£180	£170
131 to 150	£220	£220	£210
151 to 170	£555	£555	£545
171 to 190	£895	£895	£885
191 to 225	£1,345	£1,345	£1,335
226 to 255	£1,910	£1,910	£1,900
Over 255	£2,245	£2,245	£2,235

figure 8. Diesel cars that meet the RDE2 standard pay the petrol rate.

Standard VED rates for cars registered on or after 1 April 2017

Fuel type	Annual charge (after first year)	With additional rate of £335 (vehicles over £40,000)
Petrol	£155	£490
Diesel	£155	£490
Biofuel and LPG	£145	£480
BEV and Hydrogen	£0	£0

figure 9. Cars with a list price over £40,000 pay the additional rates for the first five years after their year of registration. Zero-emission vehicles are exempt.

5. LEGISLATION

5.4 Infrastructure

- As far as motorists are concerned, the Government's biggest infrastructure policy is its five-year strategy for renovating roads between 2020 and 2025 – the Road Investment Strategy 2 (RIS2).
- The strategy sets aside £27.4 billion to be spent by Highways England on improving the strategic road network – which is made up of all motorways and some A-roads in England. These improvements range from smoother surfaces to extensive new safety measures.
- The Government also operates multi-million funds for improving local road networks and for filling potholes.
- Another area of focus is the charging network for electric vehicles. In their manifesto for the 2019 election, Boris Johnson's Conservative Party committed to "completing a fast-charging network to ensure that everyone is within 30 miles of a rapid electric vehicle charging station". To this end, the more recent *Ten Point Plan for a Green Industrial Revolution* (see Section 6.4.) allocated £1.3 billion to augment the country's charging infrastructure over the next four years.

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The importance of general transport infrastructure

"

We rightly talk a lot about the charging infrastructure that's required for the mass adoption of electric vehicles. But this shouldn't blind us to the general infrastructure improvements that are needed for all vehicles. After all, roads in the UK are currently in a poor state. The latest edition of the World Economic Forum's Global Competitiveness Index ranked the country as 36th in the world for the "quality of its road infrastructure" – well behind comparable economies such as Japan (6th), Spain (11th) and France (18th). Without extra investment in our roads, problems such as congestion and dilapidation will persist.

"

Russ Boulton
LCV Consultant

The UK's charging infrastructure

The UK's public charging network for electric vehicles currently consists of about 28,000 devices, with a total of over 47,000 connectors. This represents a 327% increase over the past five years.

What's more, over 5,000 of today's public charge points are either rapid or ultra-rapid chargers, able to bring a car to four-fifths charge in 25 to 40 minutes – or quicker. That's 416% growth over the past five years, with more to come following the Prime Minister's pledge to ensure that everyone is within 30 miles of a rapid charging station.

That's just the public charging network. There is also an ever-growing private charging network: charge points that workplaces are installing for their employees and that individuals are installing at home.

All of this means that range anxiety, the fear of running out of power while driving an electric vehicle, is a thing of the past. However, fleets and motorists still ought to give due consideration to charging. The current system is fragmented not just between different types of charging – from slow to rapid, from public to private – but also between different suppliers and methods of paying. What suits one employee will not necessarily suit another.

What's more, a few issues around public charging still need resolving, including reliability (8% of public charge points were out-of-service in August 2019) and access (over 51% of charge points are in the South, compared to 4% in Wales). This inequality is not conducive to electric vehicle adoption.

LVS can help you through this process, with expert advice on charging solutions, as well as telematics options for working out exactly what you and your employees need, and even charger installations and all-encompassing provider access.

The effect of the Health and Social Care Levy

In September 2021, the UK Government announced a new Health and Social Care Levy to help fund the National Health Service and wider care services. It will be introduced in two steps. In 2022-23, a 1.25 percentage point increase will be applied to National Insurance Contributions (NICs). From 2023-24, the Levy will be applied separately and NICs will revert to their current levels.

For employees, NICs will now be collected at a rate of 13.25% on earnings between the Primary Threshold (PT) and the Upper Earnings Limit (UEL). Above the UEL, the amount will increase to 3.25% (previously this was 2%).

This will affect several areas of fleet policy – most particularly the tax imposed on cash allowances and on company cars. For cash allowances, the temporary NIC increase will effectively also increase the cost for employers while reducing the net benefit for employees. For company cars, the Total Cost of Ownership (TCO) for electric vehicles will be further enhanced when set aside the TCO for traditional ICE vehicles.

Our consultancy team is available to talk you through these changes, as well as to work out how they will affect the TCO of your fleet.

Is the rollout of the national charging infrastructure meeting the needs of all EV drivers?

"

It's worth noting that although the public charging network is growing quickly, the real challenge is to ensure all drivers can access reliable fast and rapid chargers across the entire national network. Unless there is a clear strategy from the Government to support the equitable rollout of fast and rapid chargers across the country, there is a real danger that parts of the country, especially those outside of metropolitan areas will be seriously underserved by the charging network which could hamper the ongoing adoption of EVs.

"

Tony Greig
Fleet Consultant

6. ENVIRONMENT

6.1 What emerged from COP26

- Roughly every year, the United Nations holds a major global conference aimed at tackling climate change: the Climate Change Conference of the Parties – also called 'COP'.
- The 26th such conference – COP26 – was hosted by the UK, and took place in Glasgow between 31 October and 12 November 2021.
- Since COP21, which was held in Paris in 2015, these conferences have focused on fulfilling the commitments made in the Paris Agreement. This agreement, which was adopted by 196 countries at the time, aims to limit global warming to 2°C, and preferably within 1.5°C, when compared to pre-industrial temperatures.
- The countries that signed up to the Paris Agreement were legally obliged to produce their own plans, known as Nationally Determined Contributions (NDCs), for reducing emissions in line with the goals. These NDCs are meant to be updated and strengthened every five years, making COP26 the venue for a new set of NDCs.
- Ahead of COP26, just over 150 countries produced updated NDCs – including, crucially, the world's biggest emitter of carbon, China. Among the countries that didn't were India, which as a fast-industrialising nation is still heavily dependent on fossil fuels.
- India subsequently pieced together an updated NDC while at the conference, but this was judged to be "short on details" by Climate Action Tracker.
- During COP26, countries also agreed to a number of international measures, which were mostly enshrined within the Glasgow Climate Pact. These included a faster timetable for revising and strengthening NDCs. Instead of waiting every five years, countries' NDCs will now come under the spotlight at next year's COP and in 2023.
- The combination of the new NDCs and the Glasgow Climate Pact was reckoned, by the host UK Government, to have kept the 1.5°C target "within reach". Others are not so sure. Climate Action Tracker still anticipates that, under current policies, warming will reach 2.7°C before the end of this century.
- During COP26, a day was devoted to decarbonising transport. One of the biggest outcomes from this was a declaration on "accelerating the transition to 100% zero-emission cars and vans," which was signed by various countries, cities, organisations and vehicle manufacturers. Although this declaration is not legally binding, it still represents a significant landmark – see COP26 box-out on page 43.

6. ENVIRONMENT

6.2 The path to 2030 and beyond

- As part of its effort to limit global warming, the UK is working towards a primary target: net-zero emissions of greenhouse gases – i.e. the amount emitted does not exceed the amount removed from the atmosphere – by 2050.
- There are milestones along the way. For example, the UK Government recently enshrined into law a commitment to cut emissions by 78%, when compared to 1990 levels, by 2035.
- There are also targets for specific sectors. The most significant one related to fleets – indeed, to the whole automotive industry – is the ending of sales of new, conventional, petrol or diesel-fueled vehicles by 2030.
- The Government confirmed this date as part of its *Ten Point Plan for a Green Industrial Revolution* (see 6.4., below). The same document also revealed that sales of new hybrid cars and vans will be permitted until 2035, so long as they "can drive a significant distance with no carbon coming out of the tailpipe".
- It has not yet been confirmed what "a significant distance" means in this context. The Government has put the definition up for consultation, so we should hear further details soon.
- Whichever hybrids are permitted in the years to 2035, however, the end result is the same: after 2035, the Government expects all new car and vans sold to be zero-emission at the tailpipe.

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COP26 and fleets

COP26's day on transport involved discussions about everything from aviation to shipping, but the major developments concerned electric vehicles. Various national Governments, city Governments, organisations, and vehicle manufacturers, including Ford and Mercedes-Benz, signed a declaration on "accelerating the transition to 100% zero-emission cars and vans", which included the commitment to "work towards all sales of new cars and vans being zero-emission… globally by 2040 and by no later than 2035 in leading markets".

It should be said that this declaration doesn't guarantee anything. For starters, it's not legally binding. There are several significant absentees from its list of signatories, including countries such as China, the US and Germany, and manufacturers such as Volkswagen and BMW. Some of these have indicated that they may sign up in future.

The declaration is significant nevertheless. It was only a few years ago when Theresa May's Government pledged to end the sale of new conventional petrol and diesel cars and vans in the UK by 2040 – a commitment that was seen as tremendously ambitious at the time. But now not only has the UK brought forward its deadline to 2030 (or to 2035 for certain hybrids), but, judging by the COP26 declaration, other countries around the world intend to follow suit.

What's more, the inclusion of some manufacturers sends an equally big message: even if Governments don't force motorists to drive electric, fewer and fewer fossil-fuelled vehicles will be coming off production lines in the years ahead.

6. ENVIRONMENT

6.3 Decarbonising transport report

- As part of its plan to achieve net-zero by 2050, the Government recently published a report called *Decarbonising Transport: A Better, Greener Britain.*
- This report contained policies relating to various modes of transport, from trains (e.g. an extensive programme of electrification) to planes (e.g. a potential target for all UK domestic aviation to reach net-zero by 2040).
- However, some of the most significant commitments were linked to road transport. On top of the existing 2030 and 2035 dates for ending the sale of new fossil-fuelled cars and vans, the report also suggests that sales of all new non-zero emission road vehicles will be phased out by 2040 – including HGVs.
- A number of supplementary documents were published alongside the *Decarbonising Transport* report, including two that (despite their dry titles) are of particular interest to fleets: *Transitioning to zero-emission cars and vans: 2035 delivery plan* and *Green paper on a new road vehicle CO_2 emissions regulatory framework for the United Kingdom.*
- The first, the *Transitioning to zero-emission cars and vans: 2035 delivery plan,* details the steps that Government intends to take on the way to 2030 and 2035. They include: continued investment in charging infrastructure (such that, for example, every motorway service station has at least six rapid charge points by 2023); the continuation of "favourable" CCT rates for zero-emission vehicles until "at least" March 2025; and a full progress review in 2025.
- The second document, the *Green paper on a new road vehicle CO_2 emissions regulatory framework for the United Kingdom,* details regulatory changes that the Government could introduce to encourage cleaner motoring. One of the options it moots is a "ZEV Mandate" – i.e. a requirement on manufacturers to sell a certain percentage of zero-emission vehicles each year.
- The green paper also marks the start of consultation periods for a number of the measures proposed across the *Decarbonising Transport* documents – including the 2040 date for ending sales of all new petrol and diesel road vehicles, and the question (see 6.2.) of which new hybrids will still be permitted between 2030 and 2035.
- It ought to be noted that any long-term policymaking of this sort is hostage to political change – either within the party in power, or through a change of Government.

6. ENVIRONMENT

6.4 Green industrial revolution

- In November 2020, the Government published its *Ten Point Plan for a Green Industrial Revolution*. This plan covered more than just transport – including, for example, sections on nuclear power and on environmentally friendly buildings.
- The plan itself is relatively short and light on policy detail. In that regard, it has since been superseded by other documents, including the *Decarbonising Transport* report.
- However, the plan is significant for being the moment when Boris Johnson's Government formally confirmed its commitment to the 2030 end date for sales of new fossil-fuelled cars and vans (bringing that date forward from 2040, which was the intention of Theresa May's Government).

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6. ENVIRONMENT

6.5 Support for electric vehicles

- 100% First-Year Allowance (FYA) applies for businesses installing charge points, and is currently scheduled to continue until 31 March 2023 for Corporation Tax purposes and 5 April 2023 for Income Tax purposes. 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.
- There are also Writing Down Allowances (WDA's) for cars. Cars are grouped into pools depending on which rate they qualify for. www.gov.uk/capital-allowances/business-cars
- Finally, there's the 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 super-deduction providing allowances of 130% on most new plant and machinery investments that ordinarily qualify for 18% main rate writing down allowances.
  - A first year allowance of 50% on most new plant and machinery in investments that ordinarily qualify for 6% special rate writing down allowances.

Ultra-low emission cars, total licensed, by type

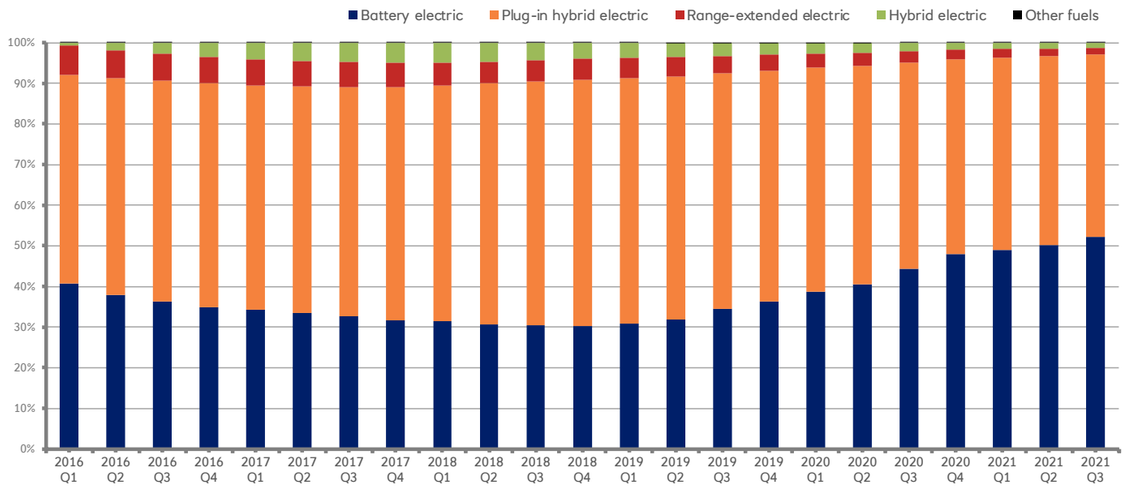

figure 10. Source: Department for Transport

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.

The end of EV grants

"

Two things have happened to most of the major electric vehicle grants over time: they've become less generous and they increasingly face the threat of termination. For example, the Plug-In Car Grant was worth £5,000 when it was first introduced in 2011, but is now worth less than half that sum – and it could come to an end in 2022 or 2023. To some extent, this is understandable: the Government cannot keep on subsidising electric vehicles as they become more popular, particularly given the broader demands on the public finances after the pandemic. But it should be emphasised that fossil-fuelled vehicles still make up the vast majority of new sales, and there are over eight years to go until the 2030 ban. This may not be quite the time to withdraw support for EVs.

"

Tash Turner
Fleet Consultant

6. ENVIRONMENT

6.6 Green number plates

- Since December 2020, zero-emission vehicles have been able to display a “green number plate” – which looks like a normal number plate but with a green flash down the left-hand side.
- These plates are intended to raise awareness of the number of cleaner vehicles on the roads, but could also open up opportunities for drivers – for example, free parking in certain areas.
- Any zero-emission vehicle can be retrofitted with the new plates.

6.7 London and other Clean Air Zones

- In 2019, London introduced its Ultra Low Emission Zone (ULEZ). Within its boundaries, vehicles have to meet minimum emission standards or pay a fee. The standard for petrol cars and vans is Euro 4, while for diesel cars and vans it is Euro 6. Cars and vans that do not meet these standards have to pay £12.50 a day to drive within the ULEZ.
- On 25 October 2021, this ULEZ was expanded to encompass London’s North Circular Road (A406) and South Circular Road (A205).
- At the same time, Clean Air Zones (CAZs) are appearing elsewhere in the country. CAZs are areas where special action is taken to limit pollution from road traffic. Like London’s ULEZ, these CAZs might impose fees on certain vehicles. Or they might rely more on non-charging measures, such as improved road layouts or cycle lanes.
- In March 2021, Bath became the first English city outside of London to introduce a CAZ – a Class C charging CAZ. Birmingham has since followed with its own Class D CAZ, and Portsmouth has also implemented a Class B CAZ. Bradford is due to bring in a charging CAZ early this year, while Bristol will start charging later this year, and Greater Manchester is under review. Other cities will be implementing CAZ in 2022.
- The pandemic slowed the spread of CAZs as the reduction in road traffic made their introduction less necessary. But it’s expected that dozens will be implemented in cities and towns across the country in the next few years.

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Fleets and Clean Air Zones

“
Fleets need to consider a few things when it comes to Clean Air Zones. First, they need to determine whether their drivers regularly enter a CAZ and, if so, how that CAZ operates. Then they need to determine the age of their fleet and whether the vehicles are Euro 6 (for diesel) or Euro 4 (petrol) compliant. If they aren’t, and the drivers of these vehicles regularly enter CAZs, then they should look to replace these vehicles – either with a compliant vehicle from within their fleet or by sourcing a new compliant vehicle.
”

Russ Boulton
LCV Consultant

6. ENVIRONMENT

The importance of fleets to ESG strategies

Companies have subscribed to ESG – Environmental, Social and Governance – goals for many years. But, more recently, the E-part has come to take on greater and greater meaning. With the effort underway to limit global warming to 1.5°C, businesses know that they need to get serious about making environmental improvements in their own operations.

For the most part, this means decarbonising. Companies are reporting not just on their current carbon footprints, but on how they're looking to reduce those footprints over the coming years. Increasingly, investors will make decisions based on how credible those plans are.

Electric vehicles are a crucial part of this process, and not just because fossil-fuelled transport is the worst emitter of greenhouse gases in the UK. Unlike other parts of the decarbonisation process, such as cleaning up a globe-spanning supply chain, shifting to EVs can happen more easily. It is perhaps the quickest way for a company to expedite their decarbonisation programme.

And that process can be even easier with the support of an experienced fleet provider such as Lombard Vehicle Solutions.

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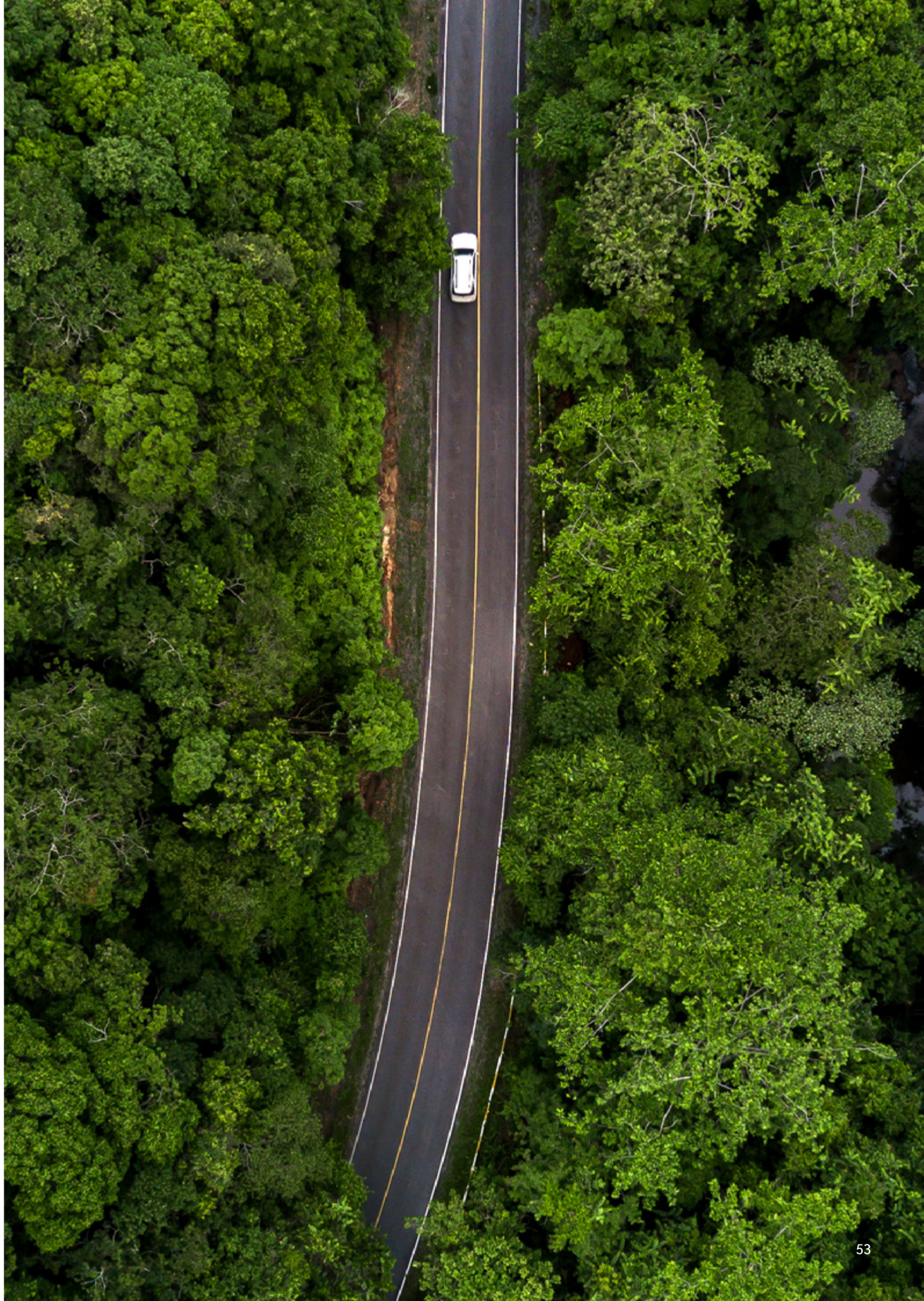

OUR BUSINESS INTELLIGENCE AND CONSULTANCY TEAM

Mark has 25 years' experience in the fleet industry, across operational, sales and consultancy roles. Mark joined ALD Automotive in 2002 and is responsible for the Business Intelligence and Consultancy team who specialise in providing bespoke consultancy and advice in the areas of fleet decarbonisation, electric vehicle adoption, financial modelling and analysis, risk management and light commercial vehicle (LCV) offerings.

Mark has successfully delivered numerous fleet optimisation projects, helping fleets deliver sustainable and cost-effective decarbonisation strategies.

Specialisms: alternative fuelled vehicles, carbon footprint analysis, financial modelling, fuel management.

Tony draws on over 25 years of experience within fleet, working with businesses to adopt best practice in procurement and fuel mix. He has been at the forefront of assessing and implementing viable alternative fuelled vehicles. Tony specialises in Vehicle/BEV strategies, reducing carbon impact whilst delivering cost savings for businesses. He brings this wealth of experience to the team, which enables an A-to-Z approach to the Government's Road to Zero Strategy.

Specialisms: financial modelling, total cost of ownership, fleet optimisation and mobility

Tash has over 12 years' industry experience, working with a variety of private, public and not-for-profit businesses with both car and van fleets varying from 50 to 5,000 vehicles.

Tash joined ALD Automotive in 2021, bringing a wealth of experience and proven ability in working in partnership with customers to identify cost-saving opportunities, share best practice and advise on future strategic fleet decisions. She has considerable experience working with businesses to identify the most suitable funding methodologies as well as enabling and supporting the creation of robust, adaptable and suitable fleet polices, including integration of alternative fuels and Total Cost of Ownership (TCO).

Specialisms: light commercial vehicles, total cost of ownership, vehicle conversions and type approval.

Russ works closely with fleets to identify vehicles that will provide optimal performance for the operational requirements and TCO demands of the business. He has a number of years of experience in the Van Conversion market, providing him a wealth of knowledge and technical understanding of the process.

APPENDICES

Appendix 1: Road to Zero chronology

- **30 January 2014:** The Government launches the 'Go Ultra Low' campaign with the backing of five major car manufacturers. Its aim is to encourage drivers to make the switch to ULEVs.
- **29 April 2014:** The Government announces £500 million worth of investment to 'boost the ULEV industry and help drivers both afford and feel confident using electric cars'. This includes extending the Plug-in Car Grant, installing rapid charge points on motorways and A-roads, and putting £100 million into research and development.
- **1 September 2014:** The Euro 6 emissions standards apply to all new models of cars and light vans. These set new a limit for NOx emissions of 80mg/km – less than half the Euro 5 limit.
- **27 October 2014:** The Mayor of London, Boris Johnson, launches a consultation on introducing the world's first ULEZ in central London.
- **26 March 2015:** Following his consultation, Boris Johnson announces that central London will become a ULEZ in September 2020.
- **29 April 2015:** The Supreme Court orders the Government to publish new air quality plans by 31 December 2015, setting out how NO2 levels will be brought below the legal limits established by the Air Quality Standards Regulations of 2010.
- **8 July 2015:** Summer Budget 2015 announces that a new system of VED will be introduced in April 2017, to 'reflect improvements in new car CO_2 emissions'.
- **1 September 2015:** The Euro 6 emission standards apply to all new cars and light vans registered from this date.
- **18 September 2015:** The US EPA issues a clean air violation notice against Volkswagen for using 'defeat devices' to artificially lower its vehicles' emissions during laboratory tests. This is the start of the 'dieselgate' scandal.
- **12 December 2015:** The 2015 United Nations Climate Change Conference concludes with the adoption of the Paris Agreement.
- **17 December 2015:** The Government publishes its Air Quality Plan in accordance with April's Supreme Court judgment. It announces that CAZs will be introduced in five cities – Birmingham, Leeds, Southampton, Nottingham and Derby – by 2020.
- **25 January 2016:** Four cities – Nottingham, Bristol, Milton Keynes and London – are awarded a total of £40 million in grants from the Government's 'Go Ultra Low Cities' fund. That money is to be spent on supporting the uptake of ULEVs, including installing charge points and offering free parking.
- **16 March 2016:** Budget 2016 announces a consultation on reforming CCT rates for ULEVs, to 'refocus incentives on the cleanest cars beyond 2020-21'.
- **22 April 2016:** The UK signs the Paris Agreement.
- **5 July 2016:** New London Mayor Sadiq Khan launches the first in a series of consultations on his plans to bring forward introduction of the ULEZ to 2019 and to introduce a £10-a-day Emissions Surcharge (or 'T-Charge') on the most polluting vehicles in 2017.
- **2 November 2016:** The High Court rules that the Government's Air Quality Plan will not bring down pollution quickly enough and orders it to produce a new one.
- **18 November 2016:** The UK ratifies the Paris Agreement, meaning that it comes into force on 18 December 2016.
- **21 November 2016:** The High Court sets a deadline of 31 July 2017 for the Government's new Air Quality Plan. It says a draft must be published by 24 April.
- **23 November 2016:** Autumn Statement 2016 announces new tax rules for Optional Remuneration Arrangements, but ULEVs will be exempt from the changes. The Statement also reveals that, from 2020-21, CCT rates for ULEVs with emissions of 50g CO_2/km or less will be based on the number of zero-emission miles they can travel. And the Chancellor introduces a new First-Year Allowance for businesses installing charge points, available until April 2019.
- **5 December 2016:** The draft Finance Bill 2017 sets out the new CCT bands for 2020-21.
- **17 February 2017:** Sadiq Khan confirms that the new T-Charge will be introduced in central London in October.
- **8 March 2017:** Spring Budget 2017 confirms that the Government will 'continue to explore the appropriate tax treatment for diesel vehicles', with changes likely to be announced in the Autumn Budget.
- **1 April 2017:** The new system of VED applies to all cars registered from this date. First-year rates are based on CO_2 emissions, with ULEVs facing much lower rates than other cars. Zero-emission cars are exempt from paying VED throughout their lives.
- **6 April 2017:** The new tax rules for Optional Remuneration Arrangements, announced in Autumn Statement 2016, take effect.
- **24 April 2017:** The Government applies to the High Court for an extension to the deadline for a new Air Quality Plan. The Court refuses the application and orders ministers to publish a draft by 9 May.
- **5 May 2017:** The Government publishes a draft of its new Air Quality Plan for consultation. Alongside this, it also publishes a Clean Air Zone Framework for England.

APPENDICES

Appendix 1: Road to Zero chronology (continued)

- **5 July 2017:** Volvo announces that, from 2019, every new car it launches will be an electric or hybrid vehicle.
- **26 July 2017:** The Government publishes the final version of its new Air Quality Plan. It announces that sales of all new conventional petrol and diesel cars and vans will end by 2040, and orders 29 local authorities to produce their own plans for reducing NO2 pollution. The Department for Transport also launches a consultation on proposals to encourage the uptake of electric vans.
- **1 September 2017:** The new WLTP and RDE tests come into force. The WLTP is designed to produce a more accurate measure of a new car's carbon dioxide emissions and fuel efficiency, while RDE aims to capture real-world emissions of NOx and other pollutants. From this date, all new models of cars must pass these tests.
- **5 September 2017:** The Scottish Government publishes its Programme for Scotland, which includes 'a target to phase out the need for petrol and diesel vehicles by 2032'.
- **10 October 2017:** The Scottish Government announces that Scotland's first LEZ will be introduced in Glasgow by the end of 2018.
- **12 October 2017:** The Government publishes its Clean Growth Strategy, setting out how it aims to bring down greenhouse gas emissions in line with established targets. The Strategy envisions a 29% reduction in transport emissions by 2032, 'largely achieved by accelerating the shift to electric and other low emission vehicles'.
- **16 October 2017:** Oxford City and County Councils launch a joint consultation on proposals to establish the world's first Zero Emission Zone in the city centre.
- **23 October 2017:** The T-Charge is introduced in central London. Vehicles that do not meet the Euro 4/IV emission standards must pay an extra £10 per day to drive within the Congestion Charge zone.
- **3 November 2017:** Sadiq Khan confirms that the ULEZ will be introduced in central London in April 2019 – 17 months earlier than Boris Johnson had planned. Initially, it will cover the existing Congestion Charge zone.
- **22 November 2017:** Autumn Budget 2017 reveals VED and CCT hikes for diesel cars, both to come into effect in April 2018. The Chancellor announces that, also from April 2018, employees will not have to pay any benefit-in-kind tax on the electricity they use to charge their vehicles at work. The Government also establishes a new £220 million 'Clean Air Fund' and launches a consultation on how this money could be spent to support people and businesses impacted by local clean air plans.
- **30 November 2017:** Sadiq Khan launches a consultation on his proposals to toughen the emission standards for London's LEZ for buses, coaches and HGVs in 2020, and then expand the ULEZ for all vehicles in 2021.
- **5 December 2017:** The Welsh Government announces that it will publish a Clean Air Plan in 2018, which will include 'a Clean Air Zone Framework to ensure the consistent and effective implementation of Clean Air Zones by Local Authorities, wherever they're needed.'
- **21 February 2018:** The High Court rules that the Government's new Air Quality Plan is unlawful and orders ministers to publish a supplement to it urgently. That supplement must address the 45 local authorities in which air pollution limits are breached, but which have not been ordered to draw up local plans to improve air quality.
- **March 2018:** The Government promised to publish a strategy for making all road transport zero-emission in March 2018.
- **13 March 2018:** The Mayor of London publishes his Transport Strategy 2018. It includes plans for Zero Emission Zones in town centres, to be introduced from 2020, as well as one in central London from 2025. In his Spring Statement, the Chancellor announces that the Government will launch 'a consultation on reduced VED rates for the cleanest vans'.
- **31 March 2018:** The first deadline for 23 local authorities to produce their draft plans for tackling air pollution in their areas.
- **1 April 2018:** The new, higher VED rates for diesel cars – set out in Autumn Budget 2017 –apply to cars registered from this date.
- **6 April 2018:** The Diesel Supplement for CCT rises from 3% to 4%, as announced in Autumn Budget 2017. However, the newest, cleanest diesels – those that meet the RDE Step 2 standards – are exempt from paying the Diesel Supplement.
- **1 September 2018:** All new cars will have to undergo WLTP tests from this date.
- **31 December 2018:** This is the original deadline for local authorities to publish the final versions of their plans to tackle air pollution. Additionally, Glasgow's LEZ is due to begin operation at 23:59, but measures will be phased in over four years from this date.
- **14 January 2019:** The Government publishes a new Clean Air Strategy. However, the section devoted to road transport simply repeats previous announcements.
- **8 April 2019:** London's ULEZ came into force. From this date, petrol cars and vans that do not meet the Euro 4 emission standards, and diesel ones that do not meet Euro 6, will have to pay an extra £12.50 a day to drive within the Congestion Charge zone (although the T-Charge no longer applies). Pre-Euro VI lorries will have to pay a £100-a-day fee.

APPENDICES

Appendix 1: Road to Zero chronology (continued)

- **1 September 2019:** All new cars will have to pass RDE tests from this date.
- **12 December 2019:** A general election that resulted in an 80-seat majority for the Conservatives and Boris Johnson's return to Downing Street. The Conservative manifesto included a pledge "to ensure that everyone is within 30 miles of a rapid electric vehicle charging station".
- **11 March 2020:** The new Chancellor, Rishi Sunak, publishes his first Budget. It includes a call for evidence on how the Government "can use VED to further encourage the uptake of zero and ultra-low emission cars".
- **6 April 2020:** The new CCT bands for ULEVs, announced in Autumn Statement 2016, take effect.
- **18 November 2020:** The Government publishes its *Ten Point Plan for a Green Industrial Revolution*. This document confirms that the ban on new sales of conventional petrol and diesel cars and vans will be brought forward to 2030 from 2040. It also reveals that sales of new hybrid cars and vans will be permitted until 2035, so long as they "can drive a significant distance with no carbon coming out of the tailpipe".
- **26 October 2020:** The introductory for tougher emission standards within London's LEZ. Pre-Euro VI HGVs will now have to pay a £200-a-day fee to drive in most of Greater London.
- **8 December 2020:** The introduction of green number plates – i.e. number plates with a green flash on the left-hand side – to raise awareness of zero-emission vehicles.
- **15 March 2021:** Bath becomes the first English city outside of London to introduce a Clean Air Zone. It imposes a fee on taxis, private hire vehicles, vans, LGVs, buses, coaches and HGVs that do not meet the required emission standards.
- **1 June 2021:** Birmingham introduces its Clean Air Zone.
- **14 July 2021:** The Government publishes its *Decarbonising Transport* report, along with supplementary documents. These set a new target: to phase out sales of all non-zero-emission road vehicles – including HGVs – by 2040. They also mark the start of a number of consultation periods, including on the question of which hybrids should be permitted for sale between 2030 and 2035, and on the feasibility of a "ZEV mandate".
- **25 October 2021:** London's ULEZ is expanded up to, but not including, the North and South Circular roads.
- **27 October 2021:** In his Autumn Budget, the Chancellor announces an extra £620 million for "public charging in residential areas and targeted plug-in vehicle grants", as well as a separate £817 million "to support investment in zero emission vehicle manufacturing, gigafactories and the electric vehicle supply chain".
- **31 October 2021:** The start of COP26 in Glasgow. The international climate conference lasted for two weeks and ended with the Glasgow Climate Pact. A day devoted to decarbonising transport yielded a declaration on "accelerating the transition to 100% zero emission cars and vans," signed by various countries – including the UK – as well as cities, organisations and manufacturers.
- **2022:** The Electric Vehicle Homecharge Scheme will end in its current form and refocussed on "renters, leaseholders and those living in flats".
- **2022:** The Chancellor drops fuel duty by 5p to mitigate rising fuel prices.
- **2025:** The Government will conduct a progress review of its measures to decarbonise the transport system.
- **2030:** The year when the Government's ban on the sale of new conventional petrol and diesel cars and vans will take effect. Some hybrids will be allowed to remain on sale to 2035.
- **2035:** The year when the ban on the sale of all new hybrid petrol and diesel cars and vans will take effect. From this time, all new car and van sales will be zero-emission.
- **2040:** The Government's target year for all new vehicles sales – including HGVs – to be zero-emission.

APPENDICES

Appendix 2: Glossary and acronyms

Alternatively fuelled vehicle
A vehicle that runs on fuel other than petrol or diesel – such as electricity, solar power or biofuels – including hybrids.

Battery electric vehicle (BEV)
Often referred to as a "pure electric vehicle" because they're powered purely by electricity – and nothing else. Instead of a traditional internal combustion engine, 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.

Charge point
A charging station for battery electric and plug-in hybrid vehicles. Charge points come in four main forms: standard, fast, rapid and ultra-rapid.

Clean Air Zone (CAZ)
An area where targeted policies are implemented to reduce air pollution and improve air quality. These policies can include charging drivers to enter the zone if their vehicles do not meet specified emission standards.

Company Car Tax (CCT)
A Government tax on a car received by an employee as a benefit in addition to their salary.

Euro emission standards
These set limits on exhaust emissions of carbon monoxide, nitrogen oxides and other pollutants for all new vehicles in the European Union. The latest standards – Euro 6 – apply to cars and small vans registered after 1 September 2015, and larger vans registered after 1 September 2016.

Electric Vehicle Homecharge Scheme
This offsets 75% of the cost of installing a charge point at home, up to a maximum of £350 (including VAT).

Internal combustion engine (ICE)
In an ICE, the ignition and combustion of the fuel – generally, petrol or diesel – occurs within the engine itself. The engine then uses some of the energy created to power the vehicle's movement.

New European Driving Cycle
A laboratory-based emissions and fuel consumption test procedure, introduced in the early 1990s and last updated in 1997. It is being replaced by the Real Driving Emissions tests and the Worldwide Harmonised Light Vehicle Test Procedure.

Plug-in Car Grant
This grant currently takes 35% off the cost of new electric cars, up to a maximum of £2,500, provided those cars: a) cost less than £35,000, b) have CO_2 emissions of less than 50 grammes per kilometre, and c) can travel at least 70 miles without any emissions.

Plug-in hybrid electric vehicle (PHEV)
Has both an electric battery and an internal combustion engine – however, unlike older hybrids, the electric battery is primarily charged by plugging it into the electrical grid. The plug-in hybrid can then run entirely on the electric battery, entirely on the internal combustion engine, or by using both.

Real Driving Emissions
A new system for testing vehicles' emissions of oxides of nitrogen and particulate matter. Vehicles are fitted with a Portable Emissions Measurement System and driven for 90 minutes on urban and rural roads, as well as on the motorway.

Ultra-low emission vehicle
A vehicle that emits less than 75 grams of carbon dioxide per kilometre and can drive for at least 10 miles with no emissions.

Vehicle Excise Duty
An annual Government tax on cars used on the road, based on their fuel types and levels of carbon dioxide emissions.

Workplace Charging Scheme
Offers vouchers worth £350 for each of the first 40 charge points installed by an employer.

Worldwide Harmonised Light Vehicle Test Procedure
A new laboratory-based system for testing new vehicles' CO_2 emissions, as well as their fuel consumption. It involves longer tests with more realistic conditions and driving behaviour than the New European Driving Cycle.

°C	Degrees Celsius
AFV	Alternatively Fuelled Vehicle
ALKS	Automatic Lane-Keeping System
BEV	Battery Electric Vehicle
CAZ	Clean Air Zone
CCT	Company Car Tax
CCZ	Congestion Charging Zone
CO_2	Carbon Dioxide
COP	Climate Change Conference of the Parties
CPI	Consumer Price Index
DfT	Department for Transport
EU	European Union
g	Gram
HGV	Heavy Goods Vehicle
ICE	Internal Combustion Engine
km	Kilometre
LEZ	Low Emission Zone
LGV	Light Goods Vehicle
NEDC	New European Driving Cycle
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
OBR	Office for Budget Responsibility
ONS	Office for National Statistics
PHEV	Plug-in Hybrid Electric Vehicle
RDE	Real Driving Emissions
RDE2	Real Driving Emissions Step 2
SMMT	Society of Motor Manufacturers & Traders
UK	United Kingdom
ULEV	Ultra Low Emission Vehicle
ULEZ	Ultra Low Emission Zone
VED	Vehicle Excise Duty
WLTP	Worldwide Harmonised Light Vehicles Test Procedure
WTO	World Trade Organisation

APPENDICES

Appendix 3: Useful links

Lombard Vehicle Solutions

- Insights COP26 Glasgow 2021
- Benefits of electric company cars.pdf
- Could sale and leaseback work for you?
- How can fleets benefit from home working?
- Building a business case for BEVs

Government reports and resources:

- Autumn Budget and Spending Review 2021 - HM Treasury
- Economic and Fiscal Outlook - Office for Budget Responsibility
- Vaccinations in the UK - GOV.UK
- Weekly road fuel prices - Department for Business, Energy & Industrial Strategy
- Transport decarbonisation plan - GOV.UK
- Transitioning to zero emission cars and vans: 2035 delivery plan - Department for Transport and Office for Zero Emission Vehicles
- Green Paper on a New Road Vehicle CO_2 Emissions Regulatory Framework for the United Kingdom - Department for Transport
- The ten point plan for a green industrial revolution - GOV.UK (www.gov.uk)
- Reducing emissions from road transport: Road to Zero Strategy - GOV.UK
- COP26 declaration: zero emission cars and vans - GOV.UK
- COP26 Glasgow Pact cover decision
- UK confirms pledge for zero-emission HGVs by 2040 and unveils new chargepoint design - GOV.UK
- COP26 Negotiations Explained.docx
- Government Spring Statement 2022 - HM Treasury
- Government Grant Schemes for electric vehicle charging infrastructure - GOV.uk

Other:

- Car registration data - Society of Motor Manufacturers and Traders
- EV Charging Stats 2021 - Zap Map

Energy Saving Trust:

- All you need to know about electric vehicles - Energy Saving Trust
- Active travel tips and advice - Energy Saving Trust
- Advice for businesses and local authorities - Energy Saving Trust

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