Road to Zero

Report Card 2023

Produced in association with: RICARDO

Contents

Foreword

Bad news travels faster and lingers longer than good news. As a result, 2023 will no doubt be remembered for forest fires and warming oceans, for Just Stop Oil protests and deranged press articles about ZEVs spontaneously combusting and collapsing car parks.

This year's Road to Zero Report Card is here to ensure that we also consider the progress that has been made in decarbonising road transport and fighting climate change.

Battery electric (ZEV) car registrations are up around 40% this year and now have a 16% market share. More than 80 different models are available in the UK, most of which have a range beyond 200 miles. The fleet sector is leading the way, with ZEVs responsible for around 50% of all new company cars and over 90% of new salary sacrifice vehicles.

The vehicle supply constraints that held back the transition in 2022 are now receding and the automotive aftermarket is stepping up to the challenge of training more technicians and re-tooling its garages.

There are early signs that electric vehicles are more reliable, cheaper and easier to maintain.

The roll-out of public chargepoints is matching the growth in new ZEV registrations and the Government is introducing ground-breaking legislation that will improve their accessibility, reliability and useability.

Unfortunately, for almost every example where part of the market is surging ahead towards decarbonisation, there is another at risk of being left behind.

The increasing chasm between the fleet fascination with ZEVs and lacklustre demand from the retail sector risks creating a dangerous imbalance in the vitally important used car market. The huge gap between home and public charging prices is creating an unfair cost-of-ownership and convenience contrast between those ZEV drivers who have a driveway and those who don't.

The average new electric car costs over £50,000. Premium ZEV drivers are spoilt for choice, but those with more modest means are struggling to find an option within their budgets.

Similarly, commercial vehicle operators carrying small loads over short ranges have many zero emission choices, while those looking for solutions that can carry large loads over long distances are scratching their heads.

As we progress towards the 2030 and 2035 new ICE vehicle phase-out targets, and on the eve of the UK's new Zero Emission Vehicle Mandate, our objectives remain clear, but the paths towards them are as complex and uncertain as ever.

Now in its fifth year, our annual Road to Zero Report Card continues to chart that journey, asking the key questions and pointing towards some possible solutions.

As ever, we would like to thank our research partners at Ricardo and the dozens of BVRLA members and industry stakeholders that have shared their knowledge and perspectives.

Developing Key Performance Indicators

Ricardo was commissioned to research and write this report on behalf of the BVRLA. It builds on previous annual report cards, placing an increased focus on developing relevant, futureproof and robust key performance indicators (KPIs). The report has been developed in collaboration with the BVRLA and informed by discussion with BVRLA's members and other relevant stakeholders.

The purpose of the KPIs is to:

- Offer a lens to evaluate developments in the fleet decarbonisation space.
- Support government and market actors to assess the state of the sector, evaluate market activity, and target interventions.

KPIs have been developed for each of the Demand, Infrastructure and Supply chapters. Scores are derived from one or more metrics and translated into a Red-Amber-Green (RAG) rating, to provide an assessment of the sector's decarbonisation progress in 2023.

Approach to KPI scoring:

KPIs are underpinned by data-based metrics wherever possible.

Data is converted to scores and RAG ratings based on relevant weightings and thresholds.

Where possible, thresholds are based on national targets and consideration is given to the stage in the net zero transition.

Sector scoring

Across this report, red-amber-green (RAG) scores have been used to reflect the position relative to net zero ambitions for our sector.

Red *(Parked)*

- Progress is significantly behind targets that have been set.
- Market is not responding well to Government policy / fiscal incentives.
- ZEV market significantly behind ICE market.

Amber *(Brakes on) or (Accelerating)*

- Progress is slightly behind targets that have been set – room for improvement.
- Market response to Government policy and fiscal incentives is average and/or varied.
- ZEV market approaching parity with ICE market.

Green *(Cruising)*

- Progress is in-line with, or exceeding, targets that have been set.
- Market is responding well to Government fiscal policy / incentives.
- The UK is a 'front runner' compared with other countries.
- ZEV market at parity with / exceeding ICE market.

Road to Zero Report Card 2023 - Overall Assessment

Overall score - Amber 'Accelerating'

The same as last year's score

Demand

Key recommendation:

Increase support for the van transition.

Infrastructure

Key recommendation:

Consider further public chargepoint regulation to promote fleet friendly infrastructure, bookability and roaming.

Supply

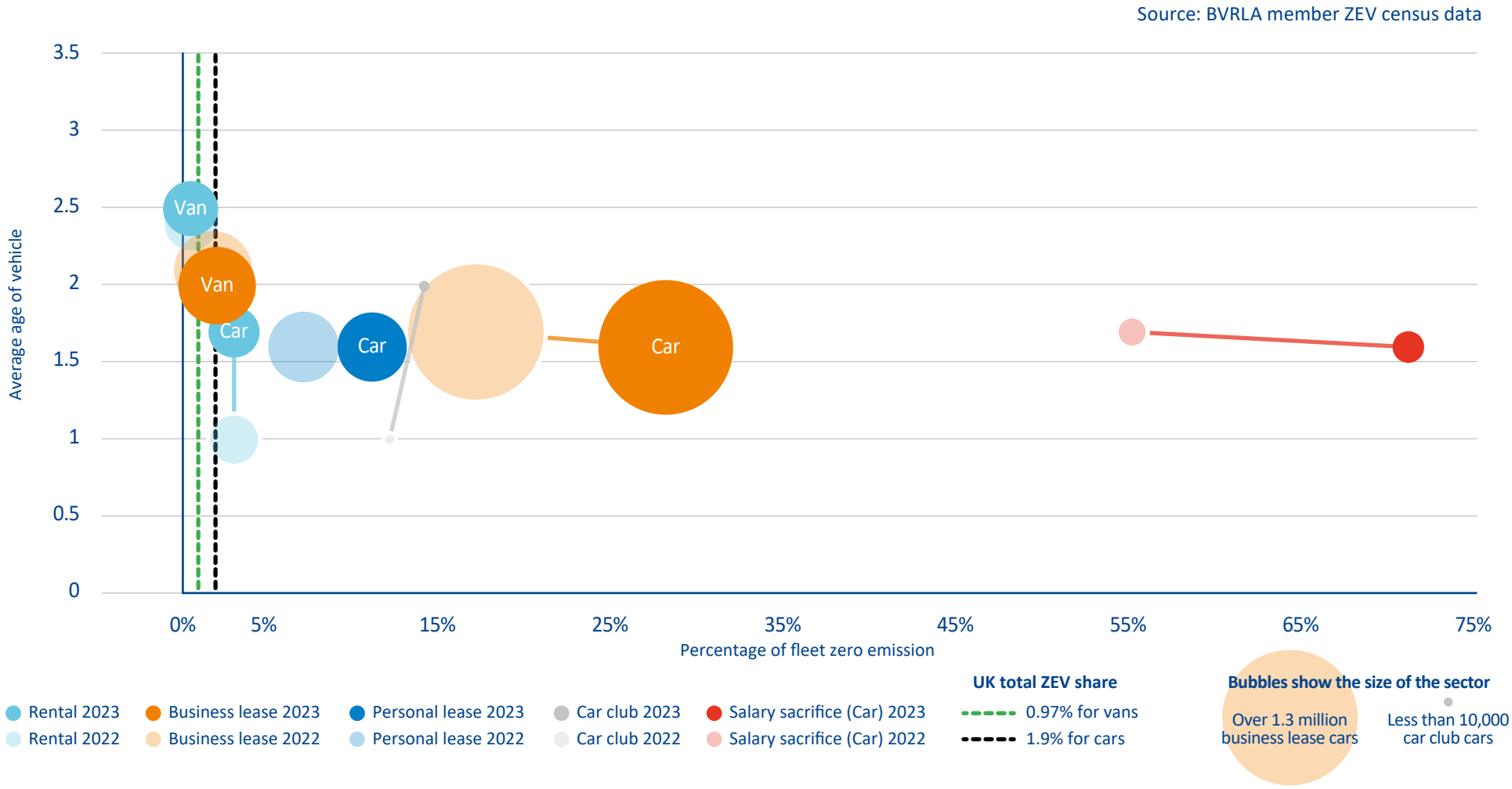
Key recommendation:

Introduce a review process to assess the market impact of the ZEV Mandate with a specific focus on the supply of fit-for-purpose vans.

Road to Zero Report Card 2023 - Overall Vehicle Scores

	Cars	Vans	HGVs
Demand	**Cruising** Powerful tax incentives have led to surging demand for company and salary sacrifice ZEVs. A lack of similar support for the rental or new and used retail sectors has left the car market dangerously imbalanced.	**Brakes on** Early enthusiasm is being dampened by the realities of electric van operation. High costs, poor range and lack of appropriate infrastructure are causing concern across the LCV market.	**Parked** High costs, technological uncertainty and lack of infrastructure means this market is currently restricted to a brave group of trailblazers.
Infrastructure	**Accelerating** Public infrastructure is growing fast and becoming more reliable. New legislation is set to make payments easier and pricing and availability more transparent.	**Brakes on** Smaller vans can take advantage of car-focussed infrastructure, but larger vehicles are poorly provided for. Lack of information on e-van accessibility remains a challenge.	**Parked** There is no significant public hydrogen or electric refuelling infrastructure on the strategic road network. Depot-based infrastructure roll-out is being hindered by cost, planning and grid constraints.
Supply	**Cruising** A wide range of new ZEVs means customers now have choice in almost every vehicle category. The latest generation of cars are delivering big improvements in charging speed, range and battery efficiency.	**Accelerating** Despite a large increase in ZEV van choice, commercial fleets are still struggling to find vehicles that can meet their range, charging speed, payload and price criteria.	**Parked** Recent announcements of UK-based production have provided a welcome boost, but the range and performance of models on the market is still limited.

Figure 1: Tracking the transition to ZEV across market segments (1)



Demand

"Negative media coverage of zero emission vehicles has had an impact on demand over the last six months, perhaps more than we expected. T here is a communications challenge across the sector, but this is not insurmountable, and something that all technologies face as they begin to reach mass market."

- Edmund King OBE, The AA

1

Demand

There is a mixed picture for the UK's ZEV vehicle demand, with promising improvements in business and personal leasing but challenges surrounding the rental sector where utilisation remains much lower than for ICE vehicles.

Demand for used ZEVs is not keeping pace with supply and a poor cost of ownership proposition is failing to ignite the retail market.

KPIs

The key performance indicators used to track demand levels

Rental customer demand	Parked
Business leasing demand	Cruising
Personal leasing demand	Accelerating
Total cost of ownership	Brakes on
Used ZEV market	Brakes on

Top recommendations

Increase support for the van transition.

Assess fiscal interventions that secure a healthy used ZEV market and just transition.

Extend the Plug-in Van grant post 2024/25.

Demand policies

Benefit-in-Kind (BiK tax)

The low BiK tax rate for ZEVs continues to be a significant incentive and is the main driver behind strong uptake in the company car and salary sacrifice market.

The 2022 Autumn Statement announced a reasonable one percentage point year-on-year increase for three years from 2025. For ZEVs, this means an increase from 2% in 2024/25 to 5% in 2027/28. This clarity from Government is crucial in supporting continued ZEV demand by allowing fleet decision makers to plan with more certainty into the second half of the decade.

Advisory electricity rate (AER)

The advisory electricity rate (AER) is the recommended reimbursement for company car drivers reclaiming ZEV business mileage. In an attempt to better reflect energy prices and avoid either the driver or the business being out of pocket, the AER shifted to a quarterly review process in 2023 (2). It now incorporates figures published in the Office for National Statistics (ONS) quarterly index for domestic electricity alongside BEIS and DfT data.

However, there is still concern that a flat rate AER (currently at 10 pence per mile) cannot be fit for purpose as ZEV drivers pay significantly more for on-road charging than home charging. This is a particular concern for van drivers whose vehicles are both less efficient than cars and are more reliant on more expensive public charging.

Other policies

- Introduction of Vehicle Excise Duty for ZEVs - equalising treatment of all ZEV and ICE vehicles from April 2025. This includes retrospective elements, which could be damaging to the transition.
- Zero Emission Road Freight Demonstration- promoting the practicality of the deployment of long haul zero emission HGVs.
- Plug-in Van Grant/Plug-in Truck Grant - continued support until at least 2024/25 with an increase in number of grants an end-user can access in 2023.

Key Performance Indicators: Demand

KPI	Metric	Rationale
Rental customer demand *(Parked)*	ZEV utilisation in rental fleet **Red**	ZEV utilisation for rental cars is low, 62%, compared to ICE, 81%, and the ZEV fleet remains very small. For vans, ZEV utilisation is 76% compared to 90% for ICE (3).
Business leasing demand *(Cruising)*	Percentage of ZEVs in leased fleet **Green**	ZEVs in business leasing has grown from 17% in 2022 to 28% in 2023 - driven by new additions in BEV company cars (53%) and salary sacrifice (92%) (4).
Personal leasing demand *(Accelerating)*	Percentage of ZEVs in leased fleet **Amber**	Demand for personal leasing has been strong and is ahead of the wider market (16%) with 19% of new additions being EV. However, quarter-to-quarter EV demand from private motorists fell for the first-time in Q1 2023 (5).
Cost of ownership *(Brakes on)*	Cost of fuel and energy **Amber**	High energy prices are undermining the running cost benefits of ZEVs. Rapid public charging is up to 25% more expensive compared to petrol/diesel (per mile). Private charging remains cheaper (6).
	Cost of vehicle **Red**	Average ZEV car is £52,720 compared to ICE equivalent at £36,796 (7).
Used ZEV market *(Brakes on)*	Cost of depreciation **Red**	ZEV's (-5.1%) have depreciated greater than ICE (-1.1%) month over month in 2023 (8).
	Demand vs supply of used ZEVs **Red**	Year on year ZEV growth in supply (~300%) is far outpacing demand (~45%) in May 2023 (9).
	Used ZEV sell times **Green**	ZEV sell times (30 days) is a closer match with ICE (31 days) (10).

Rental customer demand

Consumers are showing lower interest in ZEV short term rentals compared to ICE counterparts. Utilisation rates can be used as an indicator of demand and ZEV utilisation in rental car fleets (62%) is lagging ICE (81%) in 2023. It is similar for vans, where ZEV utilisation is 76% compared to 90% for ICE (11).

The rental sector is sensitive to customer demand and so the proportion of ZEVs in the overall UK rental fleet remains small. ZEV's currently account for 4% of the total short-term rental fleet for cars and 0.6% for vans.

The primary cause of low consumer demand is cost and ease of use. Rental customers are unwilling to pay more for a product that is seen as more difficult for them to use.

"There need to be more policies that support ZEV demand in the rental sector, and at a time when we need positive public messaging, negative comments in the media and uncertainty coming from government is not helpful to the sector"

- Anonymous

"Rental clearly has a major challenge of making sure vehicles are charged. When you think of the spread of vehicles, particularly around cities, that is quite a major hurdle for them to overcome."

- Caroline Sandall-Mansergh, Alphabet

Business leasing demand

While the overall size of BVRLA members' leasing fleets has increased across all fuel types, the growth in ZEV numbers has significantly outperformed ICE vehicles. In 2022, ZEVs made up 26% of the total business leasing fleet, an 11% increase from 2021. There were 204,953 ZEVs in the business leasing fleet in 2022, which is a 79% increase from the 113,929 ZEVs in 2021. Additionally, ZEVs make up 53% of new additions to the business leasing fleet, which is outperforming the uptake in the UK wide fleet of 16%. Vehicles obtained through salary sacrifice schemes have also continued to increase significantly, with ZEVs representing 92% of new additions to the fleet in 2022 (12).

A turbulent end to 2022 that saw unreliable vehicle supply, rising inflation and interest rates coupled with a sustained slump in used ZEV prices, continues to be a concern for the sector. Nonetheless, leasing companies are reporting healthy demand.

Low Benefit-in-Kind (BiK) rates for ZEVs have been a crucial driver of demand for business leasing and the announcement that BiK rates will continue to be kept low beyond 2025 allows businesses to plan for the increasing adoption of ZEVs.

Personal leasing demand

From BVRLA member data, in 2022, ZEVs made up 19% of new additions in personal leasing, which is greater than the UK wide ZEV uptake of 16%. The market share of ZEVs represented 10% of the total personal leasing fleet in 2022, up from 6% in 2021. This represents approximately 31,538 total ZEVs, which is a 61% increase from 19,562 in 2021.

Although the market share for new ZEV sales fell back in 2022, leasing.com reports that ZEVs constituted 18.8% of the overall personal leasing inquiries observed in website traffic, a significant rise from the 3.5% reported in 2021 (13).

However, the recent escalation in interest rates has highlighted affordability as the central concern among consumers opting for personal contract hire. Consequently, the proportion of queries pertaining to ZEVs has dwindled to 9.9% during 2023, underscoring the tangible effects of the prevailing economic conditions and negative media coverage. The SMMT's year-on-year data shows that the while the uptake in ZEVs has continued to rise, pace of growth has slowed in 2023.

With inflation and high ZEV leasing costs, consumer demand may be affected. A decrease in the purchase price of new ZEVs and an improvement in residual values would make leases more affordable. Consumers are looking to mitigate high costs by entering longer lease terms, four years is the most popular option in 2023 up from three years in 2022. Longer terms both locks in a set rate for the consumer for longer but also enables the lease companies to offer lower cost rentals. Despite this, it will be challenging for leasing companies to reduce ZEV leasing prices in an attempt to drive demand (14).

Total cost of ownership

Increasing electricity prices in 2022-23 has affected the cost of EV charging, with public charging prices being particularly affected. Rapid and ultra rapid (>25kW) charging costs (21 p/mile) have increased 53% year on year until June 2023, while slow/fast (3-22kW) charging costs (20 p/mile) increased by 44% (15). In contrast the traditional fuels of petrol (16 p/mile) and diesel (17 p/mile) have fallen to levels seen pre-2022.

As a result, there is currently a considerable difference in the cost of charging at home compared to at a public chargepoint. Charging at an ultra-rapid chargepoint can be over 30% more expensive than fuel, while private home charging is around 35% cheaper than petrol and diesel on a pence per mile basis (16). Home charging can be even cheaper if off-peak tariffs are taken advantage of. This is something the newly introduced regulation on Smart Charging tries to encourage. As ZEV roll-out reaches the mass market, public charging will be more relied on so it is vital to keep prices competitive.

Electricity prices for different chargepoint locations compared against traditional fuels. Source: RAC Charge Watch (20)

	Electricity prices (p/kWh)	Cost per mile (p)	Cost per mile difference vs petrol/diesel
Public rapid chargepoint	**69**	**20**	**+24.5%**
Public ultra-rapid chargepoint	**74**	**21**	**+30%**
Private home chargepoint	**34**	**10***	**-36.5%**

ZEVs remain more expensive to purchase than their petrol and diesel counterparts. According to Auto Trader, the average cost of a ZEV in the UK is £52,720, compared to £36,796 for the average petrol car (17). However, ZEVs are expected to reach purchase price parity with ICE equivalents within the next five years. There is already evidence of ZEVs achieving lower maintenance and running costs vs ICE vehicles, with Fleet Assist reporting the parts component of service, maintenance and repair (SMR) costs for ZEVs are 28% lower than ICE due to fewer working parts (18).

A key issue for many fleets has been the sharp fall in the price of used electric cars across 2023, with the depreciation rate well above ICE vehicles. According to cap hpi, the June ZEV depreciation rate was at -4.1% compared to -1.0% for ICE vehicles. The freefall in ZEV prices has showed signs of slowing with the depreciation rate dropping to -1.9% in July and further improvement expected in August as fleets hold back supply (19).

*Ofgem domestic charging energy price cap, does not consider potential cheaper electricity via ToU tariffs

Used ZEV market

In late 2022 and into 2023, trends in the used vehicle market for ZEVs have been driven by significant growth in supply that is outpacing demand. New ZEVs that entered the leasing sector in large numbers a few years ago are now finding their way into the used vehicle market at a level that is not being met by an equal uptick in demand.

> **"Battery state of health is a massive topic and a lot of people are talking about how it will affect the used car market. I don't think battery state of health is going to be a blocker to people choosing a used ZEV but we would love to see a unified standard to give consumers that confidence when comparing used cars"**
>
> ***- Matt Hawkins, Polestar***

Auto Trader market intelligence data tracks the performance of the used vehicle market. Using share of stock and share of leads as proxies for supply and demand, the data shows supply exceeding demand from late 2022 through to April 2023, when supply fell sharply. Auto Trader's data also shows that year-on-year consumer demand for ZEVs in April 2023 was up 45% in the volume segment compared to a 300% increase in supply. In contrast, demand for petrol and diesel has been outpacing supply, albeit by a smaller margin (21).

As a result, the prices for used ZEVs have been falling and time-to-sell has increased. 2021-22 saw an unprecedented level of used car price inflation across all fuel-types, with prices for used ZEV's peaking at +25.8% year-on-year in September 2022. However, since then used ZEV prices have slumped and June 2023 was the sixth consecutive month of year-on-year price decline. ICE vehicles have not seen such a noticeable price drop from the elevated prices of 2022 (22).

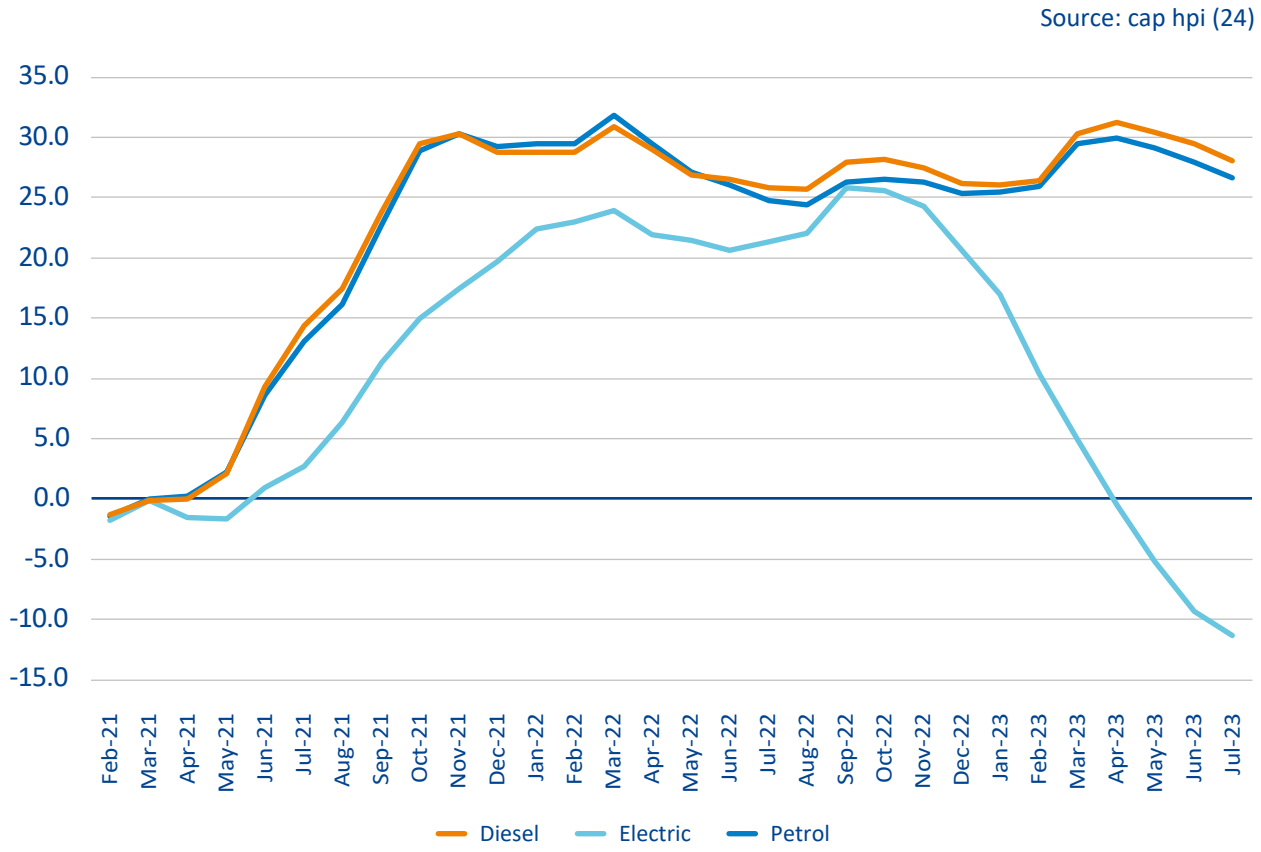
Price cuts for new ZEVs from certain manufacturers have also contributed to pushing used prices lower. For ZEVs, days to sell were up to 38 in June 2023 compared to 29 in June 2022, before dropping back down to 30 (23). Petrol and diesel have stayed relatively consistent over the same period at around 30 days. Despite falling prices, the challenging socio-economic climate (i.e. interest rates, energy prices) is constraining ZEV demand and prolonging the imbalance between supply and demand. Together, these indicators have led Auto Trader to assign a negative market health score for the used ZEV market across 2023.

The picture for the second half of 2023 is mixed, with some experts believing that prices are likely to plateau while others expect prices to fall further. What is generally agreed is that there will continue to be increases in used ZEV stock and so there will need to be a corresponding increase in demand if prices are to stabilise. New market offerings making second hand ZEVs available under salary and personal contract hire schemes, is a significant development that should help to drive demand.

A benefit to customers is that price parity between used ZEVs and ICE is edging closer and in June 2023, the average price for a used ZEV car (£15,863) in the volume segment was lower compared to petrol cars (£16,241) and diesel cars (£16,476) (25). Following the price realignments made by Tesla, the average price of a used 3-year-old Model 3 (£30,700) is now only £3,200 more expensive than an ICE BMW 3 Series of the same age. However, if used ZEV affordability is achieved through steep depreciation, it will make new vehicles more expensive to finance. It is therefore important that price parity is achieved in both the new and used vehicle market.

When it comes to used market sentiment, stakeholders have highlighted concerns over battery health and its role in the residual values of second-hand ZEVs and consumer confidence. Despite the lengthy warranties offered by OEMs, there is still considerable consumer anxiety about long-term battery health and reliability. A new range of battery status tests and certificates are emerging, but a lack of any harmonised industry standards is likely to limit their impact in supporting stronger used ZEV prices.

Figure 2: Cumulatively monthly movement of used car price (3 years, 60k miles) since Feb 2021



Recommendations: Demand

Key recommendations		
Increase support for the van transition.	**Assess fiscal interventions that secure a healthy used ZEV market and just transition.**	**Extend the Plug-in Van grant post 2024/25.**

Other asks

- Provide additional capital funding (similar to the Zebra scheme for buses) to support the uptake of zero-emission HGVs and infrastructure.
- Work with industry to build confidence in long-term ZEV battery health.
- Create additional Advisory Electricity Rates (AERs) that reflect the relative costs of public and home charging and the efficiency of vans and cars.
- Drop the retrospective introduction of VED on ZEVs and set a more appropriate expensive car supplement (ECS) value for them.
- Launch a public consultation on the future of road taxes.

Infrastructure

> **"If demand is the number one issue, infrastructure is number two. A big issue for the sector will be the installation of private charging infrastructure yet there's no strategy whatsoever in the UK to support the rental sector, the fleet sector or other businesses that need to install chargers on their own sites."**
>
> *- Shamik Patel, Enterprise*

2

Infrastructure

The UK's public chargepoint network continues to grow with over 10,000 new chargepoints added in the last 12 months. Reliability concerns are also being addressed.

However, there are still challenges around accessibility for vans and the lack of infrastructure aimed at HGVs. User experience at chargepoints is another concern, but new regulations to be introduced this year will address this issue.

KPIs

The key performance indicators used to track infrastructure rollout

Public charging availability

Cruising

Public charging user experience

Brakes on

Ease of implementation

Brakes on

Local authority engagement

Parked

Top recommendations

Consider further public chargepoint regulation to promote fleet friendly infrastructure, bookability and roaming.

Require chargepoint operators & local authorities that receive Government funding to consider fleet user needs.

Encourage DNOs to adopt standardised processes and timings to smooth the grid connection and upgrade process.

Infrastructure policies

Consumer charging experience

In July 2023, the UK government published draft regulations aiming to enhance the consumer experience at public chargepoints, following a 2021 OZEV consultation (26).

This will address key issues such as, open data access, pricing transparency, reliability and payment roaming. Targets and timelines will ensure improvements in these areas are achieved. For example, one year from the date that the regulations come into force, chargepoint operators (CPOs) must ensure that rapid chargepoints are reliable for 99% of the time. The draft legislation states that all CPOs must align their services with a roaming provider within two years of the legislation being passed.

Significant Code Review

In May 2022, Ofgem released its Significant Code Review which 'socialises' some grid reinforcement costs instead of making customers bear them all. Under the new rules, the cost of reinforcing the grid will not be included in customer connection offers made by distribution network operators (DNOs) unless a high-cost cap is exceeded. This change may improve project viability for some installations, although how the SCR will impact costs for fleet operators is yet to be seen (27).

Charging schemes

OZEV-funded grant schemes are available to cover a portion of the upfront cost of installing private chargepoints. As of April 2023, the EV chargepoint grant – which was launched in April 2022 to replace the Domestic Recharging Scheme (DRS) and Electric Vehicle Homecharge Scheme (EVHS) – funded 2,347 domestic chargepoints. The Workplace Charging Scheme funded 13,396 chargepoints across the same period, an increase of almost 3% compared to the previous 12 months.

The On-street Residential Chargepoint Scheme has funded 4,235 chargepoints since its inception in 2017, representing £16.1 million in grants across 116 councils.

Support is also available to local authorities via the Local Electric Vehicle Infrastructure fund (LEVI). LEVI is comprised of £343 million in capital funding for chargepoint installation, and the £37.8 million capability fund which seeks to increase capacity of local authorities to plan and deliver ZEV infrastructure, providing greater flexibility in the type and location of charging to be deployed.

"Installing depot charging infrastructure has come with many challenges, however these challenges vary by site. We undertake a lot of due diligence on site suitability and where connection upgrades were required, DNOs were able to meet our deadlines."

- Stuart Murphy, Royal Mail

Public Charge Point Regulations introduced to improve reliability, transparency and accessibility of UK public charging network (28)

Policy Area	*Public chargepoint regulatory requirements*	*Timeline from the regulations coming into force*
Pricing transparency	• The total cost of a charging session must be clearly displayed in p/kWh, either on chargepoint or via a separate device.	**Immediately**
Payment	• New public chargepoints of 8kW and above and existing rapid chargepoints must offer contactless to consumers. • Proprietary networks that open their chargepoints for public use will have one year from the date that the chargepoint becomes public to offer contactless.	**12 months**
Reliability	• Rapid chargepoints are required to be 99% reliable, on average across a CPOs rapid network – information on compliance must be made available on the CPOs website.	**12 months**
Helpline	• A 24/7 staffed, free to use helpline must be available and advertised at all chargepoints.	**12 months**
Open data	• CPOs must now use Open Charge Point Interface (OCPI) to hold and open their data, ensuring standards are met. Reference and availability data must be made public, while Government Bodies, DNOs and Electricity System Operators must be able to access all data.	**12 months**
Roaming	• CPOs must align their services with at least one roaming provider at their chargepoints.	**24 months**

Key Performance Indicators: Infrastructure

KPI	Metric	Rationale
Public charging availability and reliability *(Cruising)*	Public chargepoint numbers **Green**	Public chargepoint deployment is currently tracking an exponential increase (29), although a continued acceleration will be required for the UK to meet the target of 300,000 by 2030.
	% chargepoints out of service **Amber**	The trend in reliability is improving and compares favourably to other countries. Current 95.5% (30) reliability will need to improve to meet the 99% reliability target in 12 months.
Public charging user experience *(Brakes on)*	% network with open data **Green**	The majority of the network has open data, with live data available for 90% (31) of Zapmap's coverage, which represents over 70% of the UK's public charging network.
	% of network that is pre-bookable **Red**	The network is currently not set up to support booking services. There is limited evidence of booking services being offered or used.
	Ease of payment across network **Amber**	There are a number of ZEV payment card providers which offer the ability to make payments to multiple CPOs without the need for multiple apps, with the two market leading services covering 85% and 56% of the charging network.
	% of network that is van accessible **Red**	There has been no improvement on making data on chargepoint e-van accessibility available.
Ease of implementation *(Brakes on)*	Average grid connection times **Amber**	DNOs offer a range of support services to facilitate the grid connections process, and Ofgem data indicates that most DNOs met their targets for the average time taken to connect and quote (32). However, real world experiences show challenges persist.
Local authority engagement *(Parked)*	Local authority engagement with fleets **Red**	Of the 37% of local authorities with an ZEV strategy in place, only 20% have shown evidence of some engagement with fleets (33).

Public charging availability & reliability

As of July 2023, the UK had 44,020 electric vehicle charging points at 25,521 locations, an increase of 38% since July 2022. On average 600 chargepoints were added each month in 2022 and this rate is increasing, with 1,677 new ZEV charging devices in June 2023 alone (34)(35). Proportionally, ultra-rapid chargers (100kW+) were the fastest growing category from April to July 2023, albeit starting from a lower base, accounting for 776 devices. Fast charging (7-22kW) devices remain the most common category for public chargers.

Recent assessments based on data from Q2 deployment figures predict that the UK is decades behind schedule. However, if the longer-term trend is maintained then the 2030 target of 300,000 may still be possible. This would require high levels of sustained, exponential growth in chargepoint provision, which will be challenging, particularly as we approach 2030.

Reliability of the charging network is crucial to users, and the percentage of out-of-service chargepoints has decreased from 8.4% in June 2022 to 4.5% in 2023 (36). As might be expected, reliability improves as charging technology matures, with only 3.5% of chargers installed after 2021 being reported out of service.

Figure 3: July 2022-2023 Chargepoint growth by speed

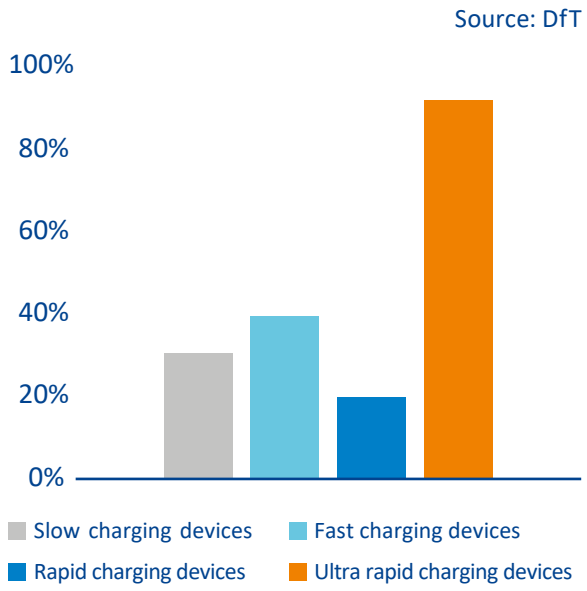
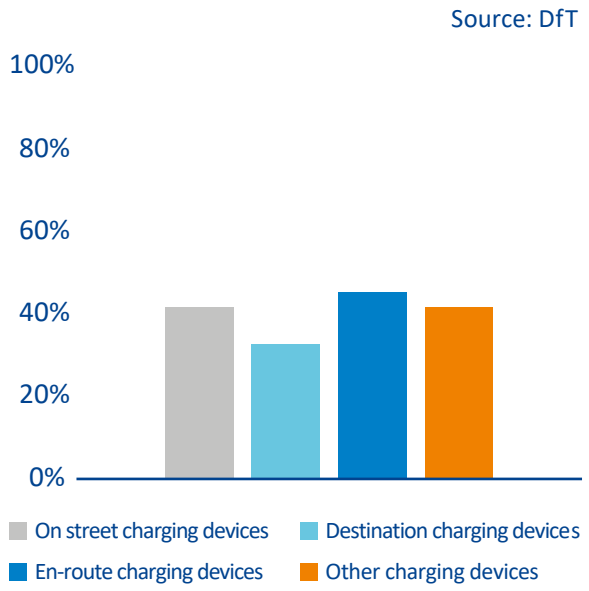


Figure 4: July 2022-2023 Chargepoint growth by location



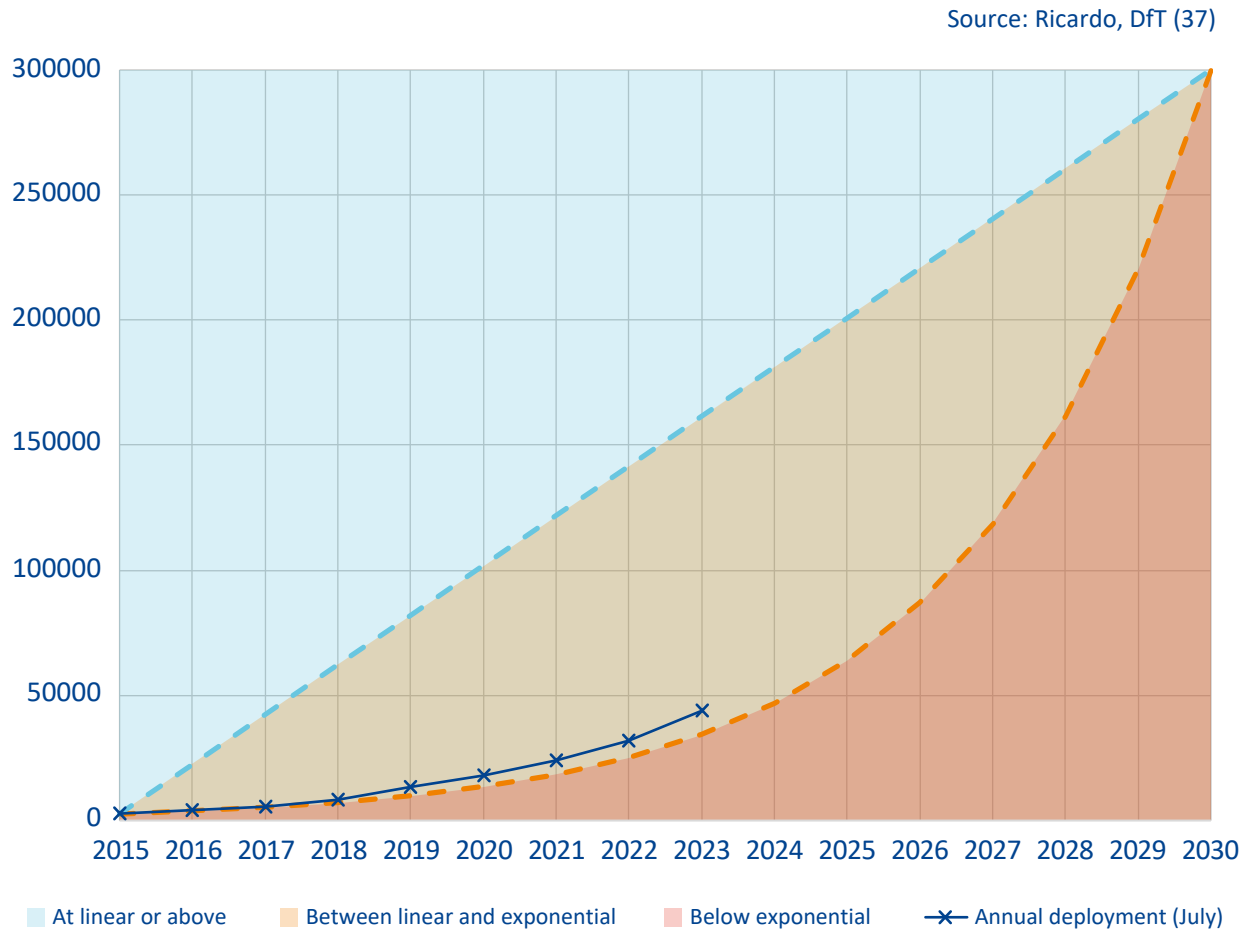
"Public hubs enabled us to advance our ZEV deployment in certain areas early on, but we then experienced challenges in terms of sharing charging with the public. We need a reliable source of fueling, and as public ZEV deployment ramps up, relying on public charging presents a risk to operations."

- Stuart Murphy, Royal Mail

"A lot of companies are put off by the idea of installing a charger at someone's home, but the payback is ridiculously positive. Even if someone hands in their notice, the likelihood is that the company w ill cover their investment in savings after a few months."

- Ashley Tate, Allstar

Figure 5: Progress towards the installation of 300,000 public chargepoints by 2030



Public charging user experience

Despite the progress in public chargepoint provision and reliability, accessibility and usability of the network must continue to improve.
In Q2 2023, 57% of chargepoints had restricted accessibility, imposing access restrictions such as limited opening hours (38). There is also limited monitoring of chargepoint suitability for larger vehicles and a sense in the market that van charging continues to be overlooked. Furthermore, there is currently no HGV-dedicated electric chargepoint or hydrogen refuelling provision on the strategic road network and the UK lacks a dedicated strategy for HGV infrastructure (39).

Motability and the British Standards Institute (BSI) developed standards for accessible charging at the end of 2022, but unfortunately, most chargepoints today have not be designed with the needs of disabled users in mind (40). Zapmap currently does not include data on accessibility. PlugShare does offer this service, however it covers a far smaller proportion of the UK public charging network.

The rise of chargepoint location apps and dedicated network apps has made finding charging stations easier. Zapmap now covers over 70% of the UK public charging network and allows users to locate chargepoints based on connector type and power rating. In June 2023, more than 90% of the Zapmap-covered network had real-time data on chargepoints, including availability and working status (41). Alternative services include PlugShare and Google Maps, which in the US displays availability of the charger, a feature yet to be brought to the UK.

Services such as Octpus Energy's Electroverse, which covers over 500,000 chargers across the UK and Europe, enables users to pay for a wide range of charging networks through a single app. Zapmap's Zap-Pay service includes nine charging networks enabling payment through the Zapmap app. Other ZEV payment card providers include Paua which cover over 25,000 chargepoints and Allstar which cover 85% of motorway charging sites. While these services are helping to consolidate access to chargepoints in one place, there remains some fragmentation across the network making roaming a challenge for fleet users.

Zapmap have partnered with YourParkingSpace with the aim of providing booking services, while SourceLondon are currently the only service which includes booking as a functionality. For now, pre-booking as a service has very limited availability or coverage.

> **"There's lots of challenges for vans at public chargers. Parking bays can be too small, often we can't get under barriers to use them in multi-storey car parks, we very rarely get the charging speeds advertised, and there's brand damage aspect to consider so we can't park in a way that's inconvenient for other users."**
>
> ***- Anonymous***

Ease of implementation

While domestic chargepoint installations are generally straightforward, each commercial deployment project has unique site-specific technical and practical factors that can significantly impact the time it takes to install and establish a connection. These include the space available, the number and power rating of chargepoints, planning permission, and the condition of the local electricity supply network.

Distribution Network Operators (DNOs) are required to respond and provide a quote within a specified timeframe based on the scale of work needed. The "time to connect" refers to the period between accepting a quote and installing the connection. Ofgem data shows that the majority of DNOs met their targets for average time-to-connect for lower power demand connections (42). In 2022, the average time to quote and connect was 48.6 days. DNOs also offer support services, online application portals, and information pages to assist with the installation of chargepoints.

Some DNOs have additional tools like UKPN's smart connect portal (43) and SPEN's ConnectMore (44), which provide insights into network capacity constraints.

While Ofgem targets are being met and DNOs are making efforts to streamline the connection process, real-world experiences and stakeholder feedback indicate there are still challenges. These may be reflected in the significant underspend by DNOs on network reinforcement in recent years, which was 44% under the allowance in 2022 (45). While there are many contributing factors, including energy efficiency measures and economic uncertainty, underspending has grown despite it being expected to decrease.

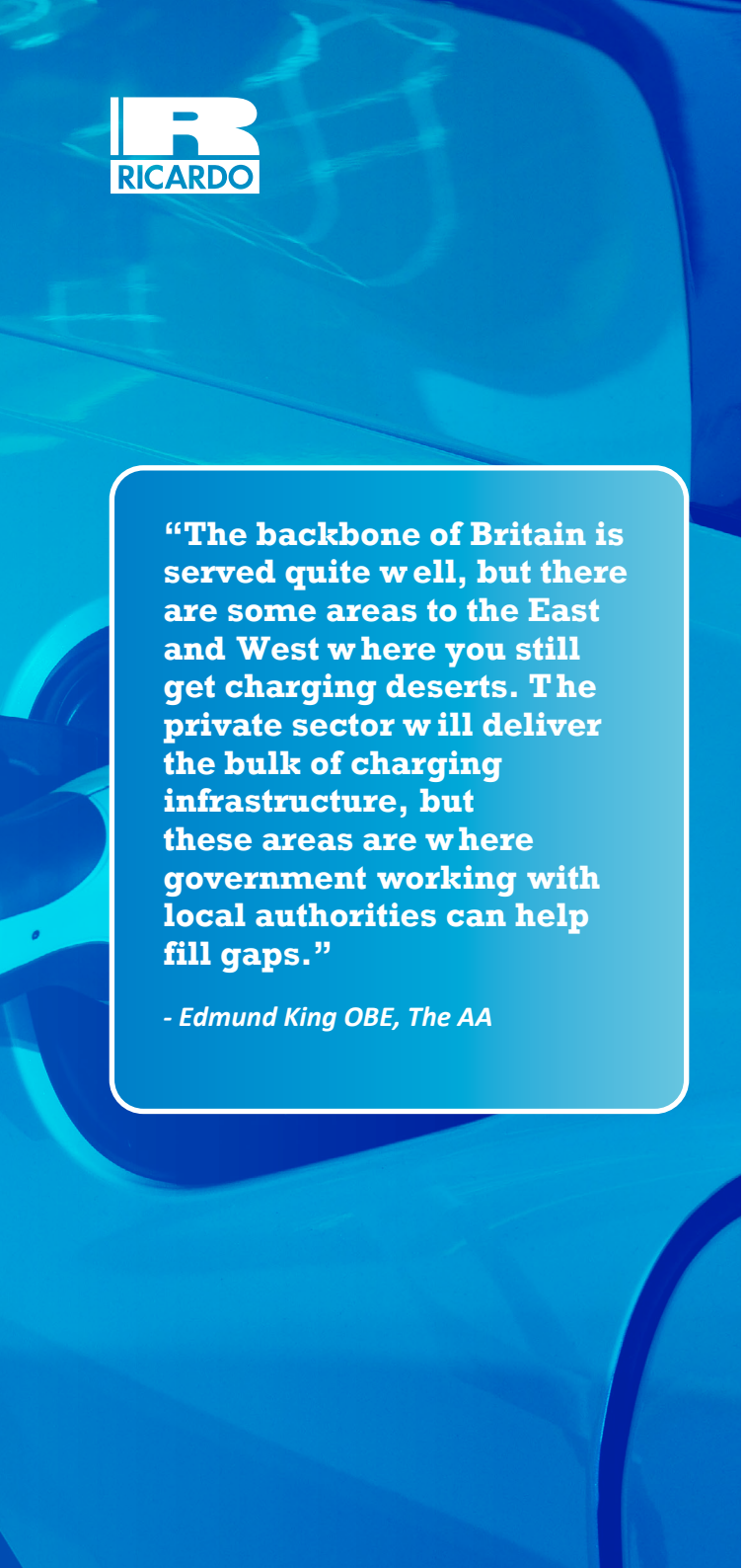
Following Ofgem's Significant Code Review (46) in April 2023, connection costs for customers under a high-cost threshold will be limited to the connection from the site to the DNO transformer. This reduces some of the financial burden, although operators seeking additional power at their premises are likely to still face significant investments for the connection and installation as well as the chargepoint hardware itself (47).

"The charging infrastructure is actually the conversation you need to be having before the conversation around the vehicles. It's about understanding what can be achieved before you consider the spec and order the vehicle."

- Pat Skelly, ProHire

"The process is different for each DNO, be that the lack of a consistent request process, the information they need from you, or the time to respond. We've had some huge issues getting responses from DNOs as to how much it would cost and what our options are."

- Shamik Patel, Enterprise



> **"The backbone of Britain is served quite well, but there are some areas to the East and West where you still get charging deserts. The private sector will deliver the bulk of charging infrastructure, but these areas are where government working with local authorities can help fill gaps."**
>
> ***- Edmund King OBE, The AA***

Local authority engagement

Local leadership is essential for successful public charging infrastructure deployment, integrating the transition to ZEVs with local communities and their transport needs. However, despite 37% of UK local authorities having an EV charging infrastructure strategy by the end of 2022, only 3% of all local authorities have actively engaged with the fleet sector, and over 40% have not engaged with fleets at all (48).

The LEVI fund will support public chargepoint deployment and enhance local authority capacity and capability for planning and delivering EV charging infrastructure (49).

However, there is an uneven distribution of chargepoints across local authorities, with inner London having a higher concentration per 100,000 population (50). Ensuring equitable provision of charging infrastructure is crucial to prevent regional disparities and promote ZEV adoption nationwide.

Continued support for all local authorities in developing ZEV strategies and fostering fleet engagement is vital in achieving this goal.

> **"The chargepoint hardware market is a bit like the wild west. You go out to market, you get quotes and there is not consistency. Reputable companies come with completely different quotes and approaches, and we see companies we deal with getting scared and confused, so they decide to wait and see till everything is clearer."**
>
> ***- Per Voegerl, United Rental Group***

While the £38 million capability fund under the LEVI framework seeks to build local authorities' capacity for planning and engagement, it is critical that this is done in collaboration with fleets to ensure the development of fleet friendly charging infrastructure.

Recommendations: Infrastructure

Key recommendations		
Consider further public chargepoint regulation to promote fleet friendly infrastructure, bookability and roaming.	**Require chargepoint operators & local authorities that receive Government funding to consider fleet user needs.**	**Encourage DNOs to adopt standardised processes and timings to smooth the grid connection and upgrade process.**

Other asks

- Monitor the impact of the Significant Code Review (Access SCR) on the pipeline of connection applications and the reaction of DNOs to the additional cost burden.
- Consult on including electricity in the Renewable Transport Fuel Obligation (RTFO) in the upcoming low carbon fuel strategy.
- Reduce the VAT rate on public ZEV charging in line with domestic electricity.
- Publish an HGV Infrastructure Strategy.
- Evolve Project Rapid to focus on all transport hubs (airports, shared depot facilities, truck rest areas) not just MSAs.

Supply

"Some utility companies and service providers are struggling because their business has set a n et zero target but there isn't a suitable E V product out there for their exact needs. While manufacturers are innovating, the choice of capable electric 4x4s, vans with 2 00+ miles range or with ample towing / payload allowance, just isn't readily available yet – t hat's a barrier to the energy transition, which innovation must now break through"

- Ben Edwards, Arval UK

3

Supply

The UK's ZEV supply is progressing well with more models and better lead times. Vehicle capabilities are improving, but affordability is still a concern. Aftermarket services are keeping up, but regional disparities and maintenance cost uncertainties continue.

Battery production and recycling facilities must be secured for future supply chain stability.

KPIs

The key performance indicators used to track supply levels

ZEV product suitability

Accelerating

ZEV product lead time

Cruising

ZEV sales and manufacturing

Accelerating

Aftermarket services

Cruising

Top recommendations

Introduce a review process to assess the market impact of the ZEV Mandate, with a specific focus on the supply of fit-for-purpose vans.

Introduce UN GTR 22 to UK type approval as soon as possible to create confidence in battery durability.

Consult well in advance of a ZEV mandate for trucks, allowing a longer period for responses.

Supply policies

ZEV mandate

The Government has consulted on introducing a ZEV mandate to start in 2024 (51). The proposed legislation sets minimum requirements for the share of zero-emission vehicle (ZEV) sales, increasing annually to reach 80% of car sales and 70% of van sales by 2030.

The proposals are some of the most ambitious in the world and have been broadly welcomed by industry and civil society. However, some groups would like to see a bolder target whilst others want less stringency (52).

Market forecasts for ZEV sales are mixed, with both supply and demand side factors contributing to inherent uncertainty. The SMMT (which represents car and van manufacturers) forecasts that both markets will exceed their year one ZEV mandate targets in 2024 (53). The continued transition of fleet vehicles is key to meeting the ZEV mandate, with company vehicles already comprising 61% of total registered electric vehicles in Q1 2023 (54).

UK battery and ZEV production

Under the post-Brexit "rules of origin", electric vehicles and batteries manufactured in the UK will need to meet UK or EU content thresholds in order to export the EU tariff-free (55). To keep UK products competitive in its most important export market, the UK needs to localise battery manufacturing (56).

Currently, UK vehicle battery production is limited to one major plant in Sunderland. Government investment and subsidies are essential to attract additional production and remain competitive. The recent announcement of the Tata Gigafactory is a significant boost for the UK car industry and underlines the importance of Government-led investment to attract manufacturing to the UK. Complementary to this, continued support of research and start-up initiatives, such as through the Automotive Transformation Fund, is important in establishing a competitive and sustainable UK supply chain encompassing all stages of electric vehicle production. Recent EV investment announcements by Mini and Stellantis are boosts to British automotive manufacturing.

Battery durability and health standards

There is an emerging need for standards to ensure that battery performance remains high over the course of its operational life, and to allow used vehicle buyers to confidently assess battery health. The UN Global Technical Regulation 22 (GTR22) seeks to address these issues (57). The European Commission has included GTR22 in its proposed Euro 7 standards, but it is not yet clear how and when the standards will be adopted in the UK. This is an area of significant interest for industry and fleets who want to see action taken in the UK now.

> **"A unified standard is needed as to how battery state of health is calculated and how it should be measured."**
>
> ***- Matt Hawkins, Polestar***

Key Performance Indicators: Supply

KPI	Metric	Rationale
ZEV product suitability *(Accelerating)*	Vehicle efficiency **Amber**	75% of car models and 45% of van models exceed 3 mi/kWh battery efficiency. 33% of HGV models exceed 1 mi/kWh battery efficiency (58).
	Vehicle affordability **Amber**	The cost of ZEV car and van models remains high, with only 27% of models for both car and van below £30,000 (59).
	Vehicle charging speeds **Amber**	61% of car models can charge at a rate equivalent to 200 miles range within 30 minutes (400 mph), with only 6% for vans. Only four of the existing HGV models (44%) support this rate of charging (60).
	Van minimum range **Red**	Only 18% of electric van models have a range greater than 200 miles (61).
ZEV product lead time *(Cruising)*	Average vehicle lead times **Green**	ZEV lead times for cars and vans have performed better than ICE for the last two years - 56% of electric cars and 37% of electric vans were delivered within 6 months in June 2023, 5% and 13% better than ICE cars and vans respectively (62).
ZEV sales and manufacturing *(Accelerating)*	% of sales that are ZEV **Amber**	ZEV car registrations show strong growth in 2023, reaching 16.1% share in the year up to July 2023. Van registrations declined, with market share falling by 0.2% to 5.2% in the year to July 2023. ZEV HGV registrations remained low at 2% share in 2022, despite registrations increasing six-fold between 2021 and 2022 (63).
Aftermarket services *(Cruising)*	Number of qualified ZEV technicians **Green**	By the end of 2022, there were over 39,000 trained ZEV technicians, with a 19,000-technician surplus. Regional disparities exist, with over 150 authorities having less than 2% of technicians qualified to work on ZEVs (64).
	ZEV repair times and costs **Green**	ZEV repair times and costs have reduced since 2022. ZEV repair times are 25% faster and parts costs 46% lower than for ICE (65). However, ZEV insurance claims are 25.5% more expensive than their ICE equivalents and take around 14% longer to repair (66).

ZEV product suitability

The model range and functionality of ZEV vehicles available in the UK have continued to expand over the last year. However, there is still room for improvements in affordability and functionality across all vehicle types. The introduction of a ZEV mandate would see an increased sales share of ZEV cars and vans, but it's effect on the range of vehicle models available is still uncertain.

Cars

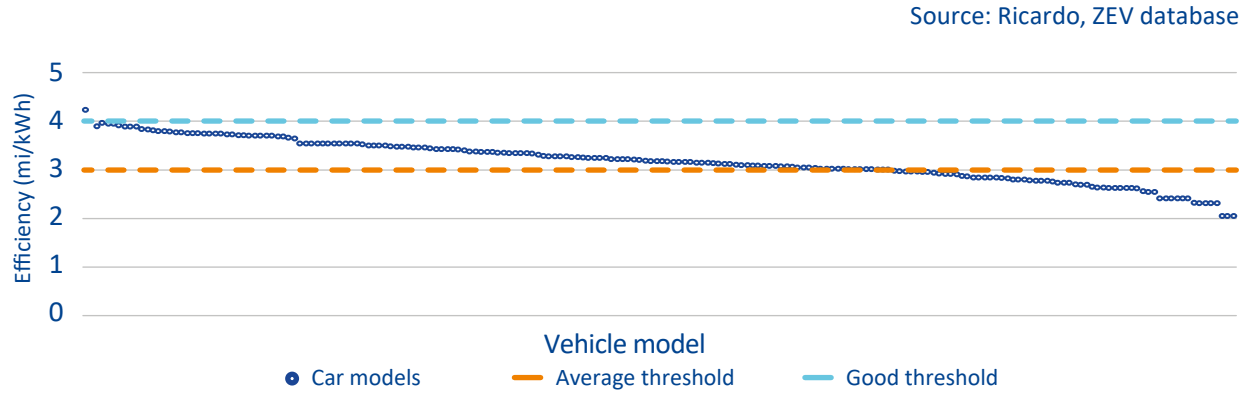
There has been notable growth in the choice of ZEV models, with the number of battery electric car models quadrupling since 2018 to around 80 models in 2023 spread across a range of vehicle segments (67). There were 96,705 new battery electric car registrations in the year to April 2023 representing a 25.6% increase from the same period last year. Most models have a range greater than 200 miles (68), with the average range of 236 miles far exceeding the UK driver's average weekly mileage of 100 miles (69). Just as fuel economy is important for ICE, energy efficiency is a crucial factor in determining the overall cost of ownership and the range of an electric vehicle.

All electric car models currently offer greater than 2 mi/kWh efficiency, with 75% of models exceeding 3 mi/kWh.

The current distribution of models and sales indicates that the battery electric car market is focused on premium vehicles, with relatively few affordable models or sales below £30,000. This is contrasted with 116 ICE car models available for less than £30,000. Stakeholder interviews highlighted that upfront cost remains the main barrier to mass electric car adoption, with a need for more affordable "urban" commuter cars where range (and battery capacity) may be less important.

> **"The smaller car segment is a segment that's underrepresented. So far it has been a t op-down trickle, with OEMs starting with the luxury and then moving down to more affordable models."**
>
> - *Paulo Larkman, Novuna*

Figure 6: Efficiency rating for car models

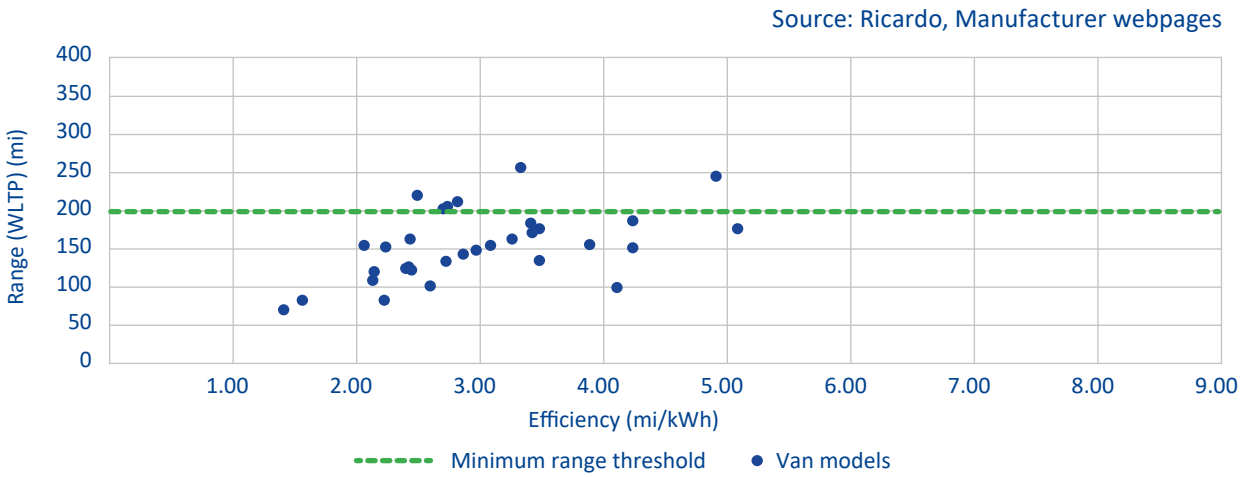


Vans

With 23 van models now available, the number of ZEV light commercial models is improving. However, limited model choice, charging times, and range and payload options are contributing to a recent slump in new electric van registrations. In June 2023, new electric vans registrations comprised 5.1% of the market share, representing a 12% fall in registrations from 7.6% share in June 2022 (70).

Limited driving range was highlighted by stakeholders as a significant barrier to electric van deployment, with only 18% of electric vans having a WLTP range greater than 200 miles (71). Moreover, fleet operators point out that real-world driving ranges are typically much lower than the quoted WLTP range due to factors such as heavier operational payloads and weather conditions. As such, ZEV van models with a real world range greater than 200 miles are extremely limited.

Figure 7: Efficiency against range for selected ZEV van models



The strong correlation between higher efficiency van models and longer ranges shows that vehicle efficiency is a key indicator for a vehicle's capacity for high mileage use cases. Only 45% of available models offer greater than 3 mi/kWh efficiency. This issue is compounded by a lack of van models that can support fast charging (i.e. a rate equivalent to 200 miles in 30 minutes).

There is also a shortage of affordable and practical van choices, with a lack of features such as chassis-only, four-wheel drive, and wheelchair accessibility. Although the ZEV mandate consultation proposed to increase the share of ZEV vans to 70% by 2030, it remains unclear whether this legislation will address limitations in product choice and affordability in specialised van segments.

"Especially on the commercial side, the vehicles are seen as tools, like a drill or a hammer. No tradesman will buy a tool that is much more expensive unless it is practical to use on a daily basis."

- Per Voegerl, United Rental Group

"For commercial and heavy commercial vehicles, transitioning is proving more problematic due to the fact that the WLTP stated range can be considerably less in the real world due to payload. When you factor in weather and various other factors, we can see real world range for LCV is less than 50% of the WLTP stated range."

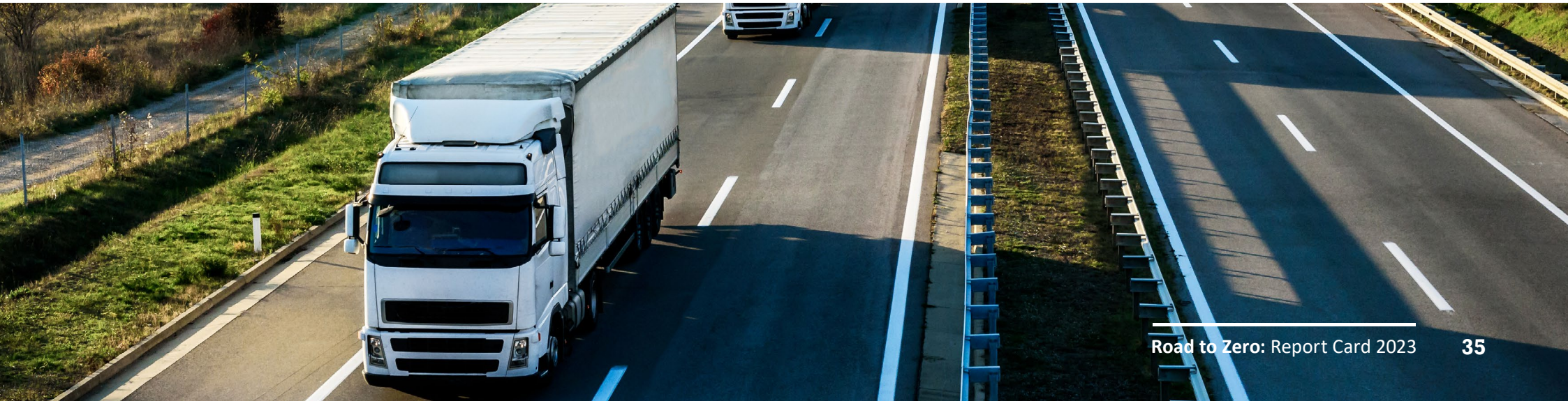
- Paulo Larkman, Novuna

"If you've got a task which needs the vehicle to cater for ancillary equipment – such as tail lifts and fridges, or if you need cherry picker cranes or Luton boxes, or to carry / tow a heavy payload – at the moment you're in a bit of trouble because there isn't really that ZEV product with a suitable range for the application."

- Ben Edwards, Arval UK

HGV

The ZEV market for heavy goods vehicles (HGVs) is still in its initial stages and small compared to cars and vans, with electric trucks comprising 2% of new registrations in 2022 (72). Incentives are vital to encourage fleets to switch and while there is a purchase incentive, less than half the ZEV models on the market are eligible (73). Stakeholders also highlighted the lack of options for most commercial truck segments. There is a lack of a clear roadmap towards achieving the government target of no new non-zero electric trucks under 26 tonnes from 2035 and all new trucks from 2040. There are some early signs of accelerating growth and investment in the segment, and it is promising that Tevva is starting high volume production of electric trucks in the UK.



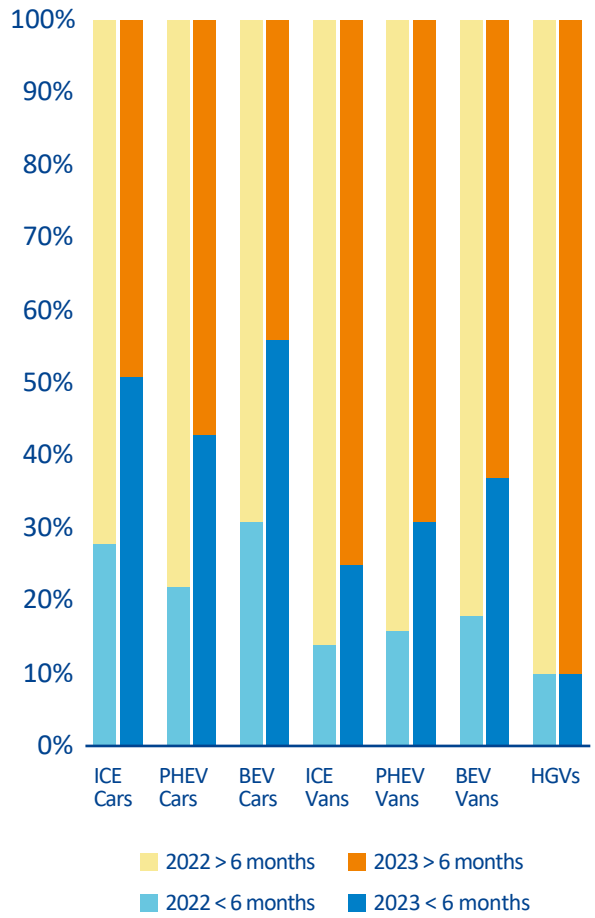
ZEV product lead times

The long vehicle delivery lead times experienced since 2020 have started to improve as global microchip shortages reduce and supply chains recover from pandemic-era disruptions (74). Promisingly, battery electric cars and vans have performed better than petrol and diesel counterparts.

Data collected from BVRLA members show that in June 2023, 56% of battery electric cars and 51% of ICE cars were delivered within six months of ordering, compared to 31% and 28% respectively in June 2022 (75). Van lead times have also improved over the past year but still remain high, with only 37% of battery electric vans delivered within six months of ordering.

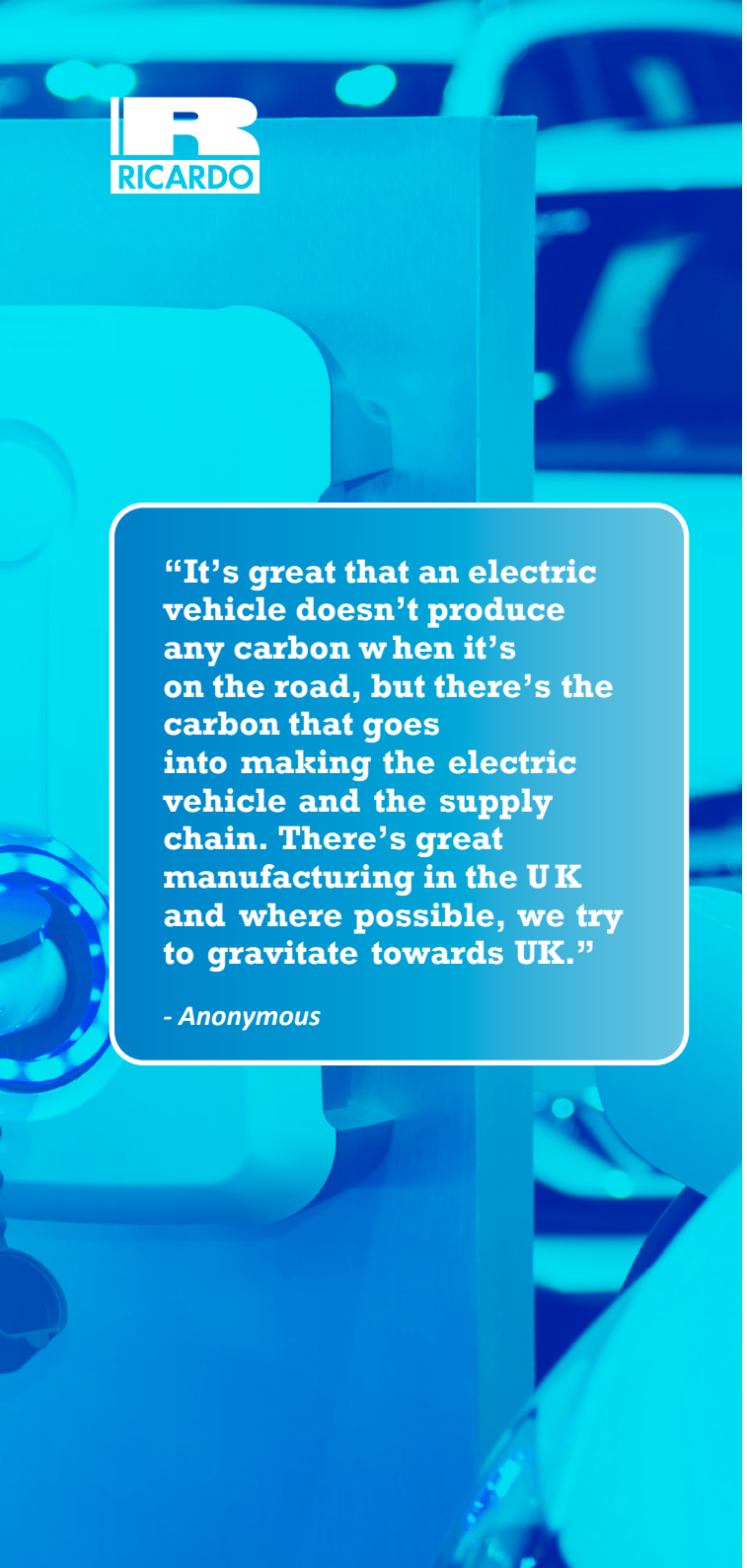
Stakeholders have identified lengthy delivery times as a significant barrier to deploying battery electric vans. However, there is some variability depending on the nature of the order.

Figure 8: Vehicle lead times for June 2022 and June 2023 (76)



"Pre-COVID, the rule of thumb would be a lead time of around three months, but into 2021 and 2022, we were talking about some lead times nudging two years. The average has come away from that slowly but it's not really coming back further than around seven months."

- Jonny Berry, Novuna



> **"It's great that an electric vehicle doesn't produce any carbon when it's on the road, but there's the carbon that goes into making the electric vehicle and the supply chain. There's great manufacturing in the UK and where possible, we try to gravitate towards UK."**
>
> ***- Anonymous***

ZEV sales and manufacturing

ZEV registrations have continued to show strong growth in 2023, with ZEV registrations up by 39% in the YTD July 2023 compared to the YTD July 2022 and market share reaching 16% by July 2023 (77). This puts the ZEV market in a strong position to exceed the ZEV mandate's proposed sales target of 22% in 2024 and outpacing the forecast by the SMMT.

ZEV van registrations are on a different trajectory. ZEV van sales fell by 12% in June 2023 compared to last year (78). Van registrations are not on-track to meet the SMMT forecasted share of 7% by the end of 2023 and are way off the ZEV mandate's proposed target of 10% by next year.

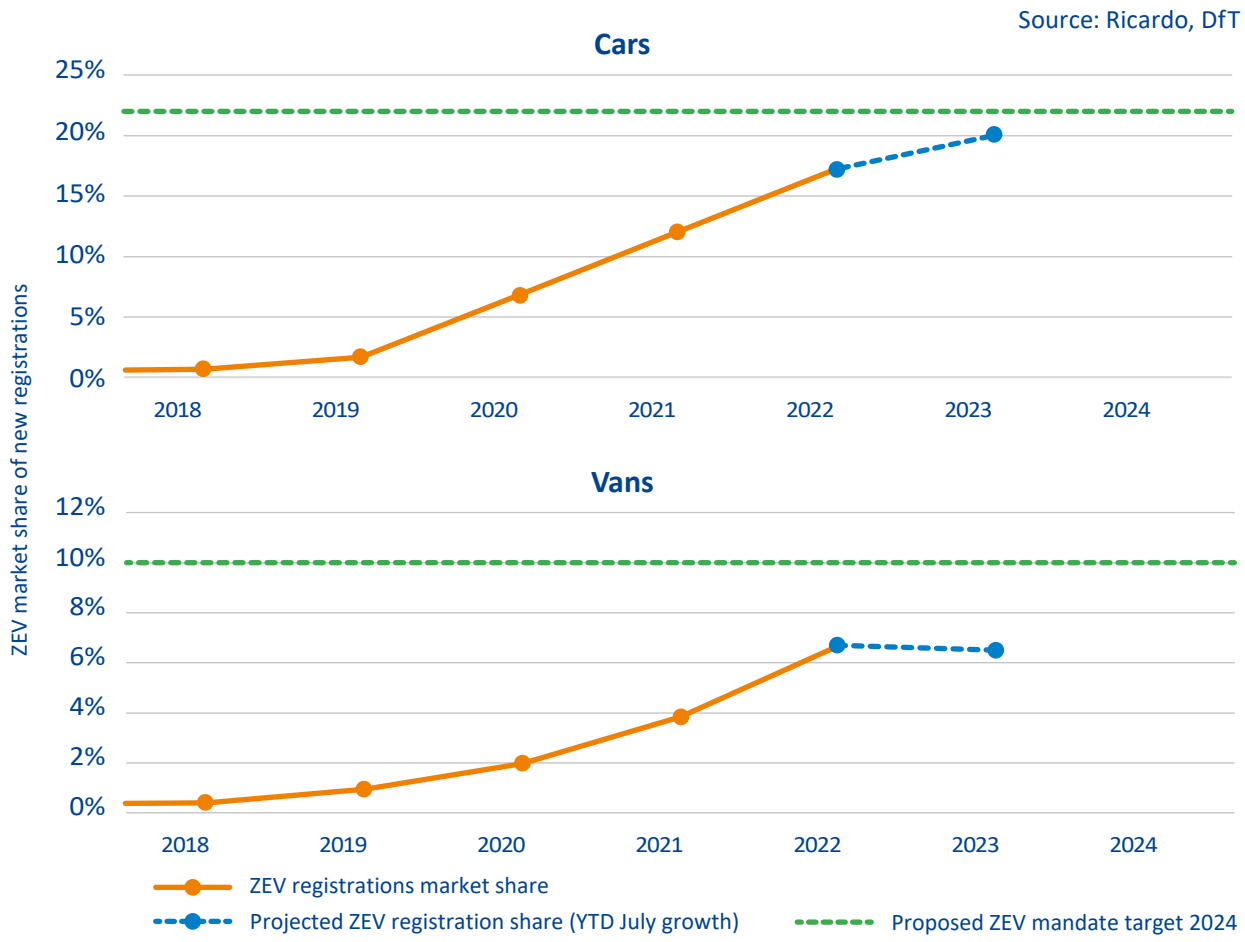
The introduction of zero emission alternatives for HGVs is at an early stage, comprising only 2% of new registrations in 2022 (79).

The Government aims to phase out non-zero emission HGVs by 2040, but supply-side regulations to support this goal are yet to be announced.

ZEV production is established in the UK through Stellantis, JLR, Mini and Nissan, while Leyland DAF and Tevva manufacture electric trucks. While the share of ZEV sales is accelerating, the share of UK-manufactured ZEV cars is not keeping pace – falling from 14% in 2019 to 6.2% in 2022 (80). Manufacturers appear to be losing confidence in the UK, with several major OEMs citing high manufacturing costs and concerns about higher tariffs post-Brexit.

It is vital that we see more investment in battery production in the UK. The only operational electric battery factory in the UK is Envision AESC (Sunderland), currently operating at 1.7 GWh capacity and with a planned expansion to 20 GWh by 2030. Tata motors recently confirmed it will be building a gigafactory in Somerset to support JLR electric vehicle production, but current commitments fall short of the estimated 140 GWh battery capacity that will be needed to support the UK ZEV manufacturing sector (81) by 2040.

Figure 9: Current market share and projected ZEV uptake share relative to ZEV mandate target for 2024



While BVRLA members indicate that there is a draw to UK manufactured products, overall brand loyalty has become less important for customers when considering ZEV options, with more weight placed on the performance of different models.

Battery recycling will become an increasingly important part of the overall value chain as the number of ZEVs reaching the end of their operational life rises. Recycling used ZEV batteries has economic and environmental incentives due to economies of scale and energy efficiency. This will also provide stability from global supply chain shocks (82). Several battery recycling facilities exist or have been recently announced in the UK, led by Britishvolt-Glencore, Veolia, RS Bruce Sheffield, Cawleys, and Eco Recover.

Aftermarket services

By the end of March 2023, the number of qualified ZEV technicians reached 18% of total technicians, a total of 42,400 (83). However research by The Institute of the Motor Industry (IMI) has revealed significant gaps in qualified technicians to work on electric vehicles.

Their findings show that despite an increase in ZEV training in the last year, qualified technician availability is still inconsistent across the UK, presenting an underlying risk to the Government's decarbonisation plans.

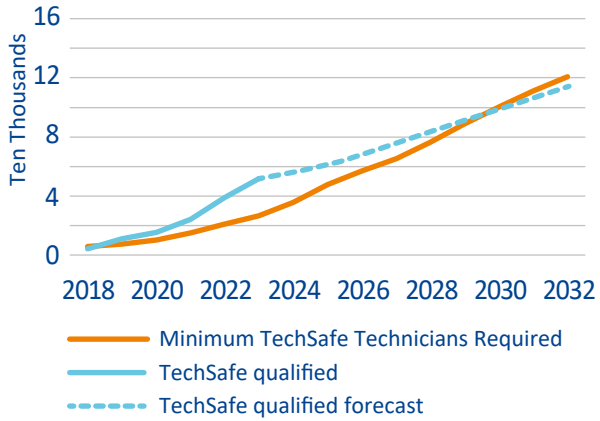
There are also risks of the skills transition not keeping up with ZEV uptake in the future due to factors such as aging work force, current sector vacancy rates and cost of living crisis potentially restricting spending on training (84). As might be expected, larger companies such as dealerships are ahead of independents in the take up of EV training.

Data collected from BVRLA members shows that servicing and maintenance repair times for both internal combustion engine (ICE) and battery electric vehicles have improved over the past year. In the same period, parts costs for ZEV repairs fell by 5%, while ICE vehicle parts costs rose by 8% (85).

However, the increased weight and higher torque delivered during a standing start lead to higher tyre wear and increased tyre servicing frequency (86). Furthermore, a recent report by Thatcham Research has shown that ZEV insurance claims are currently around 25.5% more expensive than their ICE equivalents and take around 14% longer to repair, with the most significant challenges to insurance claims related to high voltage battery damage (87).

As ZEV market penetration increases and more data becomes available, running costs will become better understood. Developing cost-effective solutions for high-voltage battery repair, refurbishment, reuse, and recycling is crucial to minimise the impacts of battery maintenance on consumers and businesses (88).

Figure 10: Required and forecasted number of EV-trained technicians between 2018 and 2032



"More than three years ago, there were skills gaps among technicians and workshops, which contributed to EV adopters potentially facing increased downtime. But I haven't seen as many reports of downtime as an issue with EVs in the last couple of years."

- Ben Edwards, Arval UK

Recommendations: Supply

Key recommendations		
Introduce a review process to assess the market impact of the ZEV mandate, with a specific focus on the supply of fit-for-purpose vans.	**Introduce UN GTR 22 to UK type approval as soon as possible to create confidence in battery durability.**	**Consult well in advance of a ZEV mandate for trucks, allowing a longer period for responses.**

Other asks

- Work with industry to endorse real-world e-van range figures as a more accurate alternative to WLTP so customer expectations can be better managed.
- Develop an industrial strategy focused on locking in a steady supply of UK-manufactured ZEVs.
- Collaborate across industry to develop capacity and facilities for battery maintenance and repair.
- Develop a strategy for battery end-of-life treatment and communicate its role in the supply chain.
- Provide support targeted at multi-stage and specialist vehicle builders to adapt their products to use zero emission powertrains.

Resources

4

Resources

1. EV Census data – collected from BVRLA members

Demand

2. Fleet News, https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2023/01/30/hmrc-changes-methodology-to-calculate-advisory-electricity-rate
3. BVRLA Data Hub
4. Ibid
5. Ibid
6. RAC, https://www.rac.co.uk/drive/electric-cars/charging/electric-car-public-charging-costs-rac-charge-watch/
7. Data provide by Auto Trader
8. Data provided by cap hpi
9. Auto Trader, https://www.nfda-uk.co.uk/downloads/Auto-Trader-Monthly-Market-Intelligence-July-2023.pdf
10. Data provided by Auto Trader
11. EV Census data – collected from BVRLA members
12. Ibid
13. Leasing.com, end of year (2022) data
14. Ibid
15. RAC, https://www.rac.co.uk/drive/electric-cars/charging/electric-car-public-charging-costs-rac-charge-watch/
16. Zap-Map, https://www.zap-map.com/ev-stats/charging-price-index
17. Data provide by Auto Trader
18. Fleet Assist, https://www.fleetassist.co.uk/news/2022
19. Data provided by cap hpi
20. RAC, https://www.rac.co.uk/drive/electric-cars/charging/electric-car-public-charging-costs-rac-charge-watch/
21. Auto Trader, https://www.autotrader.co.uk/trade-site-images/static/assets/market-intelligence-reports/car-monthly-market-intelligence-report-june-2023.pdf
22. Data provided by Auto Trader
23. Ibid
24. Data provided by cap hpi
25. Auto Trader, retail price index press release

Infrastructure

26. Department for Transport, The Public Charge Point Regulations 2023 (legislation.gov.uk)
27. OFGEM, https://www.ofgem.gov.uk/publications/access-and-forward-looking-charges-significant-code-review-decision-and-direction
28. Department for Transport, The Public Charge Point Regulations 2023 (legislation.gov.uk)
29. Department for Transport, https://www.gov.uk/government/collections/electric-vehicle-charging-infrastructure-statistics
30. Data provided by Zapmap

31. Ibid
32. OFGEM, https://www.ofgem.gov.uk/energy-data-and-research/data-portal/energy-network-indicators
33. BVRLA, BVRLA Fleet Friendly Charging Index
34. Zapmap - https://www.zap-map.com/ev-stats/how-many-charging-points
35. Department for Transport, https://www.gov.uk/government/collections/electric-vehicle-charging-infrastructure-statistics
36. Data provided by Zapmap
37. Department for Transport, https://www.gov.uk/government/collections/electric-vehicle-charging-infrastructure-statistics
38. EAFO, https://alternative-fuels-observatory.ec.europa.eu/
39. SMMT, https://www.smmt.co.uk/2023/04/zero-emission-hgv-market-shackled-by-absence-of-infrastructure-and-lack-of-plan/
40. UKPN & Ricardo, https://innovation.ukpowernetworks.co.uk/projects/enable/
41. Zapmap, https://www.zap-map.com/ev-guides/public-charging-point-networks
42. OFGEM, https://www.ofgem.gov.uk/energy-data-and-research/data-portal/energy-network-indicators
43. UKPN, https://www.ukpowernetworks.co.uk/smart-connect
44. SPEN, https://www.spenergynetworks.co.uk/pages/connectmore_interactive_map_terms.aspx
45. OFGEM, https://www.ofgem.gov.uk/energy-data-and-research/data-portal/energy-network-indicators
46. OFGEM, https://www.ofgem.gov.uk/publications/access-and-forward-looking-charges-significant-code-review-decision-and-direction
47. Logistics UK, https://logistics.org.uk/CMSPages/GetFile.aspx?guid=5ede8b19-5b15-4211-909a-b603825ba01c&lang=en-GB
48. BVRLA, BVRLA Fleet Friendly Charging Index
49. Energy Saving Trust, https://energysavingtrust.org.uk/listing/news/page/2/#:~:text=%C2%A3381%20million%20government%20Local%20Electric%20Vehicle%20Infrastructure%20Fund,for%20dedicated%20EV%20infrastructure%20and-%20resource%E2%80%A6%20Read%20more
50. Department for Transport and Office for Zero Emission Vehicles, https://www.gov.uk/guidance/electric-vehicle-charging-infrastructure-help-for-local-authorities#

Supply

51. Department for Transport, https://www.gov.uk/government/consultations/a-zero-emission-vehicle-zev-mandate-and-co2-emissions-regulation-for-new-cars-and-vans-in-the-uk
52. Edie, https://www.edie.net/uk-set-to-introduce-zero-emission-vehicle-mandate-for-car-manufacturers-in-2024/
53. SMMT, https://www.smmt.co.uk/wp-content/uploads/sites/2/WEBSUM-SMMT-CARLCV-MARKET-OUTLOOK-Q2-04052023-FINAL.pdf
54. Department for Transport, https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2022/vehicle-licensing-statistics-2022
55. Faraday, https://faraday.ac.uk/wp-content/uploads/2021/03/Brexit-TCA-Rules-of-Origin-for-Batteries-press-briefing-FINAL-5March-2021.pdf
56. SMMT, https://www.smmt.co.uk/reports/race-to-zero-powering-up-britains-ev-supply-chain/%20and%20https://www.faraday.ac.uk/ev-economics-study-2022/
57. UNECE, https://unece.org/sites/default/files/2023-01/ECE_TRANS_180a22e.pdf
58. EV Database & collated by Ricardo using data provided by vehicle manufacturers

59. Ibid
60. Ibid
61. Ibid
62. BVRLA lead times survey
63. SMMT, https://www.smmt.co.uk/2023/08/uk-new-car-and-van-forecast-july-2023/
64. Data provided by IMI
65. BVRLA, data collected from BVRLA members
66. Thatcham Research, https://news.thatcham.org/documents/impact-of-bev-adoption-on-the-repair-and-insurance-sectors-report-innovate-uk-and-thatcham-research-final-dot-pdf-433264
67. SMMT, https://www.smmt.co.uk/2023/05/britains-new-car-market-boosted-by-battery-electric-vehicle-choice/
68. EV Database
69. SMMT, https://www.smmt.co.uk/2023/07/best-performing-half-year-for-new-van-market-since-2019/
70. Ibid
71. Collated by Ricardo using data provided by vehicle manufacturers
72. Department for Transport, https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2022/vehicle-licensing-statistics-2022
73. SMMT, https://www.smmt.co.uk/2023/04/zero-emission-hgv-market-shackled-by-absence-of-infrastructure-and-lack-of-plan/
74. Automotive news, https://www.autonews.com/suppliers/auto-industry-chip-supply-improving-imperfect
75. BVRLA lead times survey
76. Ibid
77. SMMT, https://www.smmt.co.uk/2023/08/summer-surge-as-one-new-ev-registered-every-60-seconds/
78. SMMT, https://www.smmt.co.uk/2023/08/uk-new-car-and-van-forecast-july-2023/
79. Department for Transport, https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2022/vehicle-licensing-statistics-2022
80. ACEA, https://www.acea.auto/files/ACEA_fact_sheet_EU_UK_vehicle_trade-June_2023.pdf
81. Faraday, https://www.faraday.ac.uk/wp-content/uploads/2022/07/Faraday_Insights_2_update_July_2022_FINAL.pdf
82. IEA, https://www.iea.org/reports/global-ev-outlook-2022
83. Data provided by IMI
84. Ibid
85. BVRLA, data collected from BVRLA members
86. IMI, https://tide.theimi.org.uk/sites/default/files/2023-04/EV%20Technicians%20forecast%20report%20March%202023v2.pdf
87. Thatcham Research, https://news.thatcham.org/documents/impact-of-bev-adoption-on-the-repair-and-insurance-sectors-report-innovate-uk-and-thatcham-research-final-dot-pdf-433264
88. Ibid

Acknowledgements

The BVRLA and the project team would like to acknowledge and thank all contributors for providing their support to this year's report card.

Contributors did not set the scores or recommendations nor have sight of them. The scores are set by Ricardo and the BVRLA using the data and inputs gathered.

Contributors to interview	
Company	Individual
Alphabet	Caroline Sandall-Mansergh
Allstar	Ashley Tate
Arval	Ben Edwards
Enterprise	Shamik Patel & Laura Holloway
Novuna Vehicle Solutions	Jonny Berry & Paulo Larkman
Openreach	Andrew Kirkby
Polestar	Matt Hawkins
Prohire	Pat Skelly & Michelle Miles
Royal Mail	Stuart Murphy
The AA	Edmund King OBE
United Rental Group	Per Voegerl

Contributors		
3B Vehicle Hire	Europcar Group	Pendragon Vehicle Management
ALD Automotive	Fraikin	RAC
Alley Cat Car & Van Rentals	Herd Hire	Reflex Vehicle Hire
Arc Fleet Services	Hertz	Rivus Fleet Solutions
Arnold Clark Car & Van Rental	Institute of the Motor Industry	Ryder
Autohorn	Kinto U.K. Limited	Scottish & Southern Electricity Networks
Auto Trader	LeasePlan	Scot Group Ltd T/A Thrifty Car & Van Rental
Avis Budget UK Ltd	Leasys UK	SG Fleet Solutions UK Ltd
cap hpi	Lex Autolease	Sixt Rent A Car
ChargeSafe	Marshall Leasing	Thrifty Car & Van Rental
Close Brothers Vehicle Hire	Miles and Miles	Tusker
DAF Trucks	Northgate Vehicle Hire	Zapmap
Dawsongroup vans	Octopus Electric Vehicles Ltd	Zenith

About Ricardo

Ricardo-AEA Ltd (thereafter, Ricardo) is a leading global consultancy, specialising in the transport and energy sectors. We provide environmental, economic, and regulatory advice to government agencies and multilateral financial institutions, as well as to industry players (transport operators, manufacturers, energy companies, financers).

We are part of Ricardo plc, a public company quoted on the London Stock Exchange and a constituent of the FTSE techMark100. We are a multi-disciplinary engineering and consultancy company with annual revenue in excess of £350 million, employing over 3,000 economists, engineers, scientists and consultants around the world. Over the last 20 years, Ricardo has worked in nearly 100 countries and delivered over 1,500 projects across Asia, Africa, Europe and the Americas.

Our vision is 'To create a safe and sustainable world'. To realise that vision we bring together the best of our diverse expertise to create novel and differentiating solutions for our clients' challenges. Our services and products are enabled by digitalisation and are supported by agile project management.

About BVRLA

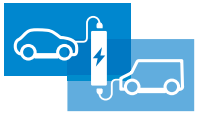
The BVRLA represents over 1,000 companies engaged in vehicle rental, leasing and fleet management. Our membership is responsible for a combined fleet of four million cars, vans and trucks – representing 1 in 10 cars, 1 in 5 vans and 1 in 5 trucks on UK roads.

BVRLA members represent the demand-side of the automotive industry, buying around 50% of new vehicles, including over 80% of those manufactured and sold in the UK. In doing so, they support almost 500,000 jobs, add £7.6bn in tax revenues and contribute £49bn to the UK economy each year.

Together with our members, the association works with policymakers, public sector agencies, regulators, and other key stakeholders to ensure that road transport delivers environmental, social and economic benefits to everyone. BVRLA members are leading the charge to decarbonise road transport and are set to register 400,000 new battery electric cars and vans per year by 2025.

BVRLA membership provides customers with the reassurance that the company they are dealing with adheres to the highest standards of professionalism and fairness.

The association achieves this by reinforcing industry standards and regulatory compliance via its mandatory Codes of Conduct, inspection regime, government-approved Alternative Dispute Resolution service and an extensive range of learning and development programmes.



BVRLA

British Vehicle Rental & Leasing Association
Badminton Court
Church Street
Amersham
Buckinghamshire HP7 0DD

01494 434747
bvrla.co.uk

Produced in association with: RICARDO