Road to Zero:

Report Card 2021

Produced in association with RICARDO

Foreword

2021 has been a year of grand ambition and policy announcements for transport decarbonisation. While the direction of travel is now clearer than ever, tangible progress needs to speed up. The clock is ticking and policy positions, while welcome, need underpinning with more fiscal clarity and funding if industry is to deliver on the Government's decarbonisation ambitions.

The BVRLA Road to Zero Report Card is now in its third year and more relevant than ever. As decarbonisation speeds up across the fleet sector, it is vital to understand where progress is accelerating and where the brakes are still on.

Every BVRLA member is on the 'road to zero', but the task ahead is easier for some than others. There are 'sweet spots' where the tax incentives, total cost of ownership and typical journey patterns make going zero emission an attractive choice. Elsewhere, progress is much slower as fleets grapple with a shortage of appropriate vehicles and charging infrastructure costs.

As in previous years, our Road to Zero Report Card looks at zero emission vehicle Supply, Demand and Infrastructure to give a detailed analysis of how fleets are decarbonising. To give greater sectoral nuance this year it covers cars, vans and HGVs separately.

These sectors each have their unique set of challenges and need a targeted approach when it comes to any delivery plan. More will need to be done to ensure that all fleet operators reach the same destination as those that are leading the charge.

We would like to thank the many members and stakeholders who shared their insight and perspectives for this report.

We plan to continue to update this Road to Zero Report Card on a regular basis as the fleet industry navigates its journey towards a sustainable future.

Gerry Keaney

BVRLA Chief Executive

About the BVRLA

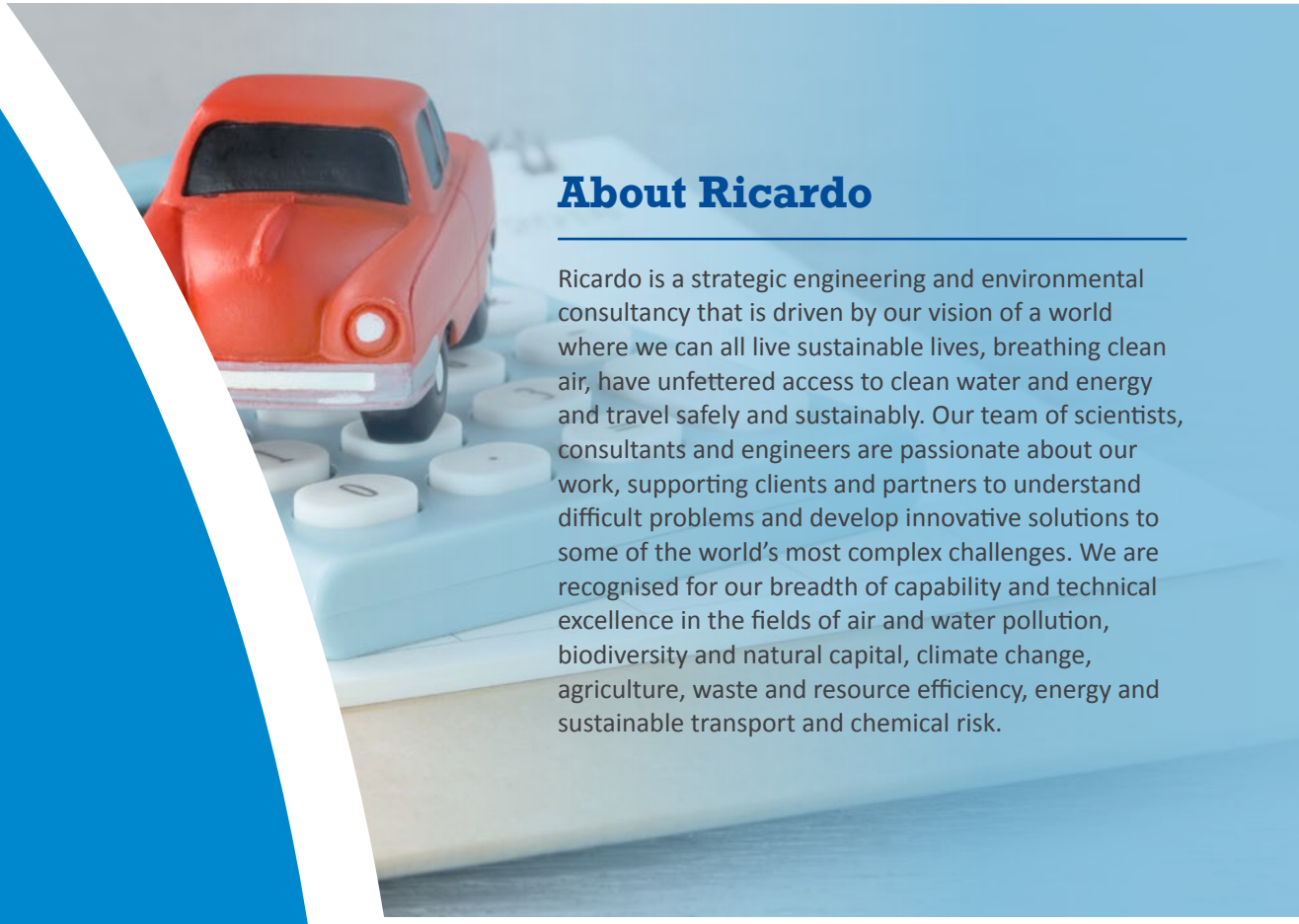
Established in 1967, the BVRLA is the UK trade body for companies engaged in vehicle rental, leasing and fleet management.

BVRLA members are responsible for a combined fleet of nearly four million cars, vans and trucks on UK roads, accounting for 1-in-10 cars, 1-in-6 vans and 1-in-5 trucks. The vehicle rental and leasing industry supports over 465,000 jobs, adds £7.6bn in tax revenues and contributes £49bn to the UK economy each year.

On behalf of its 1,000 member organisations, the BVRLA works with governments, public sector agencies, industry associations and key business influencers across a wide range of road transport, environmental, taxation, technology and finance-related issues.

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 maintaining industry standards and regulatory compliance via its mandatory Codes of Conduct, inspection and governance programme and government-approved Alternative Dispute Resolution service. To support this work, the BVRLA promotes best practice through its extensive range of training, events and information-sharing activities.



About Ricardo

Ricardo is a strategic engineering and environmental consultancy that is driven by our vision of a world where we can all live sustainable lives, breathing clean air, have unfettered access to clean water and energy and travel safely and sustainably. Our team of scientists, consultants and engineers are passionate about our work, supporting clients and partners to understand difficult problems and develop innovative solutions to some of the world's most complex challenges. We are recognised for our breadth of capability and technical excellence in the fields of air and water pollution, biodiversity and natural capital, climate change, agriculture, waste and resource efficiency, energy and sustainable transport and chemical risk.

About this report

The BVRLA's Road to Zero Report Card tracks the UK fleet sector's progress towards full decarbonisation. It recognises that the sector contains a diverse range of fleet segments using very different vehicles and highlights the impact this diversity has on their ability to decarbonise. The Report Card uses a combination of desk research and interviews to explore where further action is required from Government and other industry stakeholders to hasten the shift to green road transport.

This is the third year of the BVRLA's Road to Zero Report Card, and there has been significant progress in decarbonising road transport since the first Report Card launched in 2019. Since the last report was published in October 2020 we have seen 2030 / 2035 phase out dates introduced for new sales of petrol and diesel cars and vans, the publication of a multi-modal Transport Decarbonisation Plan, a Green Paper proposing a new CO_2 emissions regulatory framework and a consultation on ending the sale of non-zero emission heavy goods vehicles in the UK.

The policy direction for road transport has now been set, and the coming years will be about delivery. BVRLA members are responsible for nearly 4 million vehicles on UK roads, accounting for 1-in-10 cars, 1-in-6 vans and 1-in-5 trucks, and will play a key role in determining the trajectory of decarbonisation.

The impact of the COVID-19 pandemic is still being felt by the fleet sector and the vehicle manufacturing industry, but there are positive signs of the industry recovering. SMMT data shows that car and van manufacturing has bounced back following the initial negative impacts of the pandemic. Year-to-date (to July 2021) data shows that BEVs now account for 8.4% of new car registrations, and PHEVs at 6.6%, although electric van market growth lags way behind. With the enthusiastic adoption of the post-COVID-19 "Build Back Better" mantra, buoyed by some positive actions surrounding COP26 in November 2021, there are clear signs that the transition has significant momentum.

Key sectors of the BVRLA membership are leading the charge to zero emission transport. EVs already have an 8% market share of the company car fleet, while the figure is even higher for the salary sacrifice car category, at 22%. However, this year's research has found large disparities in the ability of different fleet segments to embrace zero emission cars, vans and HGVs. The clear message from our research is that there is no silver policy bullet and that the current growth in demand for electric vehicles is both patchy and fragile. Government must resist the urge to take a 'one-size fits all' approach to its policy interventions, and instead apply a range of fiscal, regulatory and financial support measures where they are most urgently needed. This needs to be backed up with ever closer monitoring and engagement across the fleet industry. It is very positive to see this kind of approach being outlined within the 2035 Phase Out Delivery Plan. If it can be maintained, the chances of meeting the Government's ambitions are much greater.

"There are workable solutions available – we need to help people along the way so they understand the possibilities. We're moving towards decarbonisation in general. People are now very conscious of reasserting themselves in a sustainable world – ESG is a very large driver for change."

Pat Skelly
– Chief Executive Officer, ProHire

"Electrification of vans represents where cars were 3-5 years ago – but that's changing rapidly as manufacturers now invest in innovative solutions. 5 years ago, there wasn't a great choice of cars, they were very expensive or very cheap. The cost balance isn't quite there for vans yet and as more models come to market, we anticipate eLCV adoption will increase significantly."

Paul Hyne *– Commercial Director, Arval UK*

"Most companies are positive and willing to engage with a zero emission solution that works – there is a need to provide enough data and information on what is available now and just as importantly, understanding what's coming in the future."

Michelle Miles *– Head of ProGreen, ProHire*

Structure of the report

This report is structured as three Report Cards that each focus on a specific topic in relation to the move towards zero emission vehicles in fleets. The three Report Cards for this year's overall BVRLA Road to Zero Report Card reflect concise focus areas to analyse progress on the road to decarbonisation:

1. **Supply**
2. **Demand**
3. **Infrastructure**

The Report Cards each begin with a summary of the main positives and negatives for each of the focus areas, along with a summary of the main recommendations and actions for the Government and industry. Sub-sections then delve into the topics in more detail and provide supporting quotes from relevant stakeholders. In-depth recommendations are provided at the end of each Report Card. The score for each Report Card reflects the status and progress achieved to-date for each topic, supported by a short rationale.

The transition to zero emission vehicles (ZEVs) is a smoother journey for some categories of vehicle than others, due to many issues including vehicle availability and market maturity for some vehicle categories, along with suitability for specific fleet operations. To reflect this, the 2021 Report Card introduces an additional assessment on the specific vehicle categories of cars, vans and HGVs.

The report has been developed considering the latest literature and industry news and has been supported by extensive engagement. BVRLA members and other industry stakeholders have had the opportunity to provide insights on their experiences in the transition to ZEVs. The report is also supported by other stakeholder inputs and engagement activities carried out by the BVRLA during 2020 and 2021.

Scoring

The table below provides an overview of the scoring methodology used within this report. An overall red-amber-green (RAG) score is provided in each Report Card. These overall RAG scores consider sub-scores that have been assigned for each sub-topic – these sub-scores are based on assessing progress made within the last year and since the previous 2020 'BVRLA Road to Zero Report Card'.

Each of the vehicle categories (cars, vans and HGVs) have their own overall RAG scoring and sub-scores under the Supply, Demand and Infrastructure focus areas to capture their current progress on the Road to Zero.

Score	General definitions *Score usually means one or more of the following*	Score
Red *Parked*	• Progress is significantly behind targets that have been set. • Market is not responding well to government policy / fiscal incentives. • The UK is behind other EU countries. • EV market significantly behind ICE market. • No progress made since 2020 Report.	
Amber *Brakes on (getting worse)* or *Accelerating (improving)*	• 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. • The UK is in line with other EU countries. • EV market approaching parity with ICE market. • Some / limited progress made since 2020 Report.	
Green *Cruising*	• Progress is in-line with, or exceeding, targets that have been set. • Market is responding well to government policy / fiscal incentives. • The UK is a 'front runner' compared with other countries. • EV market at parity with / exceeding ICE market. • Significant progress made since 2020 Report.	

Cars

Vans

HGVs

Overall scoring Brakes on

EV Supply
Brakes on

Recommendations

- Any ZEV sales mandates could cause significant EV market distortion. Proceed with caution!
- The HGV market will require massive long-term grants and incentives to deliver decarbonisation.

EV Infrastructure
Accelerating

Recommendations

- More guidance and financial support for firms rolling out rapid private charge points.
- Tackle public charge point inequality by providing more support to local authorities.

EV Demand
Accelerating

Recommendations

- Clarity and foresight is key when delivering EV grants and tax incentives.
- Think very carefully before removing the Plug in Grant in 2023.

Overall scoring for different vehicle categories

	Cars – Cruising	**Vans** – Brakes on	**HGVs** – Parked
Supply	Accelerating	Brakes on	Parked
Demand	Cruising	Brakes on	Parked
Infrastructure	Accelerating	Brakes on	Parked

Road to Zero progress

Throughout 2021, the BVRLA consulted with its members to collect data on the total ZEV composition of different categories of BVRLA member fleets. The data collection considers zero emission cars (broken down into rental, business lease, car club, salary sacrifice and personal lease) and zero emission vans (broken down into rental and lease). The data is presented in the below plot, with the size of each "bubble" representing the size of the sector. The plot compares the uptake of BVRLA member segments against the overall ZEV parc within the UK (i.e. the lines in the plot).

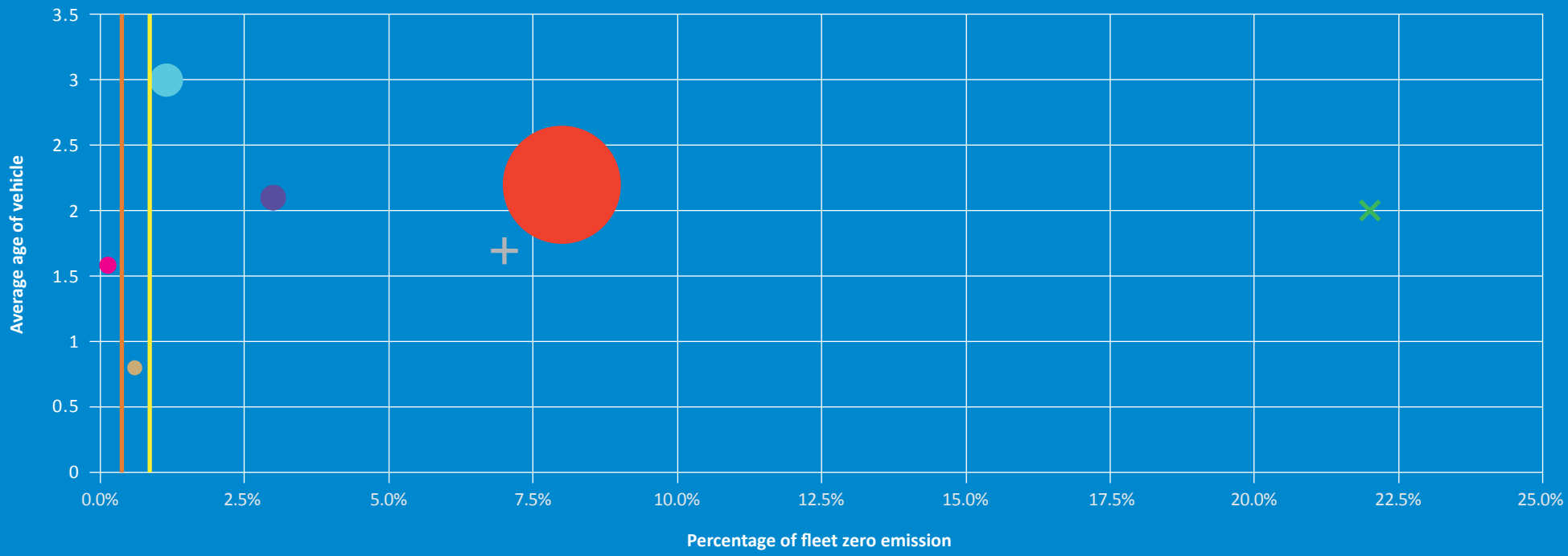
Clear trends are apparent within the plot. Uptake of ZEVs amongst BVRLA members clearly exceeds general ZEV uptake for the overall vehicle parc. There are some vehicle fleets that are progressing very well in terms of ZEV transition, notably salary sacrifice vehicles, though they represent a small part of the market. The business lease segment has a much bigger footprint, with the hugely positive impact of Company Car Tax (BiK) incentives driving a much quicker transition to electric vehicles. Growth in the electric van market is at a much earlier stage, although there are positive signs that uptake amongst BVRLA members is greater than that seen in the wider parc. Rental vehicles are currently behind in the transition due to difficulties experienced by the sector in transitioning to EVs (assessed further throughout this report). On a more positive note, their rapid fleet cycles (12 months or less) mean that they have huge potential to propel both the new and used electric vehicle market forward once the conditions are right.

The research and recommendations provided throughout this report are in the context of accelerating these segments in their transition.

"Fleets are buying the majority of new cars – fleets have such a vital role to play in terms of getting the vehicles into the second-hand market. We are beginning to overcome some of the fears that have impacted the industry. We simply need to encourage the fleets to be the early adopters."

Edmund King OBE – President, The AA

BVRLA EV Census of Member Fleets



Key

- UK-wide van parc
- UK-wide car parc
- Rental – Car
- Business Lease – Car
- Personal Lease – Car
- Rental – Van
- Lease – Van
- Car Club
- Salary Sacrifice – Car

The size of the bubbles in the plot represent the relative size of the fleet sectors. For car clubs (6,000 vehicles) and salary sacrifice vehicles (30,000 vehicles), the bubbles are replaced by symbols due to the small size of these sectors.

302,000 personal lease cars

Over 1.3 million business lease cars

Glossary

- **AER**
  – Advisory Electric Rate
- **AEVA**
  – Automated and Electric Vehicles Act
- **B2B**
  – Business to Business
- **B2C**
  – Business to Customer
- **BEV**
  – Battery Electric Vehicle
- **BIK**
  – Benefit-In-Kind
- **BSI**
  – British Standards Institute
- **CAFE**
  – Corporate Average Fuel Economy
- **CAZ**
  – Clean Air Zones
- **CCC**
  – Committee on Climate Change
- **CCT**
  – Company Car Tax
- **CfD**
  – Contract for Difference
- **CIIF**
  – Charging Infrastructure Investment Fund
- **DfT**
  – Department for Transport
- **ECA**
  – Enhanced Capital Allowance
- **ERS**
  – Electric Road System
- **ESG**
  – Environmental, Social and Corporate Governance
- **EV**
  – Electric Vehicle
- **EVA**
  – Electric Vehicle Approved scheme
- **EVHS**
  – Electric Vehicle Homecharge Scheme
- **FCEV**
  – Fuel Cell Electric Vehicle
- **FYA**
  – First Year Allowance
- **GUL**
  – Go Ultra Low
- **GWh**
  – Gigawatt Hour
- **HDV**
  – Heavy Duty Vehicle
- **HGV**
  – Heavy Goods Vehicle
- **HRS**
  – Hydrogen Refuelling Station
- **ICEV / ICE vehicle**
  – Internal Combustion Engine
- **kWh**
  – Kilowatt Hour
- **KPI**
  – Key Performance Indicator
- **LCV**
  – Light Commercial Vehicle
- **LDV**
  – Light Duty Vehicle
- **Li-ion**
  – Lithium Ion
- **MSA**
  – Motorway Service Area
- **NFDA**
  – The National Franchised Dealers Association
- **NGO**
  – Non-Governmental Organisation
- **NRMM**
  – Non-road Mobile Machinery
- **OEM**
  – Original Equipment Manufacturer
- **Ofgem**
  – Office of Gas and Electricity Markets
- **ORCS**
  – Onstreet Residential Chargepoint Scheme
- **OZEV**
  – Office for Zero Emission Vehicles
- **PHEV**
  – Plug-in Hybrid Electric Vehicles
- **PiCG / PiVG / PiTrG**
  – Plug in Car / Van / Truck Grant
- **R&D**
  – Research & Development
- **RAG**
  – Red-Amber-Green (Scoring)
- **SCR**
  – Significant Code Review
- **SME**
  – Small and Medium Sized Enterprises
- **SMMT**
  – The Society of Motor Manufacturers & Traders
- **SRN**
  – Strategic Road Network
- **SSFP**
  – Smart Systems and Flexibility Plan
- **STEM**
  – Science, Technology, Engineering, and Mathematics
- **SZEC**
  – Significant Zero Emission Capability
- **TCO**
  – Total Cost of Ownership
- **TDP**
  – Transport Decarbonisation Plan
- **ULEV**
  – Ultra Low Emission Vehicles
- **ULEZ**
  – Ultra Low Emission Zone
- **VAT**
  – Value Added Tax
- **VBC**
  – Van Benefit Charge
- **VED**
  – Vehicle Excise Duty
- **WCS**
  – Workplace Charging Scheme
- **WLTP**
  – Worldwide Harmonised Light Vehicle Test Procedure
- **ZEV**
  – Zero Emission Vehicle
- **ZEZ**
  – Zero Emission Zone
- **ZLEV**
  – Zero and Low-Emission Vehicle

Report Cards

1 Report Card
Supply

Brakes on

- Car choice is rapidly improving as the number of ZEV models available across different segments and brands increases.
- There is clear Government ambition to grapple with supply challenges, evidenced by the Green Paper on a future CO_2 framework, new R&D funding and success in securing gigafactory and manufacturing investments.
- Momentum in the electric van market is far behind the car market. There is still a shortage of e-van product with comparable costs and functionality.
- A global semiconductor shortage is leading to longer lead times for all categories of vehicles.

Recommendations

- Any ZEV sales mandate must be designed and implemented in a way that minimises market distortions, price rises or supply shortages.
- Continue to provide significant financial support for the development, testing and trialling of zero emission HGVs and larger vans.
- Provide increased Government support and incentives to attract battery and ZEV manufacturing and supply chain investments to the UK.
- Develop a targeted R&D programme to create a viable supply of specialist vehicles with additional on-board power requirements.

Supply of vehicles status update

Category	Status update	Score
Product range – cars	Model availability for electric cars continues to increase overall with PHEV and BEV UK model numbers growing 71% from 62 to 106 from 2019 to 2020, according to SMMT[1]. The increase is mainly driven by the 91% increase in PHEV offerings, compared to the 44% increase in BEV offerings. The BVRLA and its members agree that the product range for electric passenger cars is now well-developed, though there is a lack of product at the price point of an average new car buyer.	
Product range – commercial vehicles	In comparison to electric cars, the electric product ranges of vans and HGVs are much less developed. 64% of companies in the global EV100 initiative identified the lack of correct vehicle type availability as a key barrier to uptake, specifically referring to demand existing for appropriate commercial vehicle product where there are not enough available[2]. There is no current viable mass-produced electric HGV on the market. The BVRLA and its members agree that the product range of zero emission commercial vehicles continues to stifle the development of the market. Fleet operators continue to highlight the lack of model suitability and availability in the electric van market as a major barrier to adoption.	
Supply constraints	The most frequently cited supply constraint is the global semiconductor / silicon chip shortage that is extending lead times for all vehicles, including EVs[3]. Stakeholders pointed to particular supply constraints on electric vans, where many operators were now facing a 2022 delivery date on new vehicles[4]. They highlighted the need for increased UK manufacturing capacity to ensure access to locally sourced supply, as countries manufacturing semiconductors are prioritising their own regions first.	

[1] SMMT (2021), DELIVERING THE TRIPLE BOTTOM LINE: A BLUEPRINT FOR THE ELECTRIC VEHICLE REVOLUTION, https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT-Electrified-blueprint-FINAL.pdf

[2] Climate Group (2021), EV100 Progress and Insights Report, https://www.theclimategroup.org/ev100-annual-report-2021

[3] Autocar (2021), Semiconductor crisis: latest updates as chip shortage cripples industry, https://www.autocar.co.uk/car-news/industry-news-tech%2C-development-and-manufacturing/semiconductor-crisis-latest-updates-chip

[4] CommercialFleet (2021), New van sales hit by supply shortages, https://www.commercialfleet.org/news/van-news/2021/07/05/new-van-sales-hit-by-supply-shortages

Category	Status update	Score
Functionality	With respect to passenger cars, there continues to be an upward trend in battery capacity and associated vehicle range, with an average battery energy density increase of 7% annually[5]. Next-generation Lithium-ion and other battery chemistries are set to enter markets within the coming decade, continuing this trend. The functionality of electric vans has improved in recent years, so that the ranges and payloads achievable can now cater to typical driving behaviours of some electric van fleets. However, the stakeholder engagement for this year's Report Card continued to highlight concerns regarding vehicle suitability in the electric van market. It is still a significant challenge to procure electric vans that do not compromise on functionality, particularly when it comes to larger vans and fleets operating longer distances. The HGV sector does not yet have the zero emission product available with the functionality needed for anything other than very specific use cases.	
Whole life costs	Falling battery prices and the unlocking of economies of scale in EV production is leading to a rapid decline in BEV costs. Transport & Environment and BNEF expect BEV prices to reach upfront cost price parity with ICEs for all vehicles under 3.5 tonnes in Europe between 2025 and 2027[2]. The introduction of new chemistries, optimised manufacturing techniques and novel cell and pack designs are helping to reduce battery costs, a main cost component of EVs. Lithium-ion battery pack prices fell 89% from 2010 to 2020[6] and are expected to fall a further 58% from 2020 to 2030. The total cost of ownership (TCO) was assessed for a report by the Green Alliance[7], indicating that the TCO of mid-size BEV cars fell below petrol ICE TCOs after four years of ownership. The most expensive type of car to own was found to be a PHEV, especially if it is not charged regularly. Furthermore, BEVs were found to be the cheapest vehicles to own for second and third owners. Stakeholders interviewed for this year's Report Card continue to express concerns that a reliance on public charging can have a drastic effect on TCO for EVs.	
Aftermarket services	As of the end of 2020, the RAC estimated that just 5% of the UK's technicians had been trained to maintain EVs via the OZEV-endorsed Institute of the Motor Industry's (IMI) TechSafe standards for car technicians[8]. The IMI has identified that this skills shortage could threaten the move towards electrification but notes that some fleets are leading the way by upskilling their staff to be fully trained in EV maintenance[9]. Stakeholders interviewed for this year's Report Card highlighted the importance of continuing to ensure training and upskilling for EVs is addressed in the UK.	

[5] T&E and BNEF (2021), Hitting the EV Inflection Point, https://www.transportenvironment.org/publications/hitting-ev-inflection-point

[6] BloombergNEF (2021), Electric Vehicle Outlook 2021, https://about.bnef.com/electric-vehicle-outlook/

[7] Green Alliance (2021), Accelerating the electric vehicle revolution Why the UK needs a ZEV mandate, https://green-alliance.org.uk/resources/Accelerating_the_electric_vehicle_revolution.pdf

[8] Auto Express (2020), Just 5% of mechanics can work on electric cars, https://www.autoexpress.co.uk/electric-cars/96082/just-5-mechanics-can-work-electric-cars

[9] Aftermarket Online (2021), IMI TechSafe EV programme gets big push at Northgate, https://www.aftermarketonline.net/news/fullstory.php/aid/6648/IMI_Techsafe_EV_programme_gets_big_push_at_Northgate.html

Framework for achieving 2030 / 2035 phase out dates

The Government published a Green Paper[10] proposing a 'New Road Vehicle CO_2 Emissions Regulatory Framework' alongside the Transport Decarbonisation Plan. The Green Paper sets out two options, which are developing the fuel efficiency and CO_2 emissions regulations already in place or using ZEV sales targets alongside CO_2 regulation.

- **The first option is based on the current framework of CO_2 emissions regulations. The efficiency targets would be adjusted to match wider carbon reduction commitments and to ensure the 2030/35 phase out dates with a 0g CO_2/km target for 2035.**
- **The second option would introduce a ZEV sales mandate alongside the CO_2 regulations, thus requiring manufacturers to sell a certain percentage of zero emission vehicles each year to ensure they earn and hold enough credits at the end of each year. The proposal requires the potential ZEV sales mandate to function in combination with a CO_2 regulatory framework to ensure all new vehicle sales are regulated in CO_2 terms.**

Government expects to consider a very limited range of derogations to the phase out dates for specialist vehicles (such as wheelchair accessible vehicles, ambulances, and hearses) which may need further time to transition.

One of the priority recommendations of the Committee on Climate Change's (CCC) 2021 Progress Report to Parliament[11] is to introduce a BEV mandate rising from 50% in 2025 to 100% in 2030. A June 2020 policy paper by Policy Exchange[12] called for a policy framework which would deliver the 2030 phase out using a California style ZEV sales mandate to deliver the phase out of petrol and diesel cars. This received support from Grant Shapps, Secretary of State for Transport, who provided a foreword to the report.

"Any vehicle mandate is not a cliff edge; it is a managed transition. As long as there are clear lines of sight and targets to hit to get us from where we are to where we need to get to, then any option will be accepted. Some of the sticks and carrots are at the consumer end and others are at the manufacturer end. You need to make vehicles that people want. There is an element of ensuring manufacturers produce the vehicles, but all stakeholders need to contribute. There isn't a rulebook for cleaning transport – you need to trial things and follow what works."

Graeme Cooper

– Head of Future Markets, National Grid

[10] UK Government (2021), CO_2 emissions regulatory framework for all newly sold road vehicles in the UK, https://www.gov.uk/government/consultations/co2-emissions-regulatory-framework-for-all-newly-sold-road-vehicles-in-the-uk

[11] Committee on Climate Change (2021), Progress in reducing emissions: 2021 Report to Parliament, https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/

[12] Policy Exchange (2020), Route '35: How a California-style ZEV Mandate can deliver the phase-out of petrol and diesel cars, https://policyexchange.org.uk/publication/route-35/

As outlined in the May 2021 report by Green Alliance[5], a ZEV mandate can have various effects on supply. Green Alliance projects that it would secure ZEV supply for the UK without the need to match the purchase subsidies seen in the EU. This, in turn, would accelerate cost reductions, as manufacturers competed to meet their mandate targets. Furthermore, a ZEV mandate would induce more investment along the EV supply chain by the UK automotive industry, creating more green jobs.

The mandate implemented in California has resulted in a reduced price for ZEVs while increasing the price of carbon emitting vehicles, according to a Green Alliance blog[13] by Nick Fletcher MP. He claims that the mandate has increased the sales share of ZEVs in California to three times the US average. Furthermore, the California ZEV mandate is calculated based on credits that scale with a vehicle's zero emission driving range, encouraging manufacturers to sell ZEVs with these capabilities.

The consultation introduced alongside the Green Paper on a New Road Vehicle CO_2 Emissions Regulatory Framework will seek views regarding the considered frameworks. Through this the Government will aim to explore how a California-style ZEV sales mandate could be implemented in the UK and how it could help the UK meet its phase-out targets.

[13] Inside Track (2021), To be a climate leader, the UK needs a ZEV mandate, https://greenallianceblog.org.uk/2021/06/08/to-be-a-climate-leader-the-uk-needs-a-zev-mandate/

[14] Corporate Average Fuel Economy (CAFE) standards are regulations in the United States to improve the average fuel economy of cars and light trucks (trucks, vans and sport utility vehicles) produced for sale in the United States.

BVRLA member views on a potential ZEV mandate

BVRLA members have expressed a range of views on a potential ZEV mandate. They have identified some advantages and disadvantages that could be associated with a California-style ZEV sales mandate. Some of the key considerations highlighted are:

Advantages

- ⊕ Sets a clear pathway for meeting the phase out targets.
- ⊕ Could support a speedier transition to ZEVs.

Disadvantages

- ⊖ Could punish vehicle leasing and rental companies if the mandate results in commercial pressures being put on them to purchase ZEV vehicles for which there is limited or no demand.
- ⊖ Could create price rises and a reduced supply of ICE vehicles for members and their customers, increasing costs for end users and businesses across the economy.
- ⊖ These price rises could damage the business models and balance sheets of certain segments within the fleet industry, reducing their ability to fund a smooth transition to zero emission vehicles.
- ⊖ Small or niche vehicle brands may be forced to pull out of the UK market, reducing choice for businesses and consumers.

If a California-style ZEV sales mandate is introduced, it will need to involve extensive consultation with a broad range of stakeholders. It is crucial that safeguards for the fleet sector are incorporated into any final design. These include:

- ⊙ Purchases can be made years in advance by fleets and the disruption to existing order banks caused by a ZEV sale mandate would need to be minimised through extended foresight of its introduction.
- ⊙ The timing of any changes to the ZEV sales mandate thresholds will have a big impact on the market, as was also demonstrated with the CAFE regulations[14]. Timings should be carefully considered and monitored to avoid droughts or floods of vehicles onto the market at inopportune times.
- ⊙ The van market would need a very different ZEV mandate trajectory, with a later start and lower threshold.
- ⊙ Specialist vehicle exemptions will be needed.
- ⊙ A market oversight mechanism, for example from the CMA, to minimise distortion and ensure no long lasting impacts.
- ⊙ Initial regulation should have more stringent CO_2 targets and less aggressive mandates to minimise distortion.

The idea of a ZEV mandate is a contentious issue within the fleet sector. Some stakeholders interviewed for this year's Report Card are confident that any mandate would simply be a managed transition with clear lines of sight and targets to hit. Others believe it is an unnecessary layer of bureaucratic market intervention, rendered superfluous due to existing regulations. There were also concerns about the sales target burdens of a mandate being passed on to fleet operators, with fleets being pressured to purchase vehicles which do not meet their needs. There are early indications that this type of pressure is already being applied in the van rental sector.

Building on this, respondents also stressed that the TCO of ZEVs needs to at least match that of ICEVs before any mandate is introduced, as fleet operators cannot be forced to use vehicles that are not cost-effective. Some noted that the TCO is now almost there for electric car fleets, given current incentives, but still far off for many electric van fleets, dependent on their operational behaviours. Finally, BVRLA members recommended that an independent body should carry out a regular review of any mandate, to assess whether it was achieving the market stimulus required without causing other negative ramifications.

> *"For the sales mandate, will the sales mandate be passed onto fleet operators? End users will only be convinced when the TCO matches between ICE vehicles and EVs. It would be wrong to implement a mandate whilst the TCO does not match up. Cars are a lot more advanced – the TCO for the car market is pretty much there, so there is now a moral and business case reason to do it. It's a shame the same can't be said for vans – we need to get to a point where the TCO matches up for a mandate to be a viable option."*
>
> *Simon Ridley– Managing Director, Dawson Group*

Supply chain and industrial developments

Semiconductor shortages

Semiconductors play a key role in vehicle manufacturing, with the cost of electronics rising from <1% of the total car cost in 1950 to >35% today[15]. PHEVs and EVs require an even greater number of semiconductors at around $1,000 for PHEVs compared to $330 for ICEs. The COVID-19 pandemic has had a significant impact on the global semiconductor market, with the complex global supply chain being slower to recover and the demand for consumer electronics increasing as a result of the pandemic. This has led to the ongoing global shortage of computer chips needed for the manufacturing of vehicles.

The SMMT highlighted this global shortage as a limiting factor on the UK's vehicle supply[16], resulting in some car delivery times lengthening from three to six months and new vans delayed even more[17]. Some manufacturers have resorted to rely on analogue dials rather than digital displays as a consequence, while others have paused production altogether[18].

Stakeholders interviewed as part of this year's Report Card consultation were concerned about the global semiconductor shortage – it was noted that semiconductors are being prioritised for other applications and local markets, leading to longer UK lead times. This shortage is expected to remain into 2022 and will continue to severely disrupt new vehicle supplies.

[15] EY (2021), Semiconductor supplies hitting vehicle sales, https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/news/2021/03/ey-semiconductor-supplies-hitting-vehicle-sales.pdf

[16] SMMT (2021), New car market recovery squeezed by supply issues, https://www.smmt.co.uk/2021/07/new-car-market-recovery-squeezed-by-supply-issues/

[17] Fleet News (2021), Semiconductor shortage cuts UK car production in half, https://www.fleetnews.co.uk/news/manufacturer-news/2021/06/25/semiconductor-shortage-cuts-uk-car-production-in-half

[18] Auto Express (2021), Global chip shortage hits car makers, https://www.autoexpress.co.uk/news/355016/global-chip-shortage-hits-car-makers

Battery manufacturing

To meet UK and global transport decarbonisation targets, the annual production of EV batteries needs to increase. Batteries account for 40-50% of the value of an EV and present a considerable market within the UK and globally. Currently, most battery cells are manufactured in Asia, with China alone producing 70% of EV batteries globally[19]. The 'rules of origin' in the UK-EU Trade and Cooperation Agreement (TCA) require that 40% of finished EV value must originate in the EU and UK, and will come into force in 2024, increasing thereafter. This underlines the requirement for increasing EV battery production capacity in the UK. A recent IEA report estimated that global battery production will grow from 160 GWh today to 6,600 GWh in 2030[20].

Battery production capacity in the UK is currently 2 GWh[21], with several announcements from Vauxhall[22], Nissan[23], Britishvolt[24] and AMTE Power[25] contributing to this. The Faraday Institution suggests that at least one new 15 GWh Gigafactory would be required by 2022 to meet battery demand, rising to eight 15GWh Gigafactories by 2040[26]. The SMMT estimates that the UK will need battery manufacturing capacity surpassing 60 GWh by 2030. SMMT analysis estimates that the UK will have a production capacity of 12 GWh by 2025, compared to 164 GWh in Germany and 32 GWh in France. This puts UK vehicle producers at a competitive disadvantage and well below the demand anticipated.

Our interviewees noted for this year's Report Card that opportunities for battery manufacture and recycling within the UK should be prioritised to ensure localised production and end of life battery treatment, along with further investment in onsite storage and generation.

Update on industrial policy and strategy

The Government published an Industrial Decarbonisation Strategy[27] in March 2021, setting out a series of actions on the path to decarbonising the UK's manufacturing and construction sector. Building on this, the Government made developing the "UK as a hub

[19] D. Hirst, J Winnett and S. Hinson (2021), Electric vehicles and infrastructure, https://researchbriefings.files.parliament.uk/documents/CBP-7480/CBP-7480.pdf

[20] IEA (2021), Net Zero by 2050 A Roadmap for the Global Energy Sector, https://iea.blob.core.windows.net/assets/ad0d4830-bd7e-47b6-838c-40d115733c13/NetZeroby2050-ARoadmapfortheGlobalEnergySector.pdf

[21] SMMT (2021), Full Throttle: Driving UK Automotive Competitiveness, https://smmt.publicfirst.co.uk/

[22] Vauxhall (2021), Vauxhall Ellesmere Port factory to build electric vans from 2022, https://www.parkers.co.uk/vans-pickups/news/2021/vauxhall-ellesmere-port-electric-van-factory/

[23] Nissan (2021), Nissan unveils EV36Zero – a £1bn Electric Vehicle (EV) Hub to accelerate the journey to carbon neutrality, https://uk.nissannews.com/en-GB/releases/release-10e81128ff45380ddab0a113f8007bb5-nissan-unveils-ev36zero-a-1bn-electric-vehicle-ev-hub-to-accelerate-the-journey-to-carbon-neutrality

[24] Automotive World (2021), Britishvolt selects Blyth, Northumberland as the site of its first battery gigaplant, https://www.automotiveworld.com/news-releases/britishvolt-selectes-blyth-northumberland-as-the-site-of-its-first-battery-gigaplant/

[25] AMTE Power (2021), Announcement of intention to float on AIM, https://amtepower.com/wp-content/uploads/2021/02/AMTE-Power-ITF-Final.pdf

[26] House of Lords (2021), Battery strategy goes flat: Net-zero target at risk, https://committees.parliament.uk/publications/6975/documents/72817/default/

[27] UK Government (2021), Industrial decarbonisation strategy, https://www.gov.uk/government/publications/industrial-decarbonisation-strategy

for green transport technology and innovation" one of its strategic priorities in the Transport Decarbonisation Plan. The Plan notes that this will support UK productivity growth, increasing access to markets and skills whilst creating new jobs and trade. The £500m funding for the Automotive Transformation Fund (ATF) over the next four years, alongside a number of other investments and funds, is expected to contribute to building a competitive EV supply chain in the UK.

The SMMT highlights that the UK remains a global leader in automotive research but notes that private industry in the UK spends an order of magnitude less on R&D than other leaders, including Germany, Japan and the US[13]. Similarly, the UK's workforce is one of the most skilled, but is suffering from a shortage of science, technology, engineering, and mathematics (STEM) graduates compared to other OECD countries. Furthermore, the SMMT notes that the UK industry faces considerable labour and energy costs. The SMMT warns that, in order to retain its current global share of EV production, the Government needs to back its own ambition by matching the level of investment in battery production incentives, charging networks and affordable clean energy seen by other major governments. Similarly, Transport & Environment (T&E) suggests that the UK's share of EV production in Europe could drop from 25% in 2018 to 4% in 2030 due to a "chronic" lack of investment[28].

"It will be important to make sure what the UK does to drive uptake of zero emission vehicles doesn't fall behind other countries – we need the supply of vehicles to be there. So the carrot and stick elements need to be assessed more closely when it comes to manufacturing to make sure the implications for vehicle supply are understood."

Ben Lawson

– Vice President of Mobility and Project Development for Europe, Enterprise

Brexit impacts

Last year's Road to Zero Report Card investigated the impacts of Brexit on the vehicle supply chain. Now that the direction of Brexit is known, the focus has shifted to how to ensure continued investment in the UK's zero emission vehicle manufacturing sector. As reported by the SMMT, staff and supply shortages are threatening the pickup in UK car production[29]. New trading rules with Europe and supply uncertainties expected to last into 2022 are named as two factors causing ongoing challenges. Nonetheless, SMMT notes that recent announcements of long-term investment into the UK automotive manufacturing sector are a promising sign, with the R&D and supply chain development activities aimed at trucks being highlighted as beneficial[30].

The effects of Brexit are still being felt at the UK-France border through supply chain disruptions and increased bureaucracy and red-tape, causing delays and temporary halts to production at some OEM plants[31]. BDO notes[31] that this has contributed to the ongoing reduction in OEMs placing new model variants into the UK market. Although perhaps not directly related to Brexit, since 2019 OEMs have announced factory closures in the UK resulting in an estimated 20,000 job losses, with even more job losses when considering the full extent of the automotive supply chain. A further concern is meeting the rules of origin requirements for EVs, with current battery imports mainly coming from the US and Asia.

During this year's Report Card consultation process, fleets have highlighted that further funding is required in order to make the country a post-Brexit centre of excellence. There are particular opportunities in terms of (1) R&D funding for new technology development, IP generation and trials; and (2) investment / fiscal support to attract investment from OEMs and to develop the UK's supply chain, manufacturing, factories and skills in the workforce. EV skillsets were highlighted as being more complicated and harder to source than ICEV skillsets. Stakeholders interviewed also commented that the UK was now in a competitive battle with other EU countries to provide a positive regulatory and fiscal environment for EV manufacturing.

[28] Transport & Environment (2021), UK auto industry left behind as carmakers focus EV production in EU countries, https://www.transportenvironment.org/press/uk-auto-industry-left-behind-carmakers-focus-ev-production-eu-countries

[29] SMMT (2021), Staff and supply shortages threaten UK car production revival, https://www.smmt.co.uk/2021/07/staff-and-supply-shortages-threaten-uk-car-production-revival/

[30] UK Government (2021), Road freight goes green with £20 million funding boost, https://www.gov.uk/government/news/road-freight-goes-green-with-20-million-funding-boost

[31] BDO (2021), The road narrows ahead - for the UK automotive supply chain, https://www.bdo.co.uk/en-gb/insights/industries/operational-improvement-and-effectiveness/the-road-narrows-ahead-for-the-uk-automotive-supply-chain

Zero emission HGV supply

From a supply perspective, research has found that the key barrier currently holding back the zero emission HGV market is the lack of supply. The NGO T&E expects that adopting a phase-out date of 2035 for new ICEVs with weights below 26 tonnes would help address this issue[32]. The CCC's report on Surface Transport notes that zero emission HGVs are further from market readiness than zero emission cars and vans and are expected to take longer to become widespread[33]. Hydrogen and Electric Road Systems (ERS) are the two near-term options being explored to fully decarbonising HGVs. However, both technologies have relatively low technology readiness levels and other uncertainties.

The CCC expects that continued advancement in battery technology is likely to make battery-electric technologies suitable for HGVs within ten years. Meanwhile, ERS could avoid the need for lengthy recharging, but would require substantial infrastructure investments. Germany and Sweden are both operating short ERS, and Siemens offer a commercial ERS product, adds the CCC. ERS has not yet been trialled in the UK[34], though a trial is being planned and a feasibility study has been launched for a 20km section of the highway[35]. Among the options, hydrogen HGVs would offer the closest user experience to current HGVs. DAF reports initial trials together with Toyota and Shell but notes that the technology is still experimental and expensive, and that hydrogen is only available in limited quantities[36]. Therefore, large scale use of hydrogen HGVs is likely to be at least five to ten years away. Long-haul hydrogen fuel cell HGVs have been trialled by various companies, however, unlike fuel cell cars and buses, no fuel cell HGVs have yet been introduced to the UK.

Outside of the UK, ongoing work in the European Commission is updating CO_2 regulations for heavy duty vehicles to a much more granular level than had been carried out previously, considering every different vehicle weight class along with use cases for duty cycles, and assessing suitability of different zero and low emission powertrains to these individual use cases and vehicle classes.

The consultation for this year's Report Card assessed stakeholder views on the supply side of the proposed HGV non-zero emission sales end date. Respondents were clear that there is nothing in terms of product available right now and the technological direction is unclear. However, it was noted that major HGV OEMs have developed significant plans to develop a wide electric offering by the mid- to late-2020s. Stakeholders noted that, similar to electric vans, zero emission HGVs will have to perform comparatively to ICEVs with their range, ability to tow and support auxiliary equipment.

Respondents questioned whether other non-zero emission fuels, such as bio-CNG, would have a place in the transport mix. If these fuels are phased out too soon or are not attractive enough, then firms would not move to them but wait for zero emission options. Interviewees recommended rigorous testing of HGV zero emission powertrain vehicles, coupled with appropriate investment in infrastructure to ensure the vehicles can be fuelled whilst being tested. They also referenced a need for close consultation with truck operators and manufacturers to assess whether the proposed end dates are realistic – this is discussed further in the Demand section.

> *"Setting out the 2030 deadline for cars was seen as world-leading and difficult, but this has accelerated the transition and given confidence to investors. The UK has an opportunity to lead the world by setting a similarly ambitious target for HGVs, subject to consulting with truck operators and manufacturers. It's likely that some Government support would be required for R&D or to help businesses transition."*
>
> *Lauren Pamma – Programme Director, Green Finance Institute*

[32] Transport & Environment (2020), How to decarbonise the UK's freight sector by 2050, https://www.transportenvironment.org/publications/how-decarbonise-uks-freight-sector-2050

[33] Climate Change Committee (2020), The Sixth Carbon Budget Surface Transport, https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Surface-transport.pdf

[34] Catapult (2021), Transition to Zero-Emission Transport – A Pathway for Long-Haul Heavy Goods Vehicles, https://cp.catapult.org.uk/wp-content/uploads/2021/03/A-Pathway-for-Long-Haul-Heavy-Goods-Vehicles-March-2021-FINAL.pdf

[35] Commercial Fleet (2021), UK 'electric road' study part of £20m electric truck trials, https://www.commercialfleet.org/news/truck-news/2021/07/27/uk-road-to-be-electrified-in-20m-electric-truck-trials

[36] DAF (2021), Hydrogen: An option in the long term for powering trucks, https://www.daf.co.uk/en-gb/trucks/alternative-fuels-and-drivelines/hydrogen

"What's working is tax incentives, such as grants and BIK. There is a positive environment for ZEV adoption – if there is demand, there will be supply. For hydrogen, it is important to facilitate R&D and start-ups – there needs to be an environment for vehicles to be tested in real world conditions."

Paul Hyne

Commercial Director, Arval UK

Supply of hydrogen vehicles for fleets

There are clear signs that the market is committed to exploring hydrogen as a viable technology for applications where electric may not be suitable. The SMMT reports that there were two models of fuel cell electric vehicles (FCEV) available in the UK in March 2021[1]. The UK Hydrogen and Fuel Cell Association (UKHFCA) estimates that fuel cell vehicle sales will grow 34% per year out to 2030[37]. However, the UKHFCA warns that UK companies may consider investments in other countries which offer "more competitive, larger scale and more streamlined funding opportunities". Currently in the UK, there are only start-up companies producing niche vehicles. Major international manufacturers are producing FCEVs in small volumes but no significant growth in volume is planned in the near future.

[37] UK Hydrogen and Fuel Cell Association (2021), Written evidence (BAT0008) Responses to Inquiry Questions, https://committees.parliament.uk/writtenevidence/25222/pdf/

"For the HGV market, the AA has recovery trucks, and there is nothing out there in terms of zero emission product. Will it be fuel cell? Or another technology? In one sense, the end date is a long way away, but it is certainly a challenge. There is a certain irony right now – the AA had to service 110 breakdowns in a zero emission zone, and the AA's vehicles were Euro 6 but not zero emissions compliant as there isn't currently an appropriate electric van with our towing capacity. We need a broader look at these problems, it shouldn't be driven by ideology; it should be practical."

Edmund King OBE – President, The AA

"People initially thought you needed to pick a "winner" for HGVs; however, under all scenarios, you need future proofed and evenly spaced grid capacity along the strategic road network. Hydrogen will only make sense where it can be fuelled, which still needs a grid connection in the short to medium term, for so-called Green Hydrogen. It is about right product, right fuel, right application, right time."

Graeme Cooper

– Head of Future Markets, National Grid

Stakeholders interviewed as part of this year's Report Card strongly agreed with the direction of the Government's Hydrogen Strategy (outlined further in the Demand Report Card), which encourages a greater supply of hydrogen HGVs. Some commented that EV technology has had an advantage due to its development in the passenger car and van markets, whereas hydrogen technology is further behind. The cost of FCEVs was said to be a major deterrent, with further R&D required in order to lessen the upfront costs. Others believe that vehicle standardisation is essential and emphasised the need for supporting infrastructure investment that meets the needs of current refuelling patterns.

Current supply of FCEVs is still very low in all vehicle classes and future growth is uncertain, particularly for light duty vehicles. For heavy duty vehicles, most OEMs have development programmes but very few have a mature product that is cost competitive.

"Running a fleet of electric LCVs is a lot more complex than running a fleet of electric cars. If an LCV driver is commuting to a meeting, you may be able to charge on the way; if you are an engineer / tradesperson, who pays for the downtime for charging? We know electric vans are affected by variables such as temperature and weight – there is more to be done to work out how to make LCVs an effective electric fleet."

Peter McDonald
– Nissan Fleet Director, Nissan

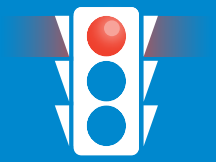
Supply constraints for different vehicle categories

There is huge variation between the supply of zero emission cars, vans and HGVs. When it comes to cars, range and model availability has improved dramatically in recent years. However, there are still concerns from some BVRLA member fleets, particularly those providing vehicle rental. They question the current suitability of fully electric cars to their fleet operations due to the quick turnaround requirements of these vehicles and the need for expensive high-powered charging in convenient locations. There are also supply chain issues (such as the semiconductor shortage) that are affecting all car categories, which are leading to longer lead times for BEVs and PHEVs.

The range and model availability of electric vans has improved at a slower pace, and many operators point to a lack of electric vans capable of meeting their day-to-day requirements. Additionally, the cost of electric vans still greatly exceeds the cost of ICE vans, resulting in a weaker business case for decarbonisation.

The zero emission HGV market is far more nascent than the electric car and van markets. There are no suitable models available on the market as the required functionality of HGVs cannot yet be matched by the technology available. There are promising signs of HGV OEMs committing to develop zero emission options for both electric and hydrogen in the coming years, but this will require a lot more joined up thinking and strategic and technological development in order to make them a viable technology, coupled with significant investment in HGV-specific infrastructure.

Scoring for Supply

Vehicle type	Description	Score
Cars	The availability of passenger car makes and models continues to improve, along with their functionality, resulting in a rapidly increasing demand for electric passenger cars. Nevertheless, electric cars are still unsuitable for some fleets and the global semiconductor shortage is leading to longer lead times.	 **Accelerating**
Vans	There is a lack of electric van options for many fleet applications. Some operators are already switching, but rarely doing so for their entire fleet. There are significant questions about electric van suitability in key use cases, for example when ancillary power is required.	 **Brakes On**
HGVs	The zero emission HGV market is very immature, with no mainstream product available that can meet the operating requirements of a standard tractor unit or truck. The lack of a clear technology roadmap, or any consensus from manufacturers or Government on the future path for decarbonised HGVs is damaging market confidence and delaying investment. Trials and pilots are underway in the UK, but these need to be accelerated in order to provide greater certainty that can then stimulate investment in supporting infrastructure and product standardisation.	 **Parked**

Recommendations

- **Any ZEV sales mandate must be designed and implemented in a way that minimises market distortions, price rises or supply shortages. Government must:**
  - Engage extensively with stakeholders across the supply chain on its development.
  - Consider mitigations to limit distortions, such as different introduction dates for cars and vans.
  - Continue, and possibly expand, grants and tax incentives that make ZEVs viable for fleet.
- **Continue to provide funding to the development of gigafactories within the UK to enable the UK to become a centre of excellence for battery manufacturing and recycling, reduce costs and address supply limitations.**
- **Explore diversification of the UK battery market in the short-term to reduce reliance on specific markets whilst continuing to encourage innovation.**
- **Government should set up a taskforce with a range of industry stakeholders to work on delivering the phase out of non-zero emission trucks. This must create close collaboration between manufacturers and fleets to ensure product meets fleet needs.**
- **Provide R&D funding for new technology development, IP generation and trials, particularly for the UK supply chain.**
- **Provide fiscal support and encourage investment in developing the UK electric vehicle supply chain and skillset.**
- **Ringfence R&D and industrial development funding for projects across the supply chain that cater for vans and trucks.**
- **Develop an R&D programme for specialist vehicles with additional on-board power requirements.**

2 Report Card Demand

Accelerating

- Low Benefit in Kind rates and four years of tax foresight are driving huge levels of decarbonisation in the company car market.
- Salary sacrifice schemes are democratising access to EVs for thousands of employees across the UK and helping businesses to meet their ESG goals.
- In key use cases electric vans cannot compete with ICE alternatives on total cost of ownership terms.
- Confidence is fragile and needs support with used EV prices and future tax clarity.

Recommendations

- Provide more foresight on future grants and tax incentives, together with clarity on how they should be applied.
- Extend the Plug-in Grants beyond 2023 for vans and other segments that require them.
- Develop a range of support measures to underpin the second-hand EV market.
- Accelerate the development of an HGV decarbonisation roadmap by fast-tracking the results of zero emission road freight trials and research.

Policy / incentives status update

Category	Status update	Score
Plug-in Car Grant (PiCG)	The PiCG provides 35% off the purchase price of an electric car up to a maximum of £2,500 and excludes cars costing over £35,000. The grant has experienced successive reductions from £4,500 (prior to October 2018), £3,500 (prior to March 2020) and £3,000 (prior to March 2021). Furthermore, the maximum eligible car price was reduced from £50,000 to £35,000 in March 2021. Category 2 and 3 vehicles (PHEVs) have not been included since October 2018. The grant is confirmed to exist until at least 2022/23 but may be subject to change. A total of £582m was allocated for the plug-in car, van and truck grants up to 2023. The BVRLA and its members believe that the PiCG makes a valuable contribution to lessening the purchase price of a vehicle. BVRLA members accept that the PiCG cannot continue indefinitely. However, it is the core retail market incentive and retail consumer support must not be withdrawn prematurely. Any sudden changes to the PiCG create major IT system challenges for BVRLA members and can often cause uncertainty and disappointment for prospective EV customers.	
Plug-in Van Grant (PiVG)	The PiVG also changed in March 2021, before which it was capped at £8,000 or a maximum of 20% of the purchase price. The PiVG now provides separate grants for two van sizes: 35% of the purchase price for small vans (<2.5t) up to a maximum of £3,000 and 35% for large vans (2.5 to 3.5t) up to £6,000. The grant is confirmed until at least 2022/23 but may be subject to change. As outlined in the BVRLA's Van Plan 2021[1], electric vans experience unique challenges beyond those experienced by electric cars, including higher purchase costs and less model availability. As such, the BVRLA recommends that Government should ringfence additional funding for electric vans, extending the grant beyond 2023.	
Plug-in Truck Grant (PiTrG)	The PiTrG provides a grant of 20% of the purchase price for trucks (3.5 to 12t) up to a maximum of £16,000, down from £20,000 before the March 2021 update. The grant is available for the first 250 orders placed, following which a maximum grant rate of £6,000 will apply. Grants of up to £25,000 are available for larger HGVs. The BVRLA and its members welcome the focus of a grant specifically for electric trucks. Given the huge cost of zero emission HGVs the BVRLA thinks the PiTrG is simply not enough to make them financially viable. More substantial support for the sector is necessary to create any momentum in this market.	

[1] BVRLA, Van Plan 2021, https://www.bvrla.co.uk/resource/bvrla-van-plan-2021.html

Category	Status update	Score
R&D funding for HGV trials	The Government has introduced R&D funding allocated to the 'zero emission road freight trials' projects[2]. This R&D funding consists of three strands focused on electric road systems, hydrogen fuel cell vehicles and supply chain technology to develop and trial vehicles and infrastructure for zero emission HGVs and to demonstrate the technology. The BVRLA and its members welcome the R&D funding for zero emission HGVs – at this early stage of the HGV zero emission market and with the uncertain technological direction, funding for HGV demos, trials and supply chain developments is essential. It will be important to disseminate the learnings from the successful projects, to ensure that the optimum technologies for the optimum use cases are rolled out. The BVRLA would like to see additional funding allocated to this stream to increase their speed and scope.	
Electric Vehicle Homecharge Scheme (EVHS)	The EVHS maximum grant rate remains at £350 per charge point socket (reduced from £500 in April 2020). It was extended to March 2022 and has been expanded to target people in rented and leasehold accommodation[3]. Beyond this date, the scheme will focus solely on rental and leasehold properties with the help of a new digital platform expected for the second half of 2021[4]. The 2035 Delivery Plan included a commitment to continue funding the EVHS until at least 2024/25. BVRLA members welcome the extension and acknowledge the need to prioritise those in rented and leasehold accommodation, who experience greater difficulties in accessing funding for home charging. Recent statistics[5] have highlighted the regional disparity in the uptake of these grants – as such, there needs to be some form of strategy to promote demand across geographic regions as well as for those in rented and leasehold accommodation.	
Go Ultra Low (GUL) campaign / Build Back Greener	The Go Ultra Low (GUL) campaign has been considered an important tool to ensure consumers are educated about the EV landscape since its inception in 2014. However, the campaign did not receive any further funding to continue its activities beyond March 2021[6]. The Government has since announced that it will launch a "Build Back Greener" campaign, which will include communicating benefits of ZEVs. Whilst the GUL campaign has now ceased, the BVRLA and its members welcome additional measures to educate the public about EVs and zero emission transport. Further clarity on the updated information campaign, along with a specific focus on electrifying fleets, is desirable.	

[2] UK Government (2021), Zero emission road freight trials and funding winners, https://www.gov.uk/government/publications/zero-emission-road-freight-trials-funding-winners

[3] UK Government, Support for small businesses, landlords and leaseholders: government charges up the electric vehicle revolution with £50 million boost, https://www.gov.uk/government/news/support-for-small-businesses-landlords-and-leaseholders-government-charges-up-the-electric-vehicle-revolution-with-50-million-boost

[4] Zap Map, OZEV to transform Electric Vehicle Homecharge Scheme for renters, https://www.zap-map.com/ozev-plans-to-transform-electric-vehicle-homecharge-scheme-for-renters/

[5] UK Government (2021), Electric vehicle charging device grant scheme statistics: July 2021, https://www.gov.uk/government/statistics/electric-vehicle-charging-device-grant-scheme-statistics-july-2021/electric-vehicle-charging-device-grant-scheme-statistics-july-2021

[6] FleetNews, Updated: Go Ultra Low campaign to close after funding cut, https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2021/02/04/go-ultra-low-campaign-to-close-after-funding-cut

Category	Status update	Score
Workplace Charging Scheme (WCS)	The WCS maximum grant rate remains at £350 per charge point socket (reduced from £500 in April 2020) and was opened up to small to medium sized enterprises (SME) and the charity sector. The budget of the updated scheme is £50m (combined with the EVHS). The 2035 Delivery Plan included a commitment to continue funding the WCS until at least 2024/25. The limit for the number of sockets per employer remains at 40 sockets. The BVRLA and its members welcome the continuation of the WCS and the expansion to include SMEs and the charity sector. Some have requested that the limit for the number of sockets should be expanded beyond 40 per employer, to reward those that are doing more to increase EV adoption, though noting the current rules also have a positive impact by assisting as many early adopters as possible.	
On-street Residential Chargepoint Scheme (ORCS)	OZEV has allocated £20m of funding to local authorities for 2021/22 for on-street residential charging projects. The maximum funding allocated is £7,500 per charge point or £13,000 in special circumstances where connection costs are particularly high. The £100,000 maximum project cap was removed to encourage larger rollouts. The 2035 Delivery Plan included a commitment to continue funding the ORCS until at least 2024/25. The BVRLA and its members welcome the continuation of on-street charging grants as these chargers are an important part of the wider charging mix. Local authorities are recommended to specifically consult with the fleet sector when considering on-street charging rollouts.	
Local government measures	Local government measures continue to be rolled out across the UK. Bath and Birmingham have implemented Clean Air Zones (CAZ), with Portsmouth due to implement a CAZ in late 2021 and more UK cities following, and with Oxford introducing a ZEZ. Whilst the BVRLA and its members recognise CAZs and other low emission zones as an important enabler of zero emission transportation, the rollout of such measures continues to be fragmented and can cause issues for the fleet sector. The association believes that local authorities that are either considering introducing a CAZ or have introduced one need to do more to promote leasing and rental, as they offer an affordable route to compliance and are not uniformly signposted or included within support schemes.	
ULEV proportion of Government fleet	Government confirmed in its Transport Decarbonisation Plan that it is committed to achieving ULEV targets for December 2022 (25% of fleet) and 2027 (100% of fleet – brought forward from the previous 2030 target). The BVRLA welcomes the updated target for 100% of the fleet to be ULEVs by 2027. However, members have encountered many practical challenges supplying ULEVs to Government fleets which will need to be addressed. Regular reporting on progress towards achieving this target, increased practical support and an expansion of the commitment beyond central Government is required.	

"The plug-in grants and charging infrastructure grants are all effective policy instruments whilst we're still early in the product phase. Most people buying are buying for the first time – if you can remove barriers to entry and reduce upfront cost, then this will boost uptake. Over time they have been more concentrated onto lower cost models, benefitting the vehicles that need them most."

Peter McDonald – *Nissan Fleet Director, Nissan*

"For charging grants, there is still a role for Government to de-risk the investment in charging infrastructure where the utilisation is expected to be low. This includes rural areas or locations where utilisation may be seasonal, and places where uptake could be slower. Government can be more targeted with respect to deploying funds and should be looking to mechanisms that encourage private sector investment. There is a need to consider whether grants are the right approach in the long term, or whether other mechanisms would be more cost effective."

Lauren Pamma

– Programme Director, Green Finance Institute

Tax benefits status update

Category	Status update	Score
Vehicle Excise Duty (VED)	Zero emission cars and vans are exempt from VED and the expensive car supplement which applies an additional cost of £325 per year for five years to other vehicles costing over £40,000. The exemption from VED has been confirmed to continue until at least March 2025. This policy continues to provide an incentive for BEVs and is in line with recommendations made by BVRLA in 2019[7], but neglects to incentivise PHEVs and other low emission vehicles by applying only a small discount on the flat rate which does not truly reflect fuel efficiency and hybrid electric miles from year two. The BVRLA provided a response to the Government's call for evidence on VED, highlighting the necessity for future certainty on rates. It is critical that Government starts discussions with the fleet sector around the future of vehicle taxes as soon as possible. BVRLA has committed to continue to engage with officials to ensure any future VED reform will work for members.	
Value Added Tax (VAT)	There is no emissions-based VAT reduction or exemption for new or used car purchases or leases. As noted in last year's Road to Zero Report Card[6], modelling by Cambridge Econometrics[8] suggests that a full exemption for purchases and leasing payments is essential to deliver transition by the 2035 target, especially for the retail car segment. Government should keep changes to VAT under consideration.	
Company Car Tax (CCT)	In July 2019, it was announced that the BiK tax rate for EVs was to be reduced from 16% in 2019/20 to 0% for 2020/21, with the rate rising moderately to just 1% in 2021/22 and 2% in 2022/23. The 2035 Delivery Plan confirmed the commitment to continue the favourable 2% CCT rate until at least March 2025. Low BiK rates also apply to PHEVs with CO_2 emission up to 50 g/km, rates are between 1% and 13% depending on the vehicle electric mile range. The BVRLA and its members see these BiK measures as having a vital impact on EV uptake in company car fleets and wider consumers through salary sacrifice schemes. BVRLA members are calling urgently for further clarity with respect to what happens after the currently announced favourable BiK rates. The momentum in the company car and salary sacrifice markets is at risk as foresight reduces and will be disrupted by any rapid increase in rates.	

[7] BVRLA (2020), Road to Zero: Report card 2020

[8] Cambridge Econometrics (2020), Tax and EV Transition: The role of motoring tax policy in phasing out ICEs from fleet and private car sales by 2035

Category	Status update	Score
Van Benefit Charge (VBC)	Since April 2021, the Government has applied a nil rate of tax to zero emission vans within the VBC, thereby holding the VBC just under the company car BiK rate. There is currently no time period attached to this nil rating. The BVRLA welcomed the announcement on the VBC, bringing it in line with other zero emission vehicle policies. However, BVRLA members expect a very limited impact given the extremely low numbers of VBC payers.	
Capital Allowances	Since April 2021, companies and unincorporated businesses are eligible for enhanced capital allowances when buying a new zero emission car for business use, which allows for 100% of the cost of the car to be written off against the taxable income. The super deduction allowance announced in March 2021 allows 130% of the cost of a van or HGV to be written off against taxable profits in the first year. The super deduction allowance will be available until April 1 2023. The BVRLA's view is that the leasing and rental exclusion should be dropped from the Capital Allowances Act and allowances extended to the sector, allowing the incentives to support all the acquisition methods modern businesses rely on.	
Advisory Electricity Rate (AER)	The AER for EVs remains unchanged at 4p/mile, which does not consider the range of different driving options for EVs, the range of vehicle types, and the range of charging costs. The BVRLA, along with the Association of Fleet Professionals (AFP), has called upon Government[9] to ensure that the AER for EVs is fit-for-purpose. This includes reviewing the current AER level, establishing an ongoing review process for the AER, creating a separate AER for electric vans, and beginning to work on a hydrogen AER. These recommendations will help to ensure that employees will be reimbursed the correct costs for their business travel. Government is currently considering the views of the BVRLA and AFP.	

"Everyone in the UK is looking for guidance for what they are going to get in terms of taxation. This is the main aspect that was missed in the Transport Decarbonisation Plan – people need certainty and this is what they care about. It has to be funded somehow."

Simon Ridley – Managing Director, Dawson Group

[9] BVRLA & AFP, Fleet industry calls for review of the Advisory Electricity Rate for EVs, https://www.bvrla.co.uk/resource/fleet-industry-calls-for-review-of-the-advisory-electricity-rate-for-evs.html

Grants and tax incentives key to momentum

As part of this year's Report Card, stakeholders were asked their opinions on the impacts of the current tax incentives and different grants on EV uptake in fleets. They were unanimous in their view that the current low BiK rates are the key driver of the uptake of ZEVs in the UK. Fleets feel that, more than one year into the new low rates, awareness of the benefits of transitioning to ZEVs has become much more widespread in companies and momentum is starting to embed.

The low BiK rates were also seen as creating a revival in the salary sacrifice market. This segment was flagged as having experienced rapid growth in 2021 with many new entrants running these schemes for firms and surging demand from companies wanting to offer them. They are being introduced as staff benefits but also to improve organisations' environmental, social and governance (ESG) credentials. Salary sacrifice growth was viewed as a major success for EV adoption and is democratising access to EVs for thousands of employees across the UK.

Stakeholders expressed concern that BiK certainty ends in 2024/25 and for adoption to continue this must be extended. Many customers have four-year lease cycles and without five years of foresight these customers will not know their future tax liabilities. This can create uncertainty that puts some customers off taking up EVs.

Plug-in Grants continue to be seen as important in facilitating the uptake of EVs in fleets, due to their impacts on the higher purchase costs of the vehicles. They are even more vital for vans and HGVs where the market is significantly less developed.

Fleets want more clarity and advanced notice on any changes that will be coming into effect on grants. Some stakeholders interviewed noted that the reducing price cap on the PiCG is creating downwards pressure on new BEV car pricing. This correlates with a recent report released by the IEA[10], which noted that grants need to be gradually phased out as sales expand and costs reduce to keep the market competitive.

Additional funding may be required for electric vans as they are 3-5 years behind the car EV market. With respect to grants for HGVs, stakeholders interviewed noted that the HGV market is in its infancy and suffers from major price differentials, so the current grants cannot bridge them. R&D funding and infrastructure studies are urgently required to facilitate the HGV market.

Interviewees were divided on the impacts of private charging grants. They referenced the fact that the home charging grant may not have a large impact on choice of vehicle in comparison to plug-in vehicle grants and, similar to the price caps on vehicles, that the charging market could be prevented from reducing charger costs due to the presence of the grant. However, other stakeholders referenced it as a positive contribution to overall vehicle electrification.

[10] IEA (2021), Global EV Outlook 2021, https://iea.blob.core.windows.net/assets/ed5f4484-f556-4110-8c5c-4ede8bcba637/GlobalEVOutlook2021.pdf

Policy developments

Transport Decarbonisation Plan

Perhaps the most significant policy development to occur during 2021 was the publication of the long-awaited Transport Decarbonisation Plan[11] (TDP). The TDP sets out a high-level multi-modal framework for the UK to meet its net zero ambitions for transportation. It contains a mixture of existing policies and new commitments, including a range of measures that are of relevance to the road fleet sector.

The BVRLA welcomes the publication of the TDP, and the inclusion of key messaging around the vital role of the car for certain journeys and use cases, with the TDP representing a vital step forward in meeting net zero and the phase out targets. Additionally, the BVRLA has highlighted the measures surrounding providing a roadmap for HGVs and supporting the roles of car clubs, ridesharing and mobility credit schemes in reducing emissions on UK roads as being particularly positive, acknowledging the role BVRLA members play in achieving transport decarbonisation.

The following measures listed in the Transport Decarbonisation Plan are relevant to the fleet sector:

- 100% of the **Government car and van fleet** will be zero emission by 2027.
- Government has pledged to **stimulate demand for zero emission trucks** through financial and non-financial incentives.
- It will support efficiency improvements and emission reductions in the existing fleet and encourage **modal shift** of freight from road to more sustainable alternatives, such as rail and cargo bike.
- The Government will take action to increase **average road vehicle occupancy** by 2030.
- It will publish guidance for local authorities on **support for shared car ownership**.
- **Supporting car clubs** to go fully zero emission.
- Consulting on a **Mobility as a Service Code of Practice**.
- Reducing the barriers to **data sharing** across the transport sector.
- Exploring the introduction of a new **sustainable travel reward** scheme.
- Encourage and support UK businesses to lead the way in taking action to reduce emissions from their **employees' travel journeys** through "Commute Zero".
- Publish a **Future of Transport: Rural Strategy**.
- Publish a **Local Authority Toolkit in 2021**, providing sustainable transport guidance.
- Embed **transport decarbonisation principles** in spatial planning and across transport policymaking.
- Create at least one **zero emission transport city** and four industrial 'Super Places'.
- Develop a strategy for low carbon fuels, from now until 2050.
- Explore **hydrogen's role** in a decarbonised transport system, publishing a strategy in Summer 2021.

The stakeholder consultation activities undertaken as part of this year's Road to Zero Report Card highlighted that BVRLA members are broadly supportive of the TDP. Overall, the Plan is seen as a very positive step forward in ensuring the UK reaches its net zero aims. Our respondents highlighted the transport 'ecosystem' approach taken with respect to the focus on inter-modality. Echoing the BVRLA's views, members also highlighted the positive references to modal shift with TDP.

Some believe that the TDP could provide more detail on how it will be delivered, and the funding required to achieve its objectives. The Plan often states the intent to launch consultations on important policy measures rather than having already developed them. The danger here is that these policies are implemented too slowly and do not keep pace with the impetus required by the market. Some BVRLA members noted that the delivery of the Plan needs to focus on clarity and making it simple for fleets and the end user to understand. Additionally, it was highlighted that the Plan needs to be adopted by all devolved nations (or a very similar plan implemented) to ensure consistency across the UK.

[11] UK Government (2021), Decarbonising transport: a better, greener Britain, https://www.gov.uk/government/publications/transport-decarbonisation-plan

Office for Zero Emission Vehicles Phase Out Delivery Plan

Alongside the Transport Decarbonisation Plan, the Government has published the 'Transitioning to zero emission cars and vans: 2035 delivery plan' document, also referred to as the Phase Out Delivery Plan. This delivery plan sets out the investment and policy initiatives needed to help meet the phase out dates for cars and vans. The Phase Out Delivery Plan also contains key performance indicators to monitor progress and commits to reviewing progress against the phase out dates by 2025.

Similar to the TDP, the Phase Out Delivery Plan provides a mixture of new and old policy measures. The BVRLA welcomes the introduction of the Phase Out Delivery Plan as a positive step forward in achieving the targets specified by Government for cars and vans. In particular, the BVRLA welcomes the acknowledgement of the contribution the fleet sector is making towards achieving the targets set by Government. The BVRLA has committed to continue engaging with Ministers on the Phase Out Delivery Plan to offer the fleet perspective and ensure the Government continues to cater for the needs of BVRLA members.

The stakeholder consultation undertaken as part of this year's Road to Zero Report Card found that people are broadly supportive of the actions within the Phase Out Delivery Plan but highlight the fact that zero emission vehicles need to make sense for fleet operations, and that not all vehicles are able to transition now.

In terms of monitoring progress against the phase out dates, respondents were broadly supportive of the Phase Out Delivery Plan's seven KPIs, but a key KPI was highlighted as missing: **total cost of ownership** of EVs compared to ICEVs. It was also recommended that an independent body should carry out the progress reviews.

Many of the measures included within the Phase Out Delivery Plan are analysed in more depth throughout this Report Card.

"In general, the Transport Decarbonisation plan is a great step towards net zero – we've been heavily focused on consumer vehicles, but we have to consider the whole ecosystem. There's low hanging fruit, but also some tough challenges."

Tom Callow

– Head of Insight and External Affairs, BP Pulse

"The Transport Decarbonisation Plan needs to be seen through the eyes of the end consumer. What you need is confidence, which you gain from consistency and continuity of charging and refuelling. There is a disconnect between energy and energy policy (not devolved) and transport (devolved) – we need to bring them together, but they can be opposed. We need the whole UK to work together to achieve this."

Graeme Cooper

– Head of Future Markets, National Grid

The following measures are listed in the 'Transitioning to zero emission cars and vans: 2035 delivery plan':

- We will aim to introduce a **new road vehicle CO_2 emissions regulatory regime in 2024**.
- We will continue to fund the plug-in car grant until **at least** 2022/23.
- Zero emission cars will continue to benefit from **favourable CCT rates until at least March 2025**.
- We will continue to fund the plug-in van grant until **at least** 2022/23.
- We will publish an **EV Infrastructure Strategy in 2021**.
- We will shift the support of the Electric Vehicle Home Charger Scheme to focus on **leaseholders, renters and those living in flats from April 2022**.
- We will continue to fund the Workplace Charging Scheme until at least 2024/25.
- We will publish a **Hydrogen Strategy in 2021** to set out how we will develop the UK's hydrogen economy.
- **We will report progress against our key performance indictors and update this plan regularly**.
- **We will conduct a full progress review towards out phase out dates by 2025**.

Support for hydrogen vehicle deployment

The Government launched its new Hydrogen Strategy[12] in August 2021, outlining plans to create a hydrogen economy that can help delivery of the UK's net zero goals. As previously suggested in the Transport Decarbonisation Plan, the Hydrogen Strategy's transport element is focused on areas 'that batteries cannot reach', thus prioritising sectors such as rail, maritime, aviation and heavy road freight. Given the growing interest in understanding and developing the role of hydrogen in transport decarbonisation, the new Hydrogen Strategy is a welcome step. It acknowledges that the longer-term role for hydrogen in transport is not yet clear and underlines the importance of continued investment in research and innovation, noting the Government's ongoing £23 million Hydrogen for Transport Programme.

The Strategy notes that depot-based transport is expected to constitute the bulk of hydrogen demand in the 2020s, with increasing diversity in the later 2020s and early 2030s through hydrogen use in HGVs, buses and rail. It also underlines that long-haul HGVs are the most challenging road sector segment to decarbonise due to the greater distances travelled by HGVs and their end load requirements. The Government commits to investing up to £20 million by April 2022 to design various trials, including for hydrogen fuel cell HGVs. Government also announced a £40m fund to enable demonstration of hydrogen (and other low carbon fuel) non-road mobile machinery (NRMM).

One of the most important elements of the Hydrogen Strategy was the development of the hydrogen business model – there is a proposal in the Strategy to use a Contract for Difference (CfD) model that would help to mitigate the uncertainty in hydrogen prices and decouple them from the initial low demand. At its most basic, a CfD is essentially an agreement between two parties whereby one party agrees to pay the other party the difference between the actual value of a commodity at a point in time – the market price – and a value which the parties agreed at the point the CfD was entered into – the strike price. It previously played a key role in driving the use of renewable electricity in the UK energy mix.

The development of a Low Carbon Hydrogen Standard is also required to ensure the hydrogen being used is not creating increases in emissions or very high energy consumptions. It should be recognised that in spite of the direction of the strategy, hydrogen is still a long way away as a solution, and perhaps five-ten years behind EVs.

Stakeholders were questioned on what needs to happen next for the Hydrogen Strategy to facilitate the fleet sector. There was an exceptionally strong focus on enabling hydrogen infrastructure, including R&D and determining where demand will be for hydrogen refuelling stations (HRS). People also referenced the fact that hydrogen cannot be thought of in isolation, and that it needs to both interplay with any electrification strategy and with the wider UK energy strategy, encompassing a broader sectoral approach including low carbon heating for homes.

In terms of priority areas, fleets recommended facilitating R&D and start-ups, and providing an environment where vehicles can be tested, leading to more practical and less theoretical thinking. They also expressed a desire for rules, regulations and guidelines regarding onsite hydrogen refuelling to be produced, to ensure fleets have the knowledge they need to provide onsite refuelling. Hydrogen pricing is also considered an unknown, and the large price differential needs to be further investigated.

[12] UK Government (2021), UK Hydrogen Strategy, https://www.gov.uk/government/publications/uk-hydrogen-strategy

Government consultations on fossil fuel vehicles

Hybrids consultation

The Prime Minister's Ten Point Plan[13] announced that only new vehicles with significant zero emissions capability (SZEC) will be sold in the UK from 2030. A Government consultation to define SZEC was announced in the 'Green Paper on a New Road Vehicle CO_2 Emissions Regulatory Framework for the United Kingdom'[14]. This consultation will gather views on metrics to measure SZEC, associated eligibility thresholds, other compliance considerations and other impacts.

The options for SZEC being considered are:

- **Grammes of CO_2 per kilometre (gCO_2/km)** – this is the established metric for measuring emissions from vehicles.
- **Continuous zero emission range** – this is measured as part of the current testing process for PHEVs and battery electric vehicles and demonstrates zero emission performance. It is also referred to as the 'all-electric range'.
- **Percentage of journey time spent in zero emission mode** – this metric has been used in independent studies to demonstrate the zero emission capability of non-plug-in hybrids.

BVRLA members have expressed a range of views on the hybrid consultation. Some considerations that have been flagged with the BVRLA, but are not representative of the entire sector are:

- It may be best to allow different SZEC definitions for different technologies.
- A single standard for cars and vans could be inappropriate.
- SZEC levels should be reviewed to ensure they are fit for purpose closer to 2030.
- The third option for SZEC could create extremely burdensome systems changes as it is not an established test or metric.

The inclusion of PHEVs in the overall road transport mix continues to be a divisive issue amongst BVRLA members. During the stakeholder consultation for this year's Report Card, some highlighted that PHEVs are still a useful stepping stone to BEVs for some vehicle fleets, particularly rental fleets where BEVs are not yet fit-for-purpose. Others question the benefits of PHEVs in terms of ensuring the vehicle is used in electric mode and contributes to emissions savings. Some also questioned the second life of PHEVs and noted that there are very few PHEV van models available on the market. Modelling by the Green Alliance also show PHEVs as having limited financial benefit if not used in electric mode[15].

"The deployment of PHEVs is a strategy worth pursuing by some of the manufacturers, and it is a stepping stone for people to get in LCVs. However, there are so few PHEV vans that the deployment potential is very limited."

Simon Ridley
– Managing Director, Dawson Group

"Any hydrogen strategy needs to consider the whole UK-wide energy strategy. It would also be useful to see vehicle priorities for electric vs hydrogen, and some financing strategy for the infrastructure. It should also consider hydrogen for heating homes – the strategy needs to take a broader cross-sectoral approach."

Lauren Pamma
– Programme Director, Green Finance Institute

[13] UK Government (2021), The Ten Point Plan for a Green Industrial Revolution, https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution

[14] UK Government (2021), CO2 emissions regulatory framework for all newly sold road vehicles in the UK, https://www.gov.uk/government/consultations/co2-emissions-regulatory-framework-for-all-newly-sold-road-vehicles-in-the-uk

[15] Green Alliance (2021), Accelerating the electric vehicle revolution: Why the UK needs a ZEV mandate, https://green-alliance.org.uk/resources/Accelerating_the_electric_vehicle_revolution.pdf

"The proposal of a phase out date for petrol- and diesel-powered HGVs could be a positive step. But the HGV solutions are less clear at the moment, according to both manufacturers and customers, in terms of technology and infrastructure. Government is still going through the process of figuring out where hydrogen fits in. HGVs also have much longer lifecycles than cars – when you're looking at this longer term, you need greater assurances with respect to how this market will develop."

Ben Lawson

– Vice President of Mobility and Project Development for Europe, Enterprise

HGV consultation

The Government announced a consultation on the end of sales of new non-zero emission HGVs in the UK. The proposed phase out dates are 2035 for vehicles weighing 3.5-26 tonnes and 2040 for vehicles weighing more than 26 tonnes. The consultation is considering if the phase out dates should be extended to HGVs using low carbon fuels and if the maximum permissible weights of zero emission or alternatively fuelled HGVs should increase to allow for their generally heavier powertrains.

BVRLA members have welcomed the consultation of the phase out of the sale of new non-zero emission HGVs. However, members have many concerns as HGVs have a huge array of complex use cases and decarbonising them in the timelines suggested will be an incredible challenge. Some of the key points that have been flagged in response are:

- Setting a date is a positive step, it puts a stake in the ground for industry to work towards.
- The current weight split proposed, of a 2035 phase out for 26 tonne HGVs and under and 2040 for over 26 tonnes is not appropriate.
- Use case would be a better tool than weight to split the dates. However, recognising that weight might be the only proxy, other splits must be considered. As a minimum the split should be moved to 18 tonnes rather than 26. It is possible that more nuances might be required, such as two splits; one at 7 tonnes and under and the second at 18 tonnes, creating three dates. Further evaluation and research are required before the date or dates can be set.
- There is a vast array of challenges in meeting any phase out date and it will require extensive collaboration and support from across Government (BEIS, DfT, Defra and HM Treasury) to meet them.
- Low carbon fuels will support the sale of low carbon HGVs as infrastructure and technology becomes cheaper and more widespread. If the phase-out date is set too soon, operators will be reluctant to invest in these cleaner 'transition' technologies and will hold on to their older, more polluting vehicles before making the leap to zero emission HGVs.
- There should be an increase to maximum permissible weights to cater for the additional weight and loss of payload when moving to zero emission vehicles.
- It is critical that this phase out is achieved through collaboration. A delivery plan that would give much needed certainty to the sector is vital. Such a plan would provide a mechanism to ensure vehicles are produced and infrastructure rolled-out in line with end user needs and that there is an ongoing process for review.
- Government should set up a taskforce with a range of stakeholders, including end users, to work on developing recommendations for a delivery plan. This group should also have a role in identifying the challenges in reaching the phase out dates and in developing the solutions needed to overcome them.

People interviewed during this year's Report Card consultation were asked to provide their views on the HGV consultation. Whilst stakeholders generally agreed that the specification of an end date is a positive step, it is nevertheless a very ambitious proposition that needs to be coupled with a concise and robust roadmap for how Government intends to deliver the HGV phase out date. They called for technological certainty for the HGV market and noted that R&D is essential at this time, both for vehicles and for infrastructure. Government has made funding available for HGVs in the form of the Zero Emission Road Freight competition[16]. It will be important to disseminate the learnings from the successful projects, to ensure that the optimum technologies for the optimum use cases are rolled out – the trajectory of having multiple technologies coexisting is also being adopted by the European Union.

In consideration of further Government support, participants also mentioned that Government needs to consider rest areas and MSAs for HGVs and their drivers – aside from ZEV infrastructure, rest areas in general can be underequipped for drivers. Greater financial assurances for low carbon HGVs were also recommended due to the longer lifecycles of HGVs in comparison to cars, particularly when considering second and third lives. Stakeholders also noted that a collaborative / coalition effort may be required to strategically locate the supporting infrastructure, and questions whether fuels such as CNG would factor into the Government's plans.

[16] Knowledge Transfer Network UK (2021), Zero Emission Road Freight – 3 strands, https://ktn-uk.org/opportunities/zero-emission-road-freight-3-strands/

Additional aspects affecting demand for vehicles

Stimulating the second-hand market

As shown in the Green Alliance's study[4], owners of second-hand BEVs can benefit from significant savings on the TCO compared to second-hand diesel or petrol equivalents. Since vehicle owners in the bottom 40% of household incomes tend to buy second-hand cars[17], it is important to ensure that low-income households are not left behind with vehicles that are expensive and polluting. The Government needs to ensure that supply to the second-hand BEV market is stimulated and must recognise the fleet sector's key role in doing so. As part of the 2035 Phase Out Delivery Plan, Government highlighted three important measures:

- **Electric Vehicle recovery information document** – Government has commissioned Horiba MIRA and TRL to produce an information document to help recovery operators to understand the expectations of themselves and others when dealing with a damaged or broken down EV, expected to be published later in 2021.
- **Battery health** – Government is working with United Nations Economic Commission for Europe to develop EV battery health monitoring and battery lifespan requirements, to provide a basis for future UK regulation to support consumer confidence, particularly in the second-hand market.

> *"If you're a second-hand electric vehicle user, a means of independently verifying the condition of the battery and having some form of guarantee in place is needed – this is very important for the success of the second-hand market."*
>
> *Paul Hyne*
> *– Commercial Director, Arval UK*

- **Electric Vehicle Approved (EVA) scheme** – the scheme, part-funded by Government and developed by the National Franchised Dealers Association (NFDA), allows drivers to easily find retailers that lead the way in EV customer service, both in retail and after-sales care. 200 dealers have obtained accreditation and there is a waiting list for 2021/22.

Stakeholders interviewed for this year's Report Card consultation highlighted the essential role that fleets play in getting EVs into the second-hand market, and crucially the need to independently verify the condition of the battery and have some form of guarantee in place. One noted that Government could underwrite the battery health risk in order to stimulate the market. The second-hand life of PHEVs is considered to be even more of an unknown in comparison to BEVs. BVRLA will continue to engage with officials to ensure appropriate focus on the used market for BEVs.

Status update on demand for electric vans

As outlined in the BVRLA's Van Plan[18], vans are crucial to the UK economy, with one in ten workers relying on a van for their job. Vans support a range of industries, thus requiring a variety of van types based on various use cases which poses a challenge for van electrification. With the national van fleet growing at a growth rate double the rate of the car market, a greater focus on this sector is needed in terms of stimulating demand.

Zero emission vans are significantly more expensive than comparable ICE vans, with an average premium of 31% and 50% for specific models[19]. The fleet operators that consider adoption of electric vans require long-term certainty to plan their van fleet transition, which is why the March 2021 reduction in the small van grant led to great concern within the industry. The BVRLA and its members believe further steps must be taken to ensure the levers of support to foster the required levels of demand are in place.

Major zero emission company van fleet operators have flagged very similar concerns in the EV Fleet Accelerator (EVFA) report[20]. The EVFA report highlighted the need for collaboration to ramp up demand signals, strengthen electricity distribution network infrastructure, expand UK supply chains and ensure a fair distribution of charging points on consumer-friendly platforms.

[17] Green Alliance (2021), Going electric: How everyone can benefit sooner, https://green-alliance.org.uk/resources/going_electric_how_everyone_can_benefit_sooner.pdf

[18] BVRLA (2021), Van Plan, https://www.bvrla.co.uk/resource/bvrla-van-plan-2021.html

[19] Auto Trader (2021), Auto Trader Retail Price Index | May 2021, https://plc.autotrader.co.uk/press-centre/news-hub/auto-trader-retail-price-index-may-2021/

[20] BP (2021), Major British companies come together to accelerate the electrification of transport in the UK, https://www.bp.com/en/global/corporate/news-and-insights/press-releases/major-british-companies-come-together-to-accelerate-the-electrification-of-transport-in-the-uk.html

Progress is still being made with zero emission vans and there are already TCO benefits for some fleets and use cases. However, these benefits are not transparent and not well-understood by many fleets. Smaller fleets or operators with more limited capital may not fully consider TCO, rather they have a set budget for van procurement. The Government needs to have an incentive structure that addresses all aspects of the TCO that don't stack up, e.g. lower mileage vans, higher costs of vehicles, and the relative costs of recharging.

Respondents to this year's Report Card consultation were strongly in agreement with the BVRLA's Van Plan findings. In terms of affordability and total cost of ownership, numerous stakeholders noted that the electric van market is 3-5 years behind the electric car market. Provision of infrastructure, both at depots and public infrastructure, is a major concern of fleet operators with respect to the impacts on TCO. Environmental, social and corporate governance (ESG) is said to be a major driver for fleet operators to adopt zero emission vans, but operators will only be willing to take up the vans once an affordable product is available on the market, which is where further Government incentives may be necessary.

"It is important that fleets get a long-term insight of tax developments as they are making decisions now. This is particularly relevant for LCVs – fleets will be keeping them for many years, with a longer retention rate."

Peter McDonald

– Nissan Fleet Director, Nissan

[21] MDPI (2019), How to Improve the Total Cost of Ownership of Electric Vehicles: An Analysis of the Light Commercial vehicle Segment, https://www.mdpi.com/2032-6653/10/4/90

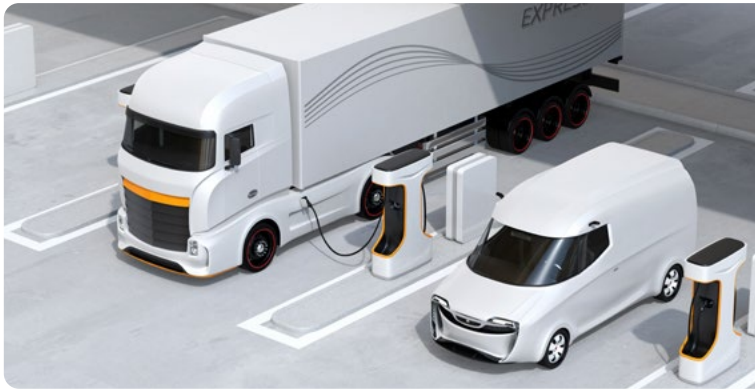
Demand for vehicles in different vehicle categories

In consideration of demand for vehicles between cars, vans and HGVs, there are clear differences evident between the vehicle categories. Initially focusing on cars, the 2035 Phase Out Delivery Plan provides a clear indication of the steps forward to achieve the ambitious phase out dates and the support that will be provided to fleets of vehicles. The range of fiscal incentives continue to positively impact the car sector, though the issue of clarity on the future of taxation remains a large concern.

There is general consensus that the electric van market is behind the electric car market in terms of cost competitiveness, either with list price or on a TCO basis. Fleet operators are willing to adopt electric vans once the total cost of ownership stacks up against ICE vans, with ESG credentials also being a major driver for adoption. There is clearly demand for electric vans as evidenced by commitments from major fleets; however, there are limited electric van options on the market, and they are more expensive on a capital cost basis. There are a range of variables that affect the TCO of an electric van, including mileage driven, period of ownership, battery residual value and fiscal incentives[21]. Fleets within the rental sector experience additional difficulties with electric vans and may require further support.

The imbalance between electric and ICE vans points towards a need for additional incentives and tax benefits in order to further stimulate the market and make these vehicles a viable option in TCO terms. This TCO equation can vary enormously depending on the business model and use case of a particular fleet. A standardised, transparent TCO calculation would ensure that it is clearly understood and appreciated by all fleet operators.

ZEV HGVs are far behind both cars and vans, but this is to be expected considering the relative immaturity of the market. The HGV consultation has effectively "drawn a line in the sand", but this now needs to be accompanied by a robust roadmap and associated support for the sector. The demand is lower due to the uncertainties in the market, but appropriate steps are being taken to address this. At these early stages, R&D is essential in order to trial the technologies in order to inch towards technological certainty (or, more likely, different zero emission powertrain technologies coexisting), and a large amount of effort needs to go into solving the infrastructure question for different zero emission HGV powertrains. The Government funding towards trials of zero emission road freight is critical to this process and will need to be increased.



Scoring for Demand

Vehicle type	Description	Score
Cars	Demand for electric cars is progressing well, it continues to accelerate driven by company car and salary sacrifice uptake. Continued support is required to maintain successes in the segments which have momentum and clarity on future taxes is central to this. Not all segments are equally incentivised which has led to a huge divergence in EV adoption rates. No segment can be forgotten and progress across all of them needs to be monitored with targeted interventions considered where there are persistent barriers.	**Cruising**
Vans	Uptake of zero emission vans lags behind the car market as a more diverse customer base struggles to absorb the price of decarbonisation and products do not yet have the functionality needed for all use cases. Additional van-specific incentivisation and tax benefits are likely to be required to stimulate the sector by providing a positive TCO comparison.	**Brakes On**
HGVs	Demand for zero emission HGVs is much further behind cars and vans, though this is to be expected at this early market stage. The HGV consultation is moving the sector in the right direction, but significant HGV R&D is required to assist in moving towards more technological certainty. There is very little being done to stimulate demand for zero emission HGVs currently.	**Parked**

Recommendations

- **Provide increased visibility and certainty on the direction of EV tax benefits and incentives.**
  - BiK certainty ends in 2024/25 and this must be extended. The sector needs at least five years ongoing visibility as this is needed for an individual to quote, select, order and receive a company or salary sacrifice vehicle with a four-year lease agreement.
  - The future of the Plug-in Grant is uncertain beyond 2023 and clarity on how it will be phased out or re-allocated is urgently required in order to provide confidence to prospective EV purchasers.
  - As the ZEV parc grows, fuel duty and VED revenues will fall. Speculation on punitive future ZEV taxes is creating uncertainty amongst some in the new and used market. Certainty of how the tax framework will change fundamentally to deal with ZEVs in the next decade is critical to allow fleets and individuals to plan.
- **Introduce a range of van-specific support measures to stimulate demand for these vehicles, addressing the specific TCO elements that do not stack up against ICE vans.**
  - Ringfence the Plug-in Grant funding for the van sector, as well as topping-up and extending the Grant.
  - Drop the 'super deduction' exclusion for the leasing and rental sectors.
  - Provide van taxation and reimbursement certainty beyond 2021. Provide clarity with regards to VED, fuel duty and VBC.
  - Introduce a fleet van charging tax relief.
- **Use the HGV consultation to develop a clear and concise roadmap for achieving the phase out targets for trucks.**
  - Ensure continued dissemination of the lessons learned from the Zero Emission Road Freight funding.
  - Provide additional funding for the Zero Emission Road Freight trials to increase their speed and scope.
  - Use the Hydrogen Strategy to explore how the fleet sector can contribute to trialling hydrogen in commercial applications.
  - Engage closely with fleets to determine funding requirements for zero emission HGV infrastructure and where it needs to be located, including electric and hydrogen.
- **Develop a range of support measures to underpin the second-hand EV market.**
- **Government should openly explore the implementation of a road pricing scheme, consulting closely with the BVRLA and the fleet sector on its optimum deployment.**
- **Ensure that the experiences of a diverse range of fleets are considered during the progress reviews for the 2035 Phase Out Delivery Plan.**
- **Revise the Advisory Electricity Rate in line with the joint proposition from BVRLA and the Association of Fleet Professionals and introduce a van-specific Advisory Electricity Rate.**
- **Provide additional assistance to coordinate local government measures to ensure that these are not fragmented, whilst respecting the need to consider local circumstances.**
- **Ensure the fleet sector is consulted for and featured in any upcoming "Build Back Greener" promotional campaigns and ensure benefits such as modal shift are highlighted.**

3 Report Card
Infrastructure

Accelerating

- 2021 has seen a spike in private investment on public charging at key locations, supported by Government interventions and funds.
- Government is ramping up its focus on key EV charging pressure points. An EV Infrastructure Strategy is due later this year and recent consultations have focused on grid connections and the charge point user experience.
- Inadequate consideration is still being given to the infrastructure challenges facing large commercial vehicle fleets.
- The postcode lottery in public charging continues with major inequalities in charging provision, especially in rural and deprived areas.

Recommendations

- Provide businesses with the guidance and financial assistance they need to accelerate the rollout of rapid private charging infrastructure.
- Give local authorities the tools and support they need to meet the infrastructure requirements of fleets and mobility operators.
- Fastrack the recommendations of the consumer experience consultation.
- The forthcoming EV Infrastructure Strategy must put an equal focus on commercial fleets and consumers.

Infrastructure status update

Category	Status update	Score
Public charging infrastructure provision	The deployment of public charging infrastructure has continued to accelerate further in recent years, with the public charging network more than tripling since 2018 (+243%)[1]. The Project Rapid initiative is expected to facilitate this deployment in areas on strategic road networks, and the project is making good progress. As noted in the previous Road to Zero report card[2], the BVRLA and its members identified a need for more higher-powered charging for those on longer journeys or with shorter dwell times. Public charging must better cater for fleet use cases, and must also be made more accessible for van users. As highlighted in recent research[3], increased engagement of councils with fleets to proactively install on-street infrastructure is required to ensure all EV drivers have access to required charging infrastructure. Urban charging hubs may also be required for those without access to on-street residential charging.	
Ad hoc infrastructure access	OZEV's "consumer experience" consultation (undertaken between February and April 2021) included questions on standardising the payment methods consumers can choose from. The analysis is expected to be published before the end of 2021. The BVRLA and its members eagerly await the outcomes of OZEV's consumer experience consultation. They have previously underlined the need to make a contactless payment option available for all public charge points and to ensure the ability to pay without requiring an internet connection. Some BVRLA members also highlighted that progress towards a "Plug and Charge" solution would be welcome, acknowledging that the associated cost may only suit rapid chargers.	
Reliability / maintenance standards	The Government reiterated the importance of improving the reliability of the charging network in the 2035 Phase Out Delivery Plan so that consumers can feel confident that charge points are working as expected. The OZEV consumer experience consultation featured questions on ensuring a reliable network. The BVRLA's response[4] to the consultation noted support for the Government's proposal to set a reliability standard. Some members agreed with the proposed 99% network availability standard, whilst others suggested that a standard should apply on a location basis rather than network basis to ensure that charge points that work for vans or with no suitable alternatives are not neglected. The BVRLA and its members eagerly await the outcomes of the consultation.	

[1] ZapMap (2021), EV Charging Statistics 2021, https://www.zap-map.com/statistics/ [Accessed 22 July 2021]

[2] BVRLA (2020), Road to Zero: Report card 2020, https://www.bvrla.co.uk/resource/2020-road-to-zero-report-card.html

[3] Centrica (2021), Driveway discrimination: Just 35 on street electric vehicle chargers per council to be installed by 2025, https://www.centrica.com/media-centre/news/2021/driveway-discrimination-just-35-on-street-electric-vehicle-chargers-per-council-to-be-installed-by-2025/

[4] BVRLA (2021), BVRLA response OZEV consumer experience of public charging, https://www.bvrla.co.uk/resource/bvrla-response-ozev-consumer-experience-of-public-charging.html

Category	Status update	Score
Dynamic data availability	In its 2035 Phase Out Delivery Plan, the Government reiterated the importance of opening up charge point data. The OZEV consumer experience consultation assessed how to open up charge point data to make it more accessible. The BVRLA's response to the consumer experience consultation underlined that a UK data standard is required to ensure customers have all the information they need. Echoing Motability's recommendation, the BVRLA supports a UK standard that takes accessibility information into account. BVRLA members would also like to see better data provision around suitability of charge points for vans. They are in favour of adopting the OCPI standard, underlining the importance of an open data standard. Open data availability was repeatedly cited as a concern during the stakeholder consultation phase for this year's Report Card, noting that there is a need to make evidence-based decisions on where charging is required.	
Smart capabilities	Following the Government's smart charging consultation response in May 2020, emphasising its intention to mandate that all private charge points have smart functionality, the 2035 Delivery Plan confirmed that Government will legislate this mandate in 2021. The Government also confirmed that it would publish a second phase of the Smart Systems and Flexibility Plan (SSFP) in 2021 to set out reforms needed to secure flexibility across the energy system, including electric vehicles. The BVRLA and its members welcome the intended introduction of smart capabilities in charging infrastructure as a method of future proofing the network.	
Motorway Service Area (MSA) requirements / Project Rapid	Project Rapid and the Rapid Charging Fund is designated to improving the provision of high-powered charging infrastructure at MSAs. The Fund has increased from £500m to £950m, which is welcomed by the BVRLA and its members. They see this charging as an important element of the national charging network needed to serve the needs of the fleet sector. Whilst Project Rapid represents a valuable step forward to ensuring high-powered charging infrastructure, further engagement with the fleet sector is required to ensure the national charging network is fit-for-purpose and serves the fleet sector. Additionally, the BVRLA and its members would like to see the scope of Project Rapid broadened beyond just MSAs and to explicitly consider the charging needs of electric vans and trucks.	
Pricing transparency	Government reiterated the importance of having a single payment metric in the 2035 Phase Out Delivery Plan to allow consumers to compare the price across different charging networks. The OZEV consumer experience consultation featured questions on ensuring transparency of the pricing of charging. The BVRLA's response[4] to the consultation underlined this as a critical issue, noting that there is little or no price transparency until arriving at the charge point. BVRLA members agreed with the plan to mandate a p/kWh metric to ensure consistency. The association awaits Government's response to the consultation.	

"The cost of charging is more important than the charging points themselves. The reliance of people on public charging is quite stark, and some of the public infrastructure suppliers charge very high costs for using the infrastructure. The fleet sector has done quite a lot to highlight the differences in costs – home charging vs public charging costs are orders of magnitude higher. It's a question of having some form of consistency in charging costs."

Simon Ridley

– Managing Director, Dawson Group

Policies, projects and funding streams

Project Rapid

The 'Rapid Charging Fund', contributing to the Governments 'Project Rapid', was announced in May 2020 as part of a £500m Government commitment for EV charge points. In the 2020 Spending Review the Government renewed its commitment and expanded its flagship infrastructure delivery programme to £950m. The fund aims to enable the rollout of an expanded rapid and ultra-rapid charging network at MSAs across motorways and A-roads in England by funding grid connections at MSAs. The ambitions of the Rapid Charging Fund were reiterated in the 2035 Delivery Plan:

- **At least six high-powered (150-350kW), open access charge points at MSAs in England, with larger sites having 10-12 charge points, by 2023;**
- **Approximately 2,500 high-powered charge points across England's motorways and major A roads by 2030;**
- **Around 6,000 high-powered charge points across England's motorways and major A roads by 2035.**

The BVRLA and its members are supportive of the increased funding for Project Rapid. Stakeholders interviewed as part of this year's Road to Zero Report Card consultation frequently cited a lack of public charging as a barrier to further EV uptake. Many stakeholders noted the high mileage of some fleet use cases and the need for supporting public charging infrastructure to provide confidence to drivers. Prior Ricardo research has determined that the daily operations of many fleets fall within current EV battery ranges. Nonetheless, a wider network of public charge points would give drivers confidence that infrastructure is there when they do need it.

"Project Rapid will be important for long distance. This only considers cars and vans, but not buses, coaches, trucks. What HGVs operators are worried about is Project Rapid is fixing the en route problem for cars and vans, but is not for buses, coaches and trucks."

Graeme Cooper

– Head of Future Markets, National Grid

Some of the interviewees were keen to see Project Rapid expanded to consider the charging needs of vans and electric trucks. To-date, Project Rapid has focused on cars, but the required reinforcement for larger vans and trucks represents a major challenge in ensuring the supporting infrastructure is in place to cater for the duty cycles of these vehicles. However, due to the very low supply of larger electric vans and trucks at present, the provision of this charging infrastructure needs to be timed carefully and focused on locations where they are likely to be most needed to avoid stranded assets. Additionally, some respondents have noted that queuing is already taking place at some EV service areas, suggesting that additional capacity should also be prioritised in these areas of high demand.

Charging Infrastructure Investment Fund

The Charging Infrastructure Investment Fund (CIIF) is a £400m fund intended to develop charging infrastructure in the UK, with the Government investing £200m, to be matched with £200m in private funding. The fund had previously closed two projects, with one having a total value of £70m to deploy 3,000 InstaVolt rapid chargers in the UK by 2024, and another project worth £80m partially dedicated to increasing the provision of on-street charging.

The fund has since closed its third deal, worth a total value of £230m, anchored by Willis Towers Watson's clients and investment funds and Morgan Stanley Investment Management's Climate Impact Fund[5]. As such, the CIIF has now allocated £380m of its funding towards charging infrastructure projects, with just £20m remaining to be allocated. The BVRLA welcomes the continued progress being made by the fund and wants to emphasise an optimum rollout of infrastructure under this funding to be of benefit to the fleet sector.

Local EV Infrastructure Fund

Government has also announced a £90m Local EV Infrastructure Fund that will support the rollout of larger on-street charging schemes and rapid charging hubs across England. A broader range of charging solutions are being considered beyond the support offered by Government's current schemes such as the ORCS in order to meet varying customer needs.

[5] Current (2021), Charging Infrastructure Investment Fund nears on £400m target after third close, https://www.current-news.co.uk/blogs/charging-infrastructure-investment-fund-nears-on-400m-target-after-third-close

The Local Infrastructure Fund is due to be launched by summer 2022. Again, the BVRLA welcomes the introduction of additional funding for charging infrastructure but urges Government to ensure an even distribution of the infrastructure that helps to address difficult-to-reach areas and challenging use cases, such as rural locations and vans used by local tradespeople.

"There are lots of different types of "fleet" in the UK, from emergency services to service vehicles – they all work in different ways and it is important that they are all consulted when developing any strategy for the rollout of charging infrastructure. It is also important that fleets have future proofed, reliable energy infrastructure available to them."

Peter McDonald
– Nissan Fleet Director, Nissan

Government consultation on consumer experience of charging infrastructure

The Automated and Electric Vehicles Act (AEVA) 2018 committed to intervening in areas of market failure in consumer experience of using charging infrastructure. OZEV undertook a consultation between February and April 2021 to assess the areas where the market could currently be failing, looking at the following areas:

- **Making it easier to pay, i.e. mandating a payment mechanism**
- **Opening up charge point data to be available publicly**
- **Having a single payment metric for all public charging**
- **Ensuring a reliable network by mandating a metric for reliability**

The consultation also featured a call for evidence on the following aspects:

- **Accessibility of charging infrastructure for disabled consumers**
- **Weatherproofing of charging and lighting around charging infrastructure**
- **Signage for charging infrastructure**

The BVRLA provided a response to this consultation, as outlined in the "Infrastructure status update" section of this Report Card. Interviewees for the consultation for this year's Report Card were also broadly supportive of the consultation's proposed measures. Stakeholders called for a consistent charging network that is as easy and seamless to use as refuelling using petrol and diesel. The costs of public charging were of particular concern to fleet operators, specifically the much higher costs of charging when using the public charging network and the lack of foresight of how much charging will cost before using a charge point. Concerns were also frequently expressed regarding out of service charging points.

With respect to accessibility of charging for disabled motorists, prior research[6] for Motability undertaken by Ricardo identified that there are no technical standards dedicated to ensuring accessibility of charging infrastructure for disabled motorists. As a result, Motability and OZEV are jointly sponsoring the development of accessible charging infrastructure standards via the British Standards Institute (BSI)[7], which should benefit anyone living with a disability. The standards are welcomed by the BVRLA.

The BVRLA has also noted accessibility challenges for van drivers. On-street charging bays are often too small for a van. There are issues with the location of the charge point, which on many vans is not based at the front or rear of the van as it is with a car, making the bay unusable. The association would like to see van charging bay standards to ensure accessibility.

The BVRLA is committed to continue to work with Government to ensure the consumer experience of using public charging is optimised for the fleet sector.

[6] Motability & Ricardo (2020), Electric vehicle charging infrastructure for people living with disabilities, https://www.mobilitygroup.eu/sites/default/files/inline-files/Motability_EV_Charging_FINAL.pdf

[7] Motability (2021), Motability and Government to set EV charge point standards, https://www.motability.org.uk/motability-news/motability-partners-with-uk-government-to-set-standards-for-ev-charge-points/

Evaluation of grid connection process and costs

In consideration of the barriers inhibiting fleet operators from installing charging infrastructure, one of the most frequently mentioned barriers is the high connection costs associated with installation. This is particularly problematic for fleets looking to install larger quantities of higher-powered charging infrastructure suited to their duty cycles, such as rental companies or other depot-based fleets.

One of the most significant developments during 2021 was the release of Ofgem's consultation on 'Access and Forward-looking Charges Significant Code Review (SCR)'[8], which has the potential to reduce some of the connection costs for those installing charging infrastructure for the first time. There are two main areas of interest within the consultation:

1. **Access rights** – Ofgem has set out a proposal to provide greater choice in how people / businesses access electricity – e.g. rather than paying for continuous, year round access rights, people / firms might choose to access the grid off peak, representing a quicker connection and lower overall cost.
2. **Costs of connectivity** – there are two main elements to the connection process, comprising reinforcement cost contribution and sole use assets.

With respect to the costs of connectivity, the proposed future arrangements involve removing the contribution to the reinforcement from the upfront charge for demand connections, with customers still being required to pay for sole use assets. This would result in some reduction in connection cost and will come at increased overall system costs. Whilst removing the reinforcement cost will bring the costs down, the majority of the cost for many upgrades will remain. For example, those requesting the connection may have to pay for substations on their own sites where there is insufficient power which still results in very high connection costs.

The TCO for zero emission vehicles for some fleets and specific vehicle types is already challenging and adding the cost of infrastructure and grid connection / reinforcement can result in prohibitively high total costs of switching to EVs. These additional infrastructure costs are often completely new with no analogous costs for ICEVs, which can be especially challenging in making a business case for transitioning. Steps should be taken to reduce the exposure of fleet operators to these costs as much as possible. Depots, rental branches, and other private fleet locations that can install charging infrastructure cost-effectively will reduce reliance on public charging. Private charging is also more cost-effective than public rapid charging as there is more flexibility and certainty associated with it, particularly when coupled with smart charging and flexibility services.

> *"Solutions which can bring down the costs of connections for charge point operators, local authorities and fleets are going to be welcomed. In some instances, the business case for investment disappears when connection costs are considered. A lack of clarity on what the costs will be in advance of installing is a barrier to finding investment."*
>
> *Lauren Pamma*
> *– Programme Director, Green Finance Institute*

In response to the consultation, the BVRLA considers any effort to reduce the connection costs to fleet operators as a positive step forward. However, it is still concerned about the potential high costs that could be incurred by fleet operators with respect to sole use assets, along with the proposed 2023 introduction date for any regulatory changes. Ofgem has noted that changes are unlikely to occur before 2023 due to the significant change to the way costs are paid / socialised and to align with the new price control periods of distribution network operators. The proposed introduction date could deter those seeking to install infrastructure before 2023. In the interests of full information, the BVRLA has requested that Ofgem makes it clear to current customers how the process and costs could change for them in 2023.

[8] Ofgem (2021), Access and Forward-looking Charges Significant Code Review - Consultation on Minded to Positions, https://www.ofgem.gov.uk/publications/access-and-forward-looking-charges-significant-code-review-consultation-minded-positions

Interviewees for this year's Report Card engagement echoed the BVRLA's views on the Ofgem consultation. All of them agreed that any measures that bring down the costs of connection will be beneficial to more widespread deployment of infrastructure in fleets, noting that the business case for charging infrastructure can fail once connection costs are considered. However, respondents interviewed also asserted that the 2023 introduction date was too late and would act as a disincentive to those seeking to deploy EVs in their fleets in advance of this date. Stakeholders noted that Government can do more now to incentivise charging connections for fleets in advance of any regulatory changes. The BVRLA believes that business will continue to need support with connection costs beyond any 2023 introduction given the high costs involved with sole use assets.

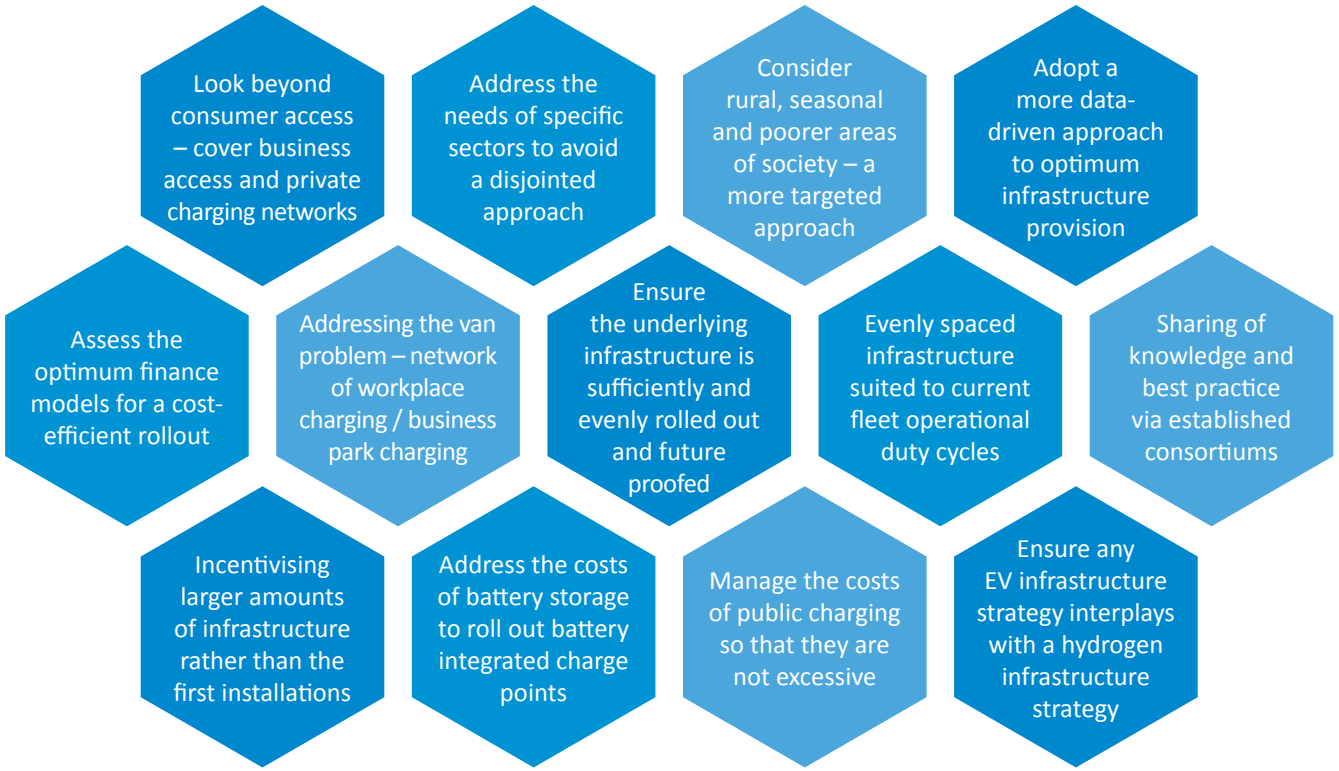
> *"The EV Infrastructure Strategy will need to look beyond consumer access – it needs to cover business access and private charging networks. The market challenges are beyond the consumer access question. For us the biggest issue remains the cost and difficulties securing enough power to our commercial sites to power chargers."*
>
> *Ben Lawson*
>
> *– Vice President of Mobility and Project Development for Europe, Enterprise*

Market developments

EV Charging Infrastructure Strategy 2021

The 2035 Phase Out Delivery Plan underlined the Government's commitment to publish an EV Infrastructure Strategy in 2021. The Government noted that it will set out their vision for infrastructure rollout, and roles for the public and private sectors in achieving it. The strategy will contain an approach to addressing the remaining market failures, enabling sufficient infrastructure provision at the pace required, and ensuring that consumers needs are met, especially those unable to charge at home.

During the consultation activities for this year's Report Card, respondents were asked what aspects the EV Infrastructure Strategy should consider in terms of benefitting the fleet sector. The following feedback was provided:



Rural transport strategy

The stakeholder consultation undertaken for this year's Report Card also requested feedback regarding what the development of a rural transport strategy should consider specifically for the fleet sector. In response, the greater reliance of those located in rural areas on private car ownership with limited public transport options was strongly referenced. There is more space for private charging for fleets, though with potentially higher connection costs due to the more limited supporting infrastructure. Additionally, there are less public charging opportunities despite the greater miles travelled by those in rural areas due to the poor business case of the infrastructure. It was recommended that strategically located infrastructure combined with potential Government support where the business case does not stack up could assist with resolving this issue.

The BVRLA will continue to work with Government on the implementation of the EV Infrastructure Strategy and the development of any rural transport strategy.

Infrastructure for zero emission HGVs

The infrastructure landscape for zero emission HGVs represents a major challenge for decarbonisation of the HGV fleet. Prior research undertaken by Ricardo for the Committee on Climate Change[9] demonstrated the scale of the challenge, requiring billions of pounds by 2050 to transition the UK's HGV fleet, and with differing requirements dependent on the size of the HGV, their duty cycles, where they are parked overnight and their powertrain. Studies by research associations such as T&E[10] and ACEA[11] have also attempted to quantify the amount of infrastructure required to decarbonise HGVs, and further highlight the scale and cost of the infrastructure challenge facing zero emission HGVs.

Standardisation is required in order to ensure the charging infrastructure is interoperable and fit-for-purpose for HGVs. A report released jointly by ITF / OECD[12] outlined the current status of technical regulation and standards for zero and low emission (ZLEV) HGVs. The report notes that technical regulations for both infrastructure and vehicles are crucial to introduce heavy ZLEVs, and that regulations on hydrogen refuelling need to be developed as hydrogen HGVs have higher pressures. In the Road Haulage Association's (RHA) position paper on decarbonising the commercial vehicle fleet[13], the need for well-designed standards was also highlighted as essential for infrastructure.

The required infrastructure for zero emission HGVs becomes more complicated when considering both depot-based and publicly available infrastructure. For electric HGVs, smaller HGVs in urban areas may solely require depot charging, but HGVs with heavier duty cycles / long haul operations may require en route recharging. For hydrogen HGVs, the public infrastructure is currently very underdeveloped in the UK, and there are unclear regulations with respect to onsite hydrogen production.

> *"Rural charging currently presents challenges. On-the-go charging is difficult enough for cities, but there is further complexity for rurally-located electric vehicles. They also tend to travel longer miles. It will be interesting to see how these vehicles and the associated infrastructure will be deployed."*
>
> *Anonymous fleet operator*

[9] Committee on Climate Change (2019), Zero Emission HGV Infrastructure Requirements, https://www.theccc.org.uk/publication/zero-emission-hgv-infrastructure-requirements/

[10] T&E (2021), Unlocking electric trucking in the EU: recharging along highways, https://www.transportenvironment.org/publications/unlocking-electric-trucking-eu-recharging-along-highways

[11] ACEA (2021), ACEA Position Paper: Heavy-duty vehicles: Charging and refuelling infrastructure requirements, https://www.acea.auto/files/ACEA_Position_Paper-Heavy-duty_vehicles-Charging_and_refuelling_infrastructure.pdf

[12] ITF / OECD (2020), Regulations and Standards for Clean Trucks and Buses – On the Right Track?, https://www.itf-oecd.org/sites/default/files/docs/regulations-standards-clean-trucks-buses_0.pdf

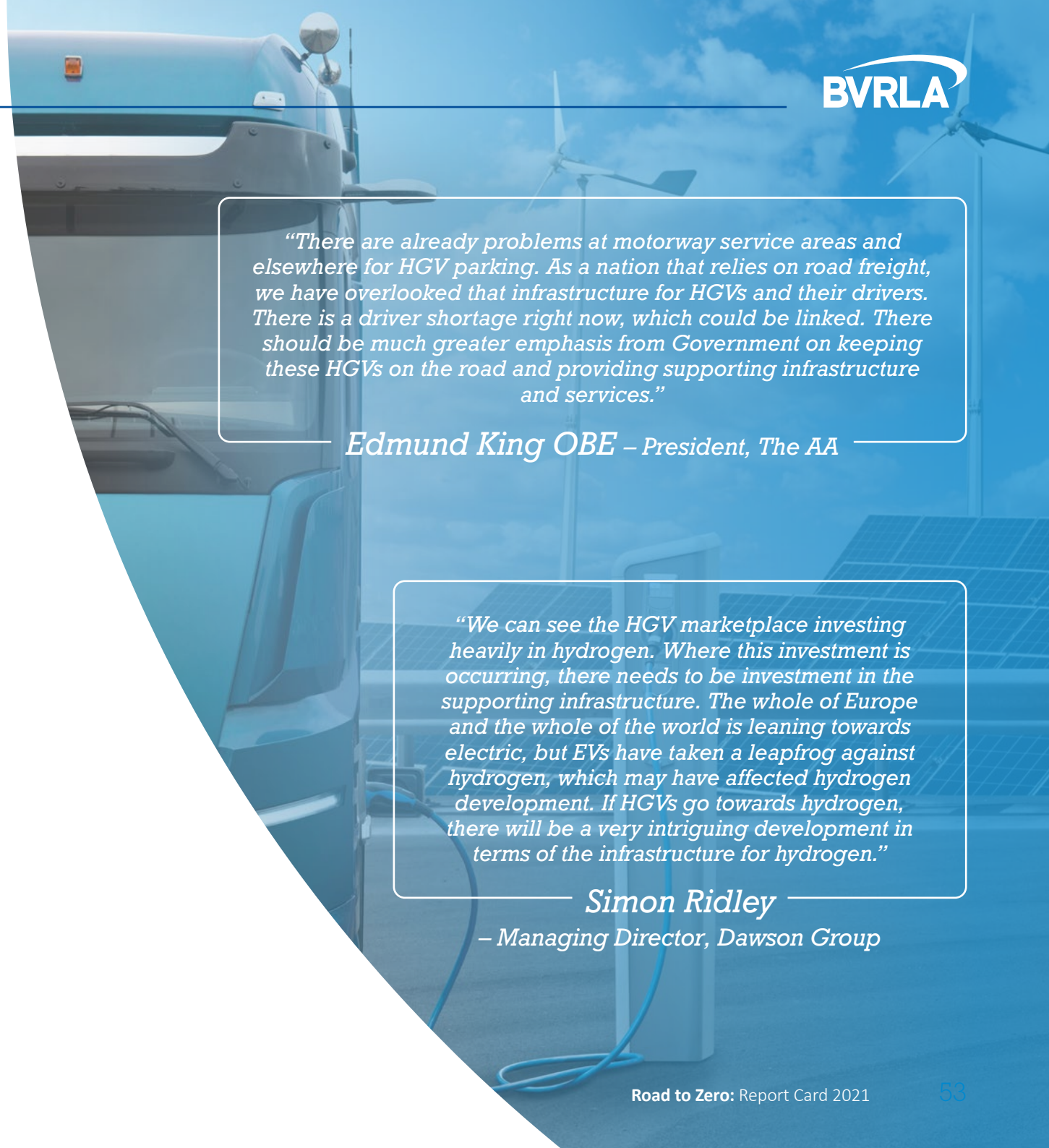
[13] RHA (2021), Decarbonising the commercial vehicle fleet, https://www.rha.uk.net/Portals/0/News/Policy%20and%20Campaigning/Policy%20and%20Campaigning%20Documents/RHA-Vision-for-Decarbonising_spreads_FINAL.pdf?ver=2021-05-25-051306-017

Respondents to this year's consultation provided views on the required infrastructure for ZLEV HGVs. They suggested a coalition approach to determine the infrastructure needs of ZLEV HGVs, noting that different types of HGV powertrain (e.g. hydrogen, ERS, battery electric) will require differing infrastructure needs and locations. Different OEMs are also investing in different powertrains, with Scania solely focusing on electric vehicles[14]. It was also noted that the HGV market is investing in hydrogen, so this needs to be coupled with investment in supporting infrastructure.

It was also mentioned that zero emission HGVs need to be trialled and tested, and that some infrastructure needs to be in place for this to be done effectively. Of note, the zero emission road freight Government funding includes infrastructure development. One stakeholder noted that, irrespective of the zero emission powertrain, future proofed and evenly spaced grid capacity will be required along the strategic road network (SRN), pointing to a possible expansion of Project Rapid.

Wider issues around general HGV parking and infrastructure were also highlighted, where facilities need to be developed in combination with zero emission infrastructure.

[14] Scania (2021), Scania's commitment to battery electric vehicles, https://www.scania.com/group/en/home/newsroom/news/2021/Scanias-commitment-to-battery-electric-vehicles.html



"There are already problems at motorway service areas and elsewhere for HGV parking. As a nation that relies on road freight, we have overlooked that infrastructure for HGVs and their drivers. There is a driver shortage right now, which could be linked. There should be much greater emphasis from Government on keeping these HGVs on the road and providing supporting infrastructure and services."

Edmund King OBE – *President, The AA*

"We can see the HGV marketplace investing heavily in hydrogen. Where this investment is occurring, there needs to be investment in the supporting infrastructure. The whole of Europe and the whole of the world is leaning towards electric, but EVs have taken a leapfrog against hydrogen, which may have affected hydrogen development. If HGVs go towards hydrogen, there will be a very intriguing development in terms of the infrastructure for hydrogen."

Simon Ridley

– Managing Director, Dawson Group

Business models for installing charging infrastructure

Industry is divided on the optimum business cases for installing public charging infrastructure. Some industry players request subsidies whilst others state that there is currently an overprovision of infrastructure with little utilisation, which leads to a very conflicting message. An argument can be made for getting infrastructure in the ground now to boost uptake, but the business case won't stack up for a longer period of time – this may position larger fuel providers and those with existing land / more capital to install infrastructure now.

Charging suppliers are becoming more selective on where rapid charging infrastructure is installed – there needs to be a very strong consumer case for the end-user and a strong business case for the operator, which depends on how likely and how often users will charge at a location. Some business fleets will be more dependent on public charging than others, particularly higher mileage users and trucks and larger vans, but demand may not be high enough to justify installation in some locations. There is a growing case for Government to intervene to fill gaps in the network and convince the market that the infrastructure is there in order to facilitate them to make the switch.

Some studies have focused on differing business models for charging infrastructure. A 2018 PwC study[15] identified four main business models for the UK charging market, based on risk mitigation, vehicle segments served, location, and revenue generation. The CMA's latest EV charging market progress update[16] highlighted the crucial role of central, devolved and local government in the sector, particularly where the business case for charger deployment is more limited, such as rural or remote areas, and commented on differences between England (multiple private networks) and Scotland (a single subsidised charge point network). A study by E3-Modelling[17] concludes that a Distribution System Operator (DSO)-type model backed by government support should be employed in 2021-30, followed by a private model for charging infrastructure with the help of subsidies; and regulated tariffs to allow investors to recover initial investment.

The outcomes of these studies show that Government support will continue to be required for public infrastructure for a number of years, but this can become increasingly focused on filling gaps and addressing areas of market failure. Additionally, the guaranteed demand provided by fleets introduces possibilities for securing access to flexible services where charging operators can generate additional revenue. There was broad agreement during this year's consultation that Government support needs to be targeted and focused on filling gaps in the network, such as rural areas, poorer areas and tourist destinations where the business case for private operators is not yet viable.

[15] PWC (2018), Powering ahead!, https://www.pwc.co.uk/industries/power-utilities/insights/electric-vehicle-infrastructure-report.html

[16] CMA (2021), Electric vehicle charging market study - Progress update, https://assets.publishing.service.gov.uk/media/6039248a8fa8f5048e587470/EVC_Status_Update_.pdf

[17] E3-Modelling (2021), Simulating the Evolution of Business Models for Electricity Recharging Infrastructure Development by 2030: A Case Study for Greece, https://www.mdpi.com/1996-1073/14/9/2345

[18] UK Power Networks (2021), UK Power Networks' White Van Plan project, https://innovation.ukpowernetworks.co.uk/projects/white-van-plan/

Assessment of priority infrastructure types for different business fleets and vehicle types

As evidenced throughout this Report Card, there is no one-size-fits-all solution for infrastructure for fleets. All fleets have different operational and infrastructure needs, including depot-based, public, home, on- and off-street and workplace. When considering fleets in general, it is important to note that a fleet can also comprise a small number of vehicles. Recent research[18] undertaken by Ricardo assessed the charging requirements for small to medium sized enterprises transitioning to EVs, and significant differences were found between business sizes and industry sectors. The costs of charging installation can be a major deterrent to fleets, particularly when coupled with high connection costs.

It is important to consider the charging needs of different types of business fleets and of different types of vehicles. The rental sector is likely to require rapid charging infrastructure at their branches to ensure a quick turnaround of vehicles. Previous analysis from the

BVRLA[19] estimated that installing base-level charging at each branch could cost the vehicle rental sector up to £500m. Centrica has determined that most of its van fleet will require on-street charging in residential areas for the take-home vehicles, but that by 2025 there will be just 35 on-street chargers installed per local authority[20]. For commercial vehicles, there are major challenges in the provision of higher-powered charging, including the cost of installation, land ownership and planning permissions, and space constraints in depots.

The stakeholder engagement undertaken for this year's Report Card, along with wider industry knowledge and prior BVRLA engagement activities, have all identified some priority infrastructure types that are particularly important for different fleet categories and differing vehicle types. The adjacent table represents some key considerations when deploying infrastructure for different categories of BVRLA members.

Some of these infrastructure categories are catered for already via existing funding streams (e.g. Project Rapid; ORCS), whilst others may require additional Government support to support the business case (e.g. rental, commercial vehicle charging) or further R&D (e.g. HGV charging).

Category	Operational characteristics	Charging needs
 **Rental**	Vehicles need to be fully charged once returned to a branch with a very quick turnaround time for the next customer	Rapid charging is required at or near rental branches. Leisure customers will need charging at tourist destinations; business customers will need a mixture of charging
 **Car clubs**	Car club vehicles either travel to and from dedicated bays or are able to park in any on-street parking bay in predefined areas (e.g. within a London borough) for the floating car club model	Charging in dedicated bays for back-to-base car clubs; rapid charging infrastructure for floating car clubs, similar to rental
 **Company cars**	Tend to be relatively high-mileage vehicles (annual mileage on average between 12,000 and 16,000 miles)[21], with 77% of driving in urban areas and on motorways	Mixture of home and workplace overnight charging dependent on how the vehicle is used; provision of rapid charging along the SRN for occasional use
 **Vans**	Highly dependent on operational model – can comprise depot-based fleets, take home fleets, and a combination of these	Provision of home charging for take-home fleets; high-powered depot-based charging for depot fleets; good provision of public rapid charging where it is needed
 **Heavy goods vehicles**	Highly influenced by size of vehicle, operational characteristics (regional delivery, urban delivery, long haul), and location	Likely to be a mixture of high-powered depot-based infrastructure and strategically located infrastructure where HGVs have heavy utilisation

[19] BVRLA (2020), BVRLA consultation response on ending the sale of new petrol, diesel and hybrid cars & vans, https://www.bvrla.co.uk/resource/bvrla-consultation-response-on-ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-vans.html

[20] Centrica (2021), Driveway discrimination: Just 35 on street electric vehicle chargers per council to be installed by 2025, https://www.centrica.com/media-centre/news/2021/driveway-discrimination-just-35-on-street-electric-vehicle-chargers-per-council-to-be-installed-by-2025/

[21] BVRLA (2021), Company Car Report 2020, https://www.bvrla.co.uk/resource/bvrla-company-car-report-2020.html

BVRLA works on fleet charging 'taxonomy'

The BVRLA and its members recognise the differences in the infrastructure required for differing fleets of vehicles. Focusing initially on car fleets, there are stark differences in the infrastructure required when considering the range of applications of cars in BVRLA member fleets, such as rental vehicles, car clubs, business-to-business (B2B) fleets, business-to-customer (B2C) fleets, pool cars, and those located in rural / tourist destinations. Within the van sector, there are depot-based or delivery fleets and take-home vehicles that will require domestic charging. Some van owners want to see more rapid / ultra-rapid chargers near residential areas, possibly in a hub formation, to address the needs of those without access to off-street parking.

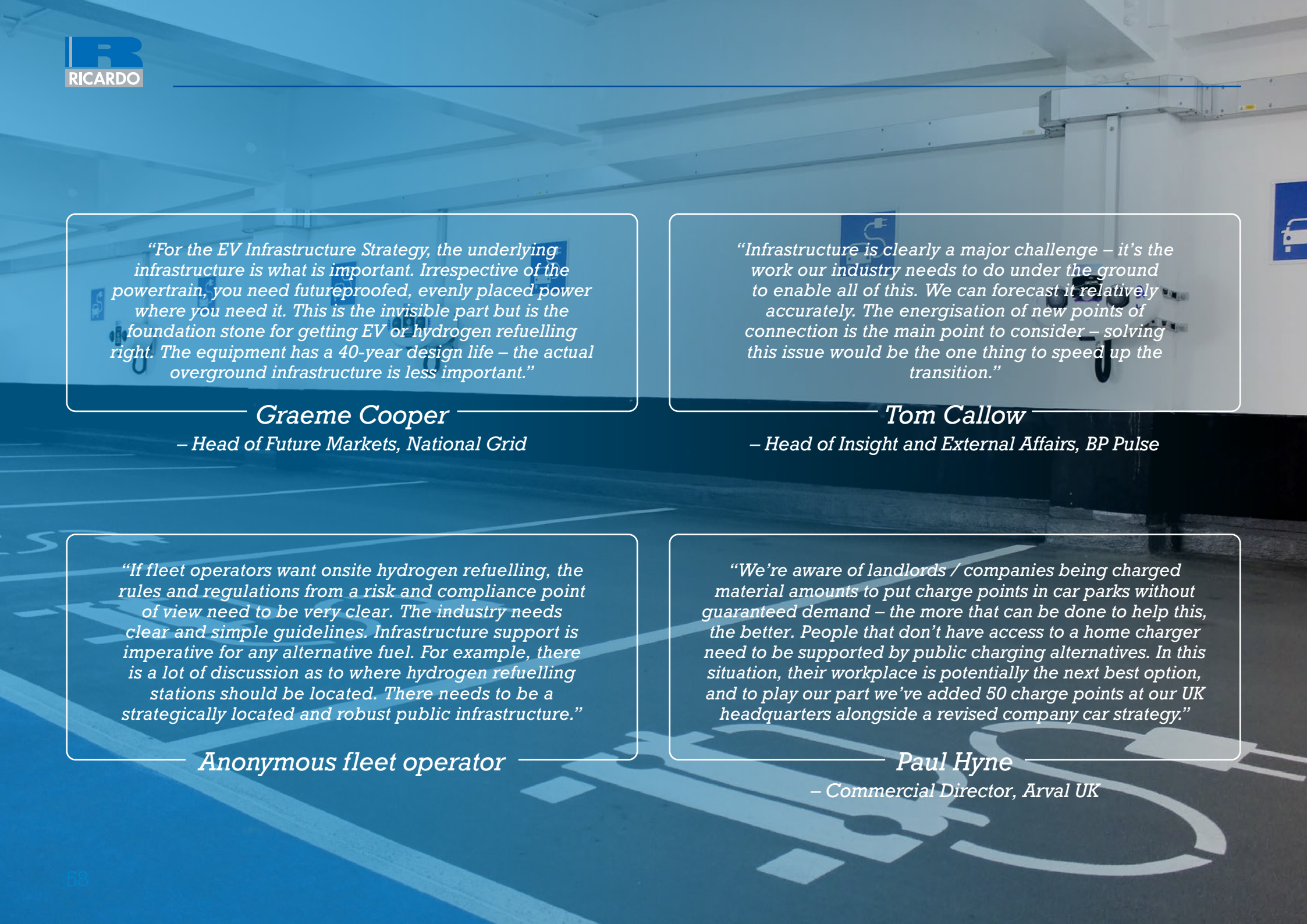
The association is working with its members to break down their infrastructure needs into more concise requirements. The BVRLA intends to work closely with Government to share the insights from this work to highlight where some categories of infrastructure serving the fleet sector may be lagging behind.

Scoring for Infrastructure

Vehicle type	Description	Score
Cars	There have been positive movements for the car market in terms of increased infrastructure provision. The BVRLA eagerly awaits the outcomes of Government's consumer experience consultation to assess whether issues will be addressed. Issues remain unsolved for some car fleets, including rental.	 **Accelerating**
Vans	There is a higher possibility that van operators will have increased infrastructure costs due to requirements for higher-powered depot charging suited to busy duty cycles. Some operators believe they will require greater levels of infrastructure to cater to their vehicles, and some vans have accessibility issues at on-street charging bays.	 **Brakes On**
HGVs	The infrastructure for HGVs is at the very early stages of development and no infrastructure currently exists, partially due to the lack of zero emission HGVs on the market. Different HGV categories will need to be considered individually, both for electric and hydrogen powertrains, and standardisation represents an immediate challenge.	 **Parked**

Recommendations

- **Rapidly implement the outcomes of the OZEV consumer experience consultation to ensure these issues are resolved quickly.**
  - Ensure payment mechanisms are standardised across charging infrastructure and do not require downloading an individual app for each charge point.
  - Mandate the p/kWh metric at charge points and ensure information is available on costs.
  - Enforce reliability standards on charge points.
  - Make all "must have" data, such as pricing information, payment method, state of repair, connection type and power, open access.
- **Use the Ofgem consultation to explore further reductions in costs for grid connections. Look to support those fleets that will still face significant costs in installing charge point infrastructure.**
- **Work closely with the BVRLA and the fleet sector to ensure the forthcoming EV Charging Infrastructure Strategy is fit-for-purpose; utilise the BVRLA's forthcoming charging infrastructure taxonomy to shape how the Strategy develops and is implemented.**
- **Use open access data to take a data-driven approach to understand where infrastructure is required for fleets and where there are gaps.**
- **Introduce measures to support infrastructure specifically for vans:**
  - Explore the potential for new van-specific charging grants and funding, focusing on supporting rental branches, depots and residential locations with the costs of rapid charge points and required siteworks.
  - Monitor targets for charging infrastructure specifically for vans and commercial vehicles, ensuring accessibility of the infrastructure.
  - Create requirements for charging hubs to make reasonable provisions for vans in the planning process to allow them access to state support.
  - Continue to work towards resolving high grid connection costs for van operators.
- **Prioritise Government funding on filling gaps in the network, such as ensuring viable business cases for rurally located charging infrastructure and infrastructure in poorer areas, i.e. where the business case may not yet stack up.**
- **Encourage local authorities to increase their engagement with the fleet sector to ensure that fleets are considered in the rollout of both public and on-street residential charging infrastructure; coordinate the efforts of local authorities in this area.**
  - Hasten the deployment of on-street residential charging provision for take-home company fleets, especially vans, due to high proportions of drivers expected to be reliant on on-street parking.
- **Expand Project Rapid beyond MSAs so that it considers the charging needs of larger vehicles such as vans, HGVs, buses and coaches.**
- **Hasten the development of standards for zero emission HGV infrastructure to ensure the infrastructure can support the expected growth of the zero emission HGV fleet.**
- **Commission research into current HGV refuelling and stop areas and how zero emission HGV infrastructure could be best deployed across them.**



"For the EV Infrastructure Strategy, the underlying infrastructure is what is important. Irrespective of the powertrain, you need futureproofed, evenly placed power where you need it. This is the invisible part but is the foundation stone for getting EV or hydrogen refuelling right. The equipment has a 40-year design life – the actual overground infrastructure is less important."

Graeme Cooper

– Head of Future Markets, National Grid

"Infrastructure is clearly a major challenge – it's the work our industry needs to do under the ground to enable all of this. We can forecast it relatively accurately. The energisation of new points of connection is the main point to consider – solving this issue would be the one thing to speed up the transition."

Tom Callow

– Head of Insight and External Affairs, BP Pulse

"If fleet operators want onsite hydrogen refuelling, the rules and regulations from a risk and compliance point of view need to be very clear. The industry needs clear and simple guidelines. Infrastructure support is imperative for any alternative fuel. For example, there is a lot of discussion as to where hydrogen refuelling stations should be located. There needs to be a strategically located and robust public infrastructure."

Anonymous fleet operator

"We're aware of landlords / companies being charged material amounts to put charge points in car parks without guaranteed demand – the more that can be done to help this, the better. People that don't have access to a home charger need to be supported by public charging alternatives. In this situation, their workplace is potentially the next best option, and to play our part we've added 50 charge points at our UK headquarters alongside a revised company car strategy."

Paul Hyne

– Commercial Director, Arval UK

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