Road to Zero:

Report Card 2020

Produced in association with RICARDO

Foreword

The 'Road to Zero' is increasingly resembling a racetrack as countries and companies across the world announce ambitious targets for phasing out the sale of petrol and diesel cars and vans.

Just over a year has passed since the BVRLA's first Road to Zero Report Card, but there has been a notable acceleration in the drive to decarbonise. The vehicle rental, leasing and fleet sector certainly has its foot on the pedal, as emphasised by our new 'Plug-in Pledge', which has the industry owning and operating 900,000 Battery Electric Vehicles (BEVs) by 2025. If we include Plug-in Hybrids (PHEVs), we think the combined Plug-In fleet will be 1.3 million cars and vans.

By 2025 fleets will be responsible for 80% of the UK's new BEV sales, and 75% of BEVs on UK roads.

In other words, the destiny of road transport decarbonisation lies in their hands.

That destiny will be shaped by three key factors, which we are using to gauge the market in this year's Road to Zero Report Card. In it we look at electric vehicle Supply, Demand and Infrastructure and assess whether they are putting the brakes on the EV transition or adding an injection of speed.

To better understand the progress, potential and pitfalls facing the transition to zero-emissions, we have also analysed some key fleet segments – company fleets, retail customers, car rental, car clubs, vans and specialist vehicles. The decarbonisation trajectories they are achieving are very different.

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

We plan 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 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 over five million cars, vans and trucks on UK roads, that's 1-in-8 cars, 1-in-5 vans and 1-in-4 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

This is the second of the BVRLA's 'Road to Zero' Report Cards, which track the UK fleet sector's progress towards full decarbonisation. It recognises that the sector contains a number of diverse fleet segments and assesses the readiness of each of these segments in making the transition. It also recommends where further action is required from Government and other industry stakeholders to hasten the shift to cleaner road transport.

A lot has happened since the release of the BVRLA's first Road to Zero Report Card in mid-2019. Since UK Parliament passed legislation requiring Government to reduce the UK's greenhouse gas emissions to net-zero by 2050, as recommended by the Committee on Climate Change (CCC), the UK Government has begun consulting on its plans to decarbonise the transport sector in the UK, noting much further action is required.

At the forefront of these actions is a consultation to accelerate the ban on new sales of petrol, diesel and hybrid vehicles from 2040 to 2035 at the latest, or earlier if possible (known as the 203X consultation). Whilst the earlier ban on new sales of vehicles with an internal combustion engine would be expected to bring about environmental benefits, the BVRLA's members will nevertheless be greatly impacted by the change, as they are responsible for over 5 million vehicles on UK roads, accounting for 1-in-8 cars, 1-in-5 vans and 1-in-4 trucks.

The COVID-19 pandemic has also greatly impacted the fleet sector and vehicle manufacturing industry. Data from SMMT shows a 39.7%[1] year-to-date (to August 2020) reduction in overall vehicle sales compared to 2019. However, despite the impacts of COVID-19, there has been a 157% increase in the number of battery electric vehicles (BEV) registered compared to 2019, with plug-in hybrid electric vehicles (PHEV) also achieving a 68% year-on-year increase in sales. With BEVs now comprising an approximate 5% market share in 2020, the achievability of a green recovery post-COVID-19 for the fleet sector has a renewed importance.

The automotive industry is facing further uncertainty with respect to the outcomes of Brexit. Whilst the fleet sector is experiencing difficulties making purchasing decisions due to the unknowns surrounding Brexit negotiations, the importance of ensuring the UK remains an attractive place for the automotive sector to invest post-Brexit is paramount.

The fleet industry is already playing a fundamental role in the decarbonisation of road transport. BVRLA members purchased an estimated 80% of all BEVs sold in the UK in 2019 and already own and operate tens of thousands of BEVs. The last year has seen an undoubted acceleration in the transition to plug-in vehicles but further Government support is now essential to deliver a sustained and powerful move to zero emission transport across all of the fleet sector's diverse use case segments, particularly in the context of the outcomes of the 203X consultation.

[1] SMMT (2020), Vehicle data: EV and AFV registrations,https://www.smmt.co.uk/vehicle-data/evs-and-afvs-registrations/

"The scope of the support package, on both the supply and demand side, needs to match the level of ambition – the market on its own can't deliver the ambition. We also need to ensure we have a sense of trajectory – there is a risk of everything getting left until the end of the transition period."

Anonymous vehicle manufacturer

"We need to think about the larger picture – if we can stop climate change, we can potentially avoid Government spending in areas such as flood defences to protect from rising sea levels, coastlines being saved, healthcare costs associated with people with respiratory issues… There's work to be done in modelling where we will avoid cost rather than necessarily just replacing lost income from lower fuel duty and road taxes."

Lauren Pamma – Electrification Propositions Lead, Motor Finance & Leasing, Lloyds Banking Group

"COVID-related delays will have an impact on the development of new vehicle models – there are delays with testing due to development teams being furloughed, and programmes are being paused due to working capital constraints. This is likely to be a temporary, with it taking months rather than years to get back to normal."

Anonymous vehicle manufacturer

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 ULEVs 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:

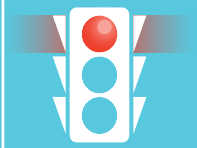
1. **Supply**
2. **Demand**
3. **Infrastructure**

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, and with particular attention placed on assessing progress since the 2019 'BVRLA Road to Zero Report Card'.

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

Summary

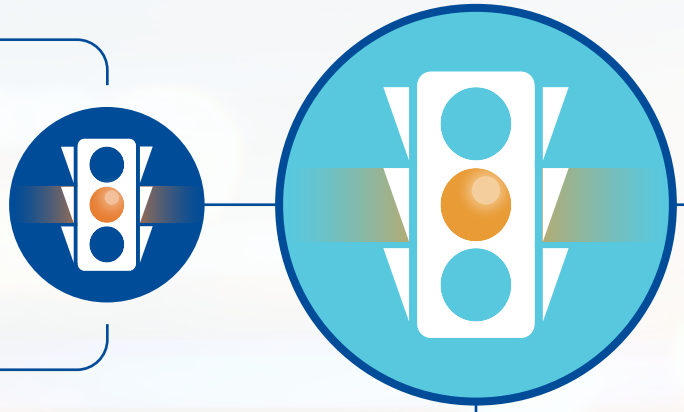
The table below provides an overview of the scoring methodology used within this report. An overall red-amber-green (RAG) score is provided in each Report Card. These overall RAG scores consider sub scores that have been assigned for each sub-topic based on a sub scoring methodology, which are available in an appendix. A score of Amber can either mean the situation is improving ("accelerating") or getting worse ("brakes on").

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 2019 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 progress made since 2019 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 2019 Report.	

The transition to ULEVs is a smoother journey for some vehicle segments than others, due to many issues including vehicle availability and their suitability for specific fleet operations. To reflect this, the 2020 Road to Zero Report Card provides an additional focus and RAG sub-scoring for different BVRLA member segments, to show how the BVRLA member segments compare to one another, and where additional support may be required for some member segments under the Supply, Demand and Infrastructure focus areas.
The six BVRLA member segments are as follows:

Segment	Description
Car fleets	Company-provided cars used for business and personal use. For example, salary sacrifice or company cars.
Retail	Cars acquired by private individuals, usually via a personal lease or PCP arrangement.
Car clubs	Also known as car sharing – a self-service form of car rental where members access vehicles remotely using an app.
Rental cars	Cars which retail and corporate customers rent for short-term use (under 90 days) and are branch based.
Vans	Goods vehicles up to 3.5 tonnes, can be rented, leased or owned and are depot or home based.
Specialist vehicles	Vehicles that have been specially modified to fulfil a particular task or that need additional power requirements as part of their daily use. For example, refrigerated vehicles or vans that act as mobile workshops.

Overall scoring Accelerating



EV Supply
Brakes on

Recommendations

- Align incentives with other EU markets to attract OEMs to the UK.
- Minimise the impacts of Brexit by avoiding tariffs and mirroring CAFE regulations.

EV Infrastructure
Accelerating

Recommendations

- Re-evaluate grid upgrade process and support firms affected by upgrade costs.
- Regulate to ensure a universal access / payment method for charging infrastructure.

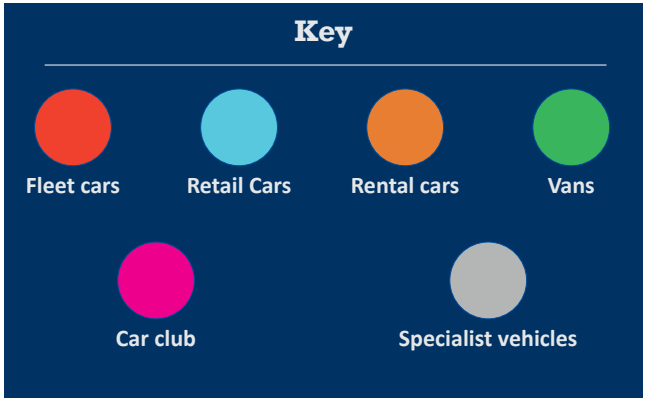
EV Demand
Cruising

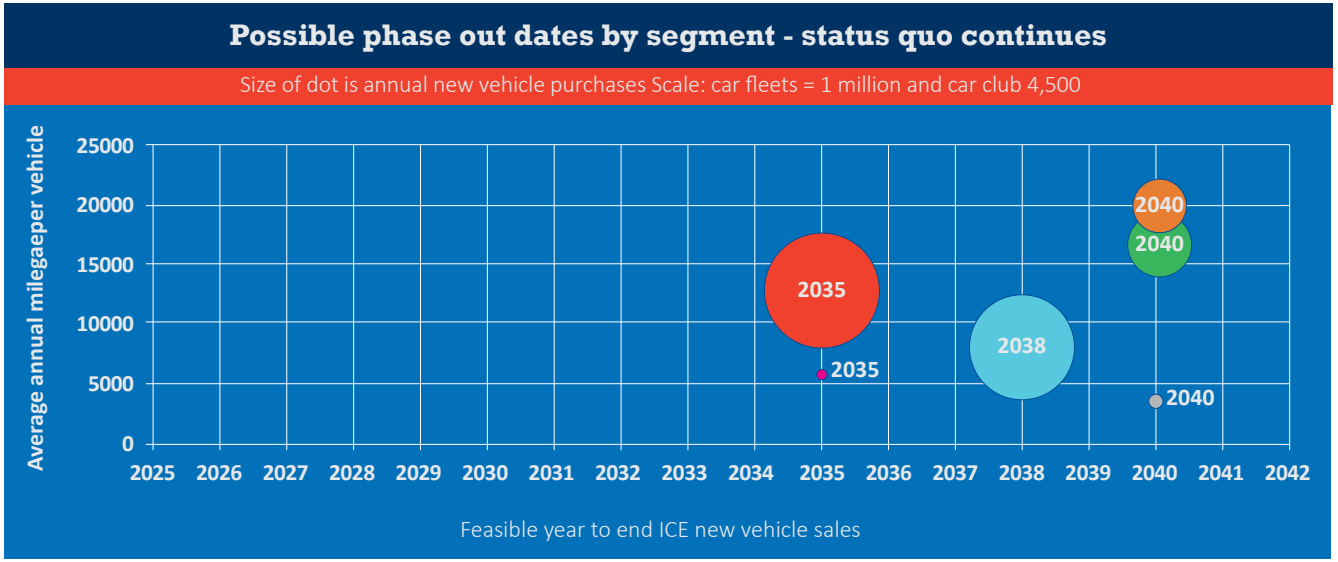
Recommendations

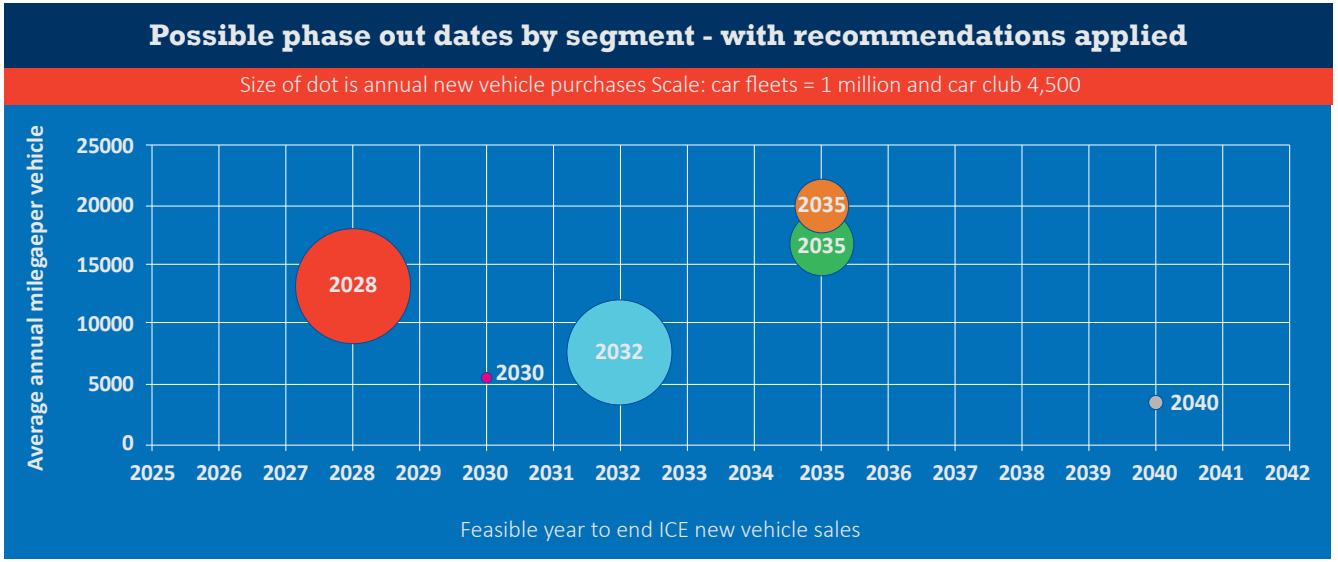
- Commitment to longer-term support on grants and incentives.
- Conduct an annual review of the new car and van market to assess the effectiveness of incentives.

Potential ICEV phase-out dates by fleet sector segment

The actions and recommendations in this report have been developed to facilitate the fleet sector in its transition to ULEVs and are supported by a wide range of stakeholders. It is expected that implementing these recommendations will expedite the deployment of ULEVs in these prominent vehicle fleets. The BVRLA undertook external stakeholder engagement activity to determine possible phase-out dates for the different BVRLA member segments, based on (a) the status quo continuing; and (b) the requested support through the recommendations being provided – graphical depictions of these two phase-out date scenarios are provided adjacent.







Glossary

- **AER**
  – Advisory Electric Rate
- **BEV**
  – Battery Electric Vehicle
- **BIK**
  – Benefit-In-Kind
- **CAZ**
  – Clean Air Zones
- **CCC**
  – Committee on Climate Change
- **CCT**
  – Company Car Tax
- **CVC**
  – Clean Van Commitment
- **DfT**
  – Department for Transport
- **ECA**
  – Enhanced Capital Allowance
- **EV**
  – Electric Vehicle
- **EVA**
  – Electric Vehicle Approved Scheme
- **FLA**
  – Finance and Leasing Association
- **FYA**
  – First Year Allowance
- **GUL**
  – Go Ultra Low
- **ICEV / ICE Vehicle**
  – Internal Combustion Engine
- **NCR**
  – National Chargepoint Registry
- **NFDA**
  – The National Franchised Dealers Association
- **OLEV**
  – Office for Low Emission Vehicles
- **PHEV**
  – Plug-in Hybrid Electric Vehicles
- **PiCG / PiVG**
  – Plug-in Car / Van Grant
- **RAG**
  – Red-Amber-Green (scoring)
- **RV**
  – Residual Value
- **SME**
  – Small and Medium Sized Enterprises
- **SMMT**
  – The Society of Motor Manufacturers & Traders
- **SRN**
  – Strategic Road Network
- **ULEV**
  – Ultra Low Emissions Vehicles
- **ULEZ**
  – Ultra Low Emission Zone
- **VED**
  – Vehicle Excise Duty
- **WLTP**
  – Worldwide Harmonised Light Vehicle Test Procedure
- **ZEV**
  – Zero Emissions Vehicle
- **ZLEV**
  – Zero and Low-Emission Vehicle

Report Cards

1 Report card
Supply of vehicles

Brakes on

- Model and range availability is growing, particularly for the passenger vehicle market. The number of UK PHEV and BEV models increased from 62 to 83 in the year to September 2020, according to the SMMT.
- There continues to be an upward trend in battery capacity and associated vehicle range for passenger cars.
- Brexit negotiations are causing the fleet sector considerable uncertainty. Aspects such as availability of grants, CO_2 emission targets and incentivisation for suppliers to sell the greenest vehicles in the UK are considered unknowns.
- The rental sector is likely to be more reliant on PHEVs in the short term and could be hard hit if these powertrains are included in an earlier ICE phase-out. For the specialist vehicle sector, there is growing interest in hydrogen as an alternative powertrain option.

Recommendations

- Align incentives with other EU markets to attract OEMs to the UK.
- Minimise the impacts of Brexit by avoiding tariffs and mirroring CAFE regulations.
- Address supply issues facing some fleet segments such as vans and specialist vehicles.
- Support investment in a stronger UK EV supply chain, including gigafactories.

Supply of vehicles status update

Category	Status update	Score
Product range	Model availability is increasing overall with PHEV and BEV UK model numbers increasing from 62 to 83 in one year to September, according to SMMT[1]. The increase in model availability is particularly prominent for the passenger vehicle segment. The proportion of BEVs within overall OEM manufacturing is continuing to increase. EV supply by manufacturers is largely driven by national and transnational vehicle standards such as the CO_2 emissions standards for cars and vans. The stricter targets in force as of January 2020 have been highlighted by stakeholders consulted during the development of this report as a factor in the increase in model availability. The limited product range for electric vans is beginning to be addressed by manufacturers with new models being released in 2020 but the relative model availability is still very low compared with ICEVs. Many models have faced volume issues due to passenger cars taking priority for battery stock, according to the BVRLA's members. There remains a lack of zero emission technology options for specialist vehicles.	
Supply constraints	Stakeholders are divided with respect to their opinions on supply constraints for EVs. During the consultation process for this report, some stakeholders mentioned that demand is far outstripping supply, whilst others stated they had no issues with supply constraints. Similar to product range, supply constraints are thought to be a far bigger issue for electric vans compared to passenger vehicles. The BVRLA's members consider issues related to supply constraints to be completely unknown until after Brexit negotiations conclude – some stakeholders commented that this uncertainty is severely affecting the market. Research by the Advanced Propulsion Centre (APC) suggests that the UK automotive industry and its supply chains will necessitate a 5-to-10 fold increase in manufacturing capacity within five years (from 2020) in order to cater for the extra EV demand required by a 2035 new vehicle sales ban on ICEVs[2].	

[1] SMMT (2020), MVRIS New Vehicle Registrations UK, https://www.smmt.co.uk/vehicle-data/mvris-new-vehicle-registrations-uk/

[2] APCUK (2020), Opportunities in passenger car electrification, https://www.apcuk.co.uk/opportunities-for-you/strategic-uk-opportunities-in-passenger-car-electrification/

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 4-5% each year globally. Next-generation Li-ion and other battery chemistries are set to enter markets within the coming decade which will continue this trend[3]. Manufacturers have continued to offer generous warranties for batteries ensuring preservation of typically around 70% of new capacity to at least 100,00 miles or around eight years. The general functionality improvements for passenger vehicles are not yet available in the commercial and specialist vehicle sectors, according to stakeholders for these vehicle segments. The BVRLA's members commented that the purchase of an electric van cannot be at the expense of required functionality. Suitable EVs are generally unavailable for the specialist vehicle segment.	
Whole life costs	Upfront unsubsidised price parity for passenger vehicles is expected by the mid- to late-2020s, in part brought about by advancement and cost reduction in battery technology, which for Li-ion batteries has fallen by 87% since 2010[4]. Until this time the continuation of the plug-in grant and tax incentives that effectively reduce upfront and running costs ensure that the TCO of EVs remains comparable with ICEVs. Stakeholders have expressed concern on the effects of high public charging costs (particularly rapid charging) on TCO models for vehicle ownership, though noting rapid charging currently forms a small proportion of overall charging behaviour. Some stakeholders in the fleet sector have expressed doubt regarding the maintenance costs for EVs being cheaper than ICEVs, with tyre wear being an issue for EVs due to increased vehicle weight.	
Aftermarket services	In October 2019, OLEV endorsed the Institute of the Motor Industry's (IMI) TechSafe standards for car technicians working with EVs. Owners and companies can check the EV technical competence of technicians. These standards support the reskilling and accreditation of technicians and provide much needed confidence that EVs can be maintained and repaired. However, the availability of technicians trained in EV maintenance is still relatively limited compared with ICEV servicing. The Electric Vehicle Approved (EVA) certification scheme continues to provide positive effects for the fleet sector.	

"There are at least 20 new EV model launches planned for 2020. If you compare with a few years ago, the prospects for consumer choice are far greater and more exciting – a wider range of brands at different price points in different segments. It's absolutely clear for OEMs that electrification is the agenda."

Anonymous vehicle manufacturer

[3] IEA (2020), Global EV Outlook 2020, https://www.iea.org/reports/global-ev-outlook-2020

[4] BloombergNEF (2020), Electric Vehicle Outlook 2020, https://about.bnef.com/electric-vehicle-outlook/

Battery development in the UK and Europe

Potential constraints on battery supply and manufacturing are highlighted as a growing concern for the fleet sector. Insufficient supply of batteries has been responsible for vehicle supply delays, leading to long wait times and the frustration of consumers and businesses looking to replace their fleets. Global battery supply is increasing exponentially to meet the increased demand with a five-fold increase expected by 2028 compared to 2018 levels[5]. Battery manufacture has been highlighted by APCUK as an area where the UK manufacturing industry can lead in increasing capacity and maintaining the UK's status as a large automotive manufacturer.

In order to ensure that Britain remains a major vehicle manufacturer of vehicles beyond ICEV production, modelling by the Faraday Institution[6] demonstrates that it is essential that Britain ensures it manufactures batteries on a large scale within the UK. Due to the efficiency and synergy that is achieved from locating battery manufacturers near vehicle producers, if battery production is solely located overseas then international car makers will likely also invest in production of new EV models outside of the UK. The Institution estimates 130 GWh of annual capacity will be required by 2040 if the UK is to retain a large automotive sector.

The UK is well-placed to grow its battery production capacity, with many of the largest suppliers of the materials essential to produce batteries within the UK as reported by the APC[7]. In May 2020, planned investment by Britishvolt and AMTE Power was announced for the first battery 'gigafactory' to be built in the UK. Construction is expected to begin 2021, with a planned opening in 2023 – an annual output of 10GWh is planned for the opening, which could cater for approximately 130,000 EVs, and 30GWh is planned by 2027, eventually creating up to 4,000 jobs[8].

The European Commission also launched the European Battery Alliance in October 2017 to address the industrial challenge of moving from fossil fuels to electric in multiple industry sectors and to leverage the benefits of the battery industry. However, this will not benefit the UK after Brexit, and has the potential to compete with the UK's efforts.

"For batteries, in the medium term, most people realise that there won't be enough battery manufacturing in Europe to meet the demand of European consumers. In the UK, Government is developing gigafactories, and putting funding towards these plants – we need to now see everything come to fruition."

Anonymous vehicle manufacturer

[5] The Faraday Institution (2019), The Gigafactory Boom: the Demand for Battery Manufacturing in the UK, https://faraday.ac.uk/wp-content/uploads/2019/08/Faraday_Insights-2_FINAL.pdf

[6] The Faraday Institution (2019), UK electric vehicle and battery production potential to 2040, https://faraday.ac.uk/wp-content/uploads/2020/03/2040_Gigafactory_Report_FINAL.pdf

[7] APCUK (2020), Opportunities in passenger car electrification, https://www.apcuk.co.uk/opportunities-for-you/strategic-uk-opportunities-in-passenger-car-electrification/

[8] Autocar (2020), Analysis: How Britain's first gigafactory will change the industry, https://www.autocar.co.uk/car-news/industry/analysis-how-britains-first-gigafactory-will-change-industry

Impacts of Brexit on UK vehicle supply

Brexit negotiations are causing the fleet sector considerable uncertainty in terms of vehicle purchasing decisions. Stakeholders noted the difficulty for both vehicle purchasers and OEMs in making plans due to the inherent uncertainty surrounding Brexit, with aspects such as availability of grants, CO_2 emission targets and, in particular, incentivisation for suppliers to sell the greenest vehicles in the UK being considered unknowns. From an OEM perspective, plans are being developed to account for all Brexit scenarios.

With respect to incentivisation for suppliers, the BVRLA's stakeholders noted that the UK is already at a disadvantage in Europe due to the requirement for right hand drive vehicles, and as such it is essential that the UK remains an attractive place to invest and supply vehicles. Stakeholders also pointed towards an importance of keeping what's manufactured in the UK within the UK, and of ensuring continued manufacturing of battery capacity within the UK. On a more positive note, some stakeholders noted that the Government will have greater control over tax measures for vehicles after Brexit.

Research by the EU automotive industry suggests that a 'no deal' Brexit resulting in World Trade Organisation tariffs could cost the pan-European and the UK automotive sector €110 billion in lost trade over the next five years, would compound the economic damage cause by COVID-19, and would disrupt the highly integrated supply chains that serve the entire automotive industry[9]. Inevitably a lack of an ambitious free trade deal will disrupt supply chains which are already struggling to meet demand for ultra-low emission vehicles and would harm the delivery of the ICE sales ban. All stakeholders consulted as part of the consultation process for this report voiced strong support for zero tariffs on ZEV imports after Brexit.

[9] ACEA (2020), Only weeks left to save EU and UK auto sectors from €110 billion 'no deal' Brexit disaster, https://www.acea.be/press-releases/article/only-weeks-left-to-save-eu-and-uk-auto-sectors-from-110-billion-no-deal-bre

"It is very difficult to know how Brexit will affect supply. This is dependent on many factors – whether the UK decides to include CO_2 targets from the EU, incentives for suppliers to sell the greenest vehicles in the UK, exchange rates… without the right fiscal environment supply could be directed elsewhere in the EU, but we won't know until the outcomes of Brexit become clearer."

Lauren Pamma – *Electrification Propositions Lead, Motor Finance & Leasing, Lloyds Banking Group*

"The Brexit negotiations are teetering on the edge of a table. We don't know whether we are talking about posturing or a real situation. We can hope that the Government can incentivise keeping the vehicles that are manufactured in the country within the country, and also to ensure battery manufacturing capacity happens here and increases in volume."

Stephen Latham – *Head of Operations, NFDA*

"Government should be committing to future tax treatment on electric vehicles, preferably without VAT but certainly guaranteeing that there are no tariffs on imports, if there is no trade agreement when we leave Europe. They need to be doing more to give absolute clarity to buyers and users on mapping out what incentives and tax benefits are ahead of them – the average life of a commercial vehicle is 11 years so buying now is committing up to 2031. This clarity is also required for electricity, charging and power delivery."

Tim Bailey – *Fleet Director UK & Ireland, Northgate*

"A lot of the debate on Brexit focuses on UK production. From the fleet perspective, it's not just focused on UK production; it's also based on European production. The vehicles from Europe are potentially facing import tariffs that will affect their prices. So, it's also about EU-manufactured vehicles, how they find their way into the market and what this might mean for consumers. After Brexit, we will have more room to manoeuvre in terms of tax measures, including assessing what a VAT-based system looks like"

Anonymous vehicle manufacturer

Regulatory and industrial policy

CO_2 emissions standards for cars and vans

As of 1 January 2021, the UK will set its own CO_2 emissions standards for UK-registered cars and vans which will be at least as ambitious as current EU targets and are likely to remain in line with the EU. The EU fleet-wide average emission targets (set with respect to the average mass of a manufacturer's vehicles) are 95 gCO_2/km for cars (applicable from 2021) and 147 gCO_2/km for vans (applicable for 2020). A further reduction of 37.5% for cars and 31% for vans is required by 2030. Manufacturers who do not meet these targets will be subject financial penalties.

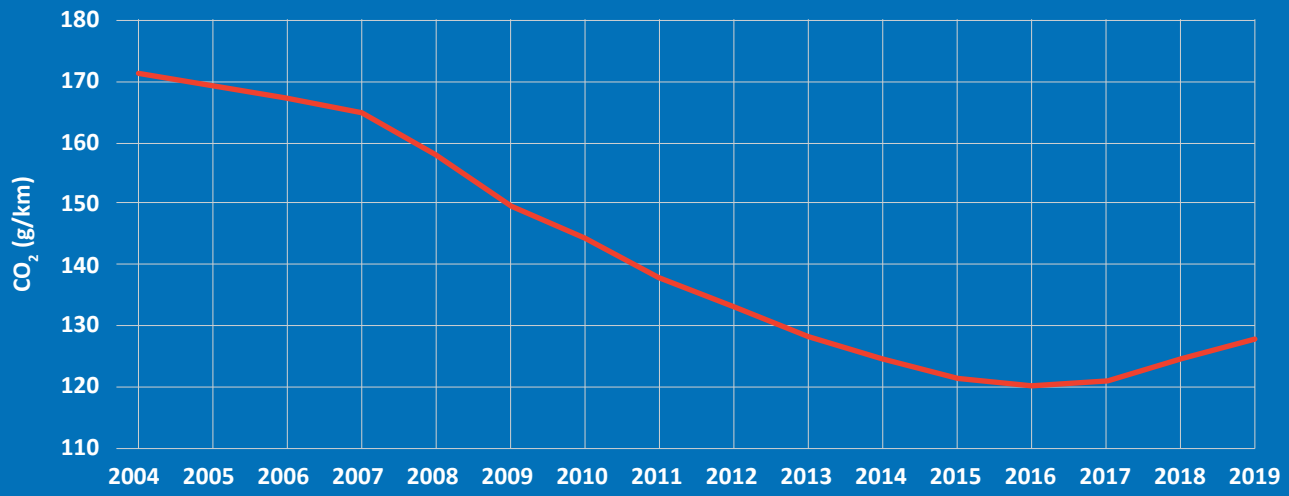
Between July and August 2020, UK Government consulted on a CO_2 emissions regulatory scheme for new cars and vans in the UK – the outcomes of this consultation are forthcoming.

The BVRLA notes that, without at least equally ambitious regulations, the UK risks an immediate reduction in manufacturer allocation of new ZEVs, with challenges for the UK compounded by manufacturing shortages of batteries and vehicles, the COVID-19 pandemic, potential import tariffs, and strong competition from the EU market.

Data from EEA shows that average CO_2 emissions for passenger cars and vans increased in 2019 for the third consecutive year in the UK and across the EU, and as such low and zero emission vehicles must be deployed much faster in order to achieve the stricter targets[10]. A figure (using data from the EEA and Statista) showing the development in average new car CO_2 emissions in the UK is presented below.

Some industry stakeholders have recently queried the overall emissions of different vehicle powertrain types, particularly electric vehicles, from an overall life cycle perspective. A recent comprehensive life cycle analysis (LCA) study undertaken by Ricardo on behalf of the European Commission found that, in broad terms, EVs (of all variant powertrains) have significantly lower environmental impacts across all vehicles types and most impact categories, with BEVs consistently performing better than all other powertrains[11].

Average carbon dioxide emissions from new cars in the United Kingdom (UK) from 2004 to 2019



EEA (2020), Average CO_2 emissions from new cars and new vans increased again in 2019, https://www.eea.europa.eu/highlights/average-co2-emissions-from-new-cars-vans-2019

Statista (2020), Average carbon dioxide emissions from new cars in the United Kingdom (UK) from 2004 to 2019, https://www.statista.com/statistics/299282/average-co2-emissions-from-new-cars-in-the-united-kingdom/

[10] EEA (2020), Average CO_2 emissions from new cars and new vans increased again in 2019, https://www.eea.europa.eu/highlights/average-co2-emissions-from-new-cars-vans-2019

[11] Ricardo (2020), Determining the environmental impacts of conventional and alternatively fuelled vehicles through LCA, https://op.europa.eu/en/publication-detail/-/publication/1f494180-bc0e-11ea-811c-01aa75ed71a1

Quotas for ultra low emission vehicle sales

The BVRLA and its members know that strong new regulations will be required to drive supply of vehicles into the UK. However, the BVRLA and its members do not think a mandate is the best route to achieve this, neither for OEMs nor fleets, as a blunt and inflexible target on OEMs could add an unnecessary regulatory burden and have unintended consequences. These consequences include a lack of policy alignment with other countries and constraints on OEM strategies resulting in higher costs to fleets (reducing the ability to invest in EV infrastructure).

As such, the BVRLA and its members believe having a strong basis of incentives and avoiding tariffs represent the clearest options to ensure supply in a global supply shortage and to keep the market profitable for the fleet sector. The BVRLA and its members are ready to engage with Government on the next generation of emissions regulation which supports a phase-out of ICEVs.

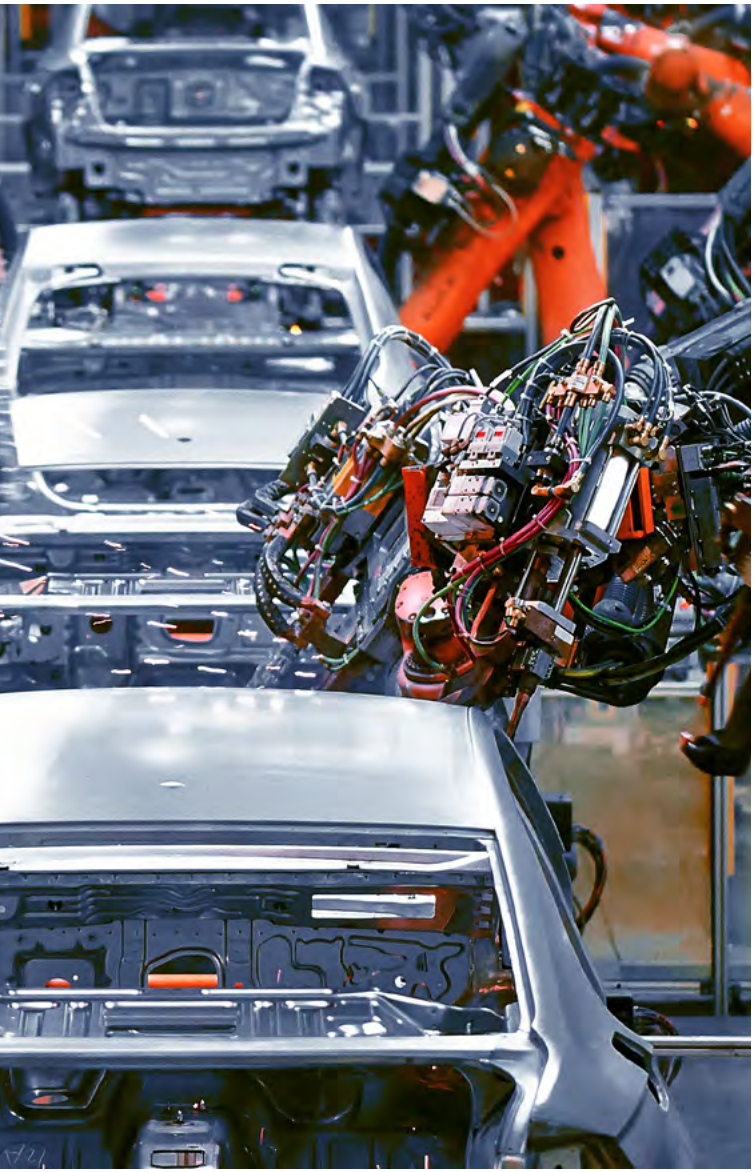
ZEV mandates have been implemented in other regions, such as the new EU CO_2 regulations introducing a zero and low-emission vehicle (ZLEV) super credits system, which works on the principle of having a minimum number of ZLEVs that need to be sold by a manufacturer in order to be eligible for a slight relaxation of the standards.

Plug-in hybrid electric vehicles

The inclusion of plug-in hybrid electric vehicles within the road transport mix continues to be a contentious issue amongst the BVRLA's stakeholders consulted during this project. Many BVRLA members consulted believe that PHEVs serve a purpose, particularly with respect to advantages of allowing consumers to become accustomed to EVs and providing additional confidence for aspects such as vehicle range. In contrast, other stakeholders consulted as part of the engagement for this report have called to question the supposed emissions benefits achievable from PHEVs, as users can simply drive the vehicles in ICE mode and still benefit from favourable tax incentives. The Government has signalled reduced support for PHEVs, removing them from plug-in vehicle grants in 2018 (which some BVRLA members strongly disagree with) and including them in phase-out plans within the 203X consultation.

Whilst some of the BVRLA's members consulted have applauded the intended move towards fully zero emission vehicles, stakeholders from specific member segments, particularly the rental sector, have stated that they still serve a strong purpose. The rental sector experiences particular challenges with recharging the vehicles in time to be used by the next customer, which can be within a matter of hours, and as such PHEV technology allows for added confidence that the vehicle range will be available for the next customer. Representatives from the commercial vehicle sector believe that vans are likely to skip the interim PHEV technology step and instead move straight from petrol and diesel vans to pure electric vans, due to the added expense of PHEV technology in vans with little added benefit; stakeholders noted the additional transition time for vans in this respect. The fact that there are very few PHEV vans on the market also support this.

The BVRLA believes that, in order for hybrids (including non-plug-in hybrids) to be excluded from any future phase out target, certain conditions must be met. These conditions include a sufficient supply of zero emission vehicles for all road transport applications; zero emission vehicles have price parity with petrol, diesel and hybrid vehicles; and confidence in sufficient supply of charging infrastructure. The BVRLA recommends that policymakers should review the market regularly and consider exempting PHEVs from the ICE sales ban if there are issues with EV supply or functionality in certain markets.



Industrial policy and strategy

The UK is positioning itself to be a leader in the supply and manufacture of electric vehicles through the formation of a number of initiatives and funding schemes. Amongst these, the Faraday Institution is the UK's independent institute for electrochemical energy storage, research, skills development and market analysis, with a focus on reducing battery cost, weight and volume, improving performance and reliability, and developing whole-life strategies, including recycling and reuse.

The Automotive Transformation Fund is a programme that aims to establish a competitive and sustainable UK supply chain, offering a share of up to £1billion of funding for industrial research and capital projects to support the industrialisation of a high-value, electrified automotive supply at scale in the UK. Additionally, the Driving the Electric Revolution challenge seeks to make the UK a global leader in the manufacture of core technologies which underpin electrification, such as power electronics, electric machines and drives. The challenge aims to accelerate the UK's ability to deliver next generation electric vehicles, helping to address climate change and contribute to the development of clean technology supply chains worth £80billion in GDP by 2050[12].

Whilst the above funding streams and initiative represent positive steps for the UK, investments by the UK are falling behind other countries such as France and Germany. As such, to keep pace with other countries, additional investment is required.

"OEMs have proven that they are able to produce the vehicles en masse, however, the majority of these are manufactured outside of the UK and current political and economic climate might not prove financially rewarding as others; the number of UK-based OEMs engaged in producing low and zero emission vehicles can be counted on one hand. There is a need to support the local OEMs in any way we can. We want to use locally-sourced product – from a tax and import duty perspective, this can ensure locally produced vehicles have those advantages. Then it's up to the current administration on how to tax the imports."

Alan Carreras – Sales Director, Bridle Group

[12] UK Research & Innovation (2020), Driving the electric revolution, https://www.apcuk.co.uk/opportunities-for-you/automotive-transformation-fund/

Second-hand market

The fleet sector's impact on supply of EVs to the second-hand market is extremely important to consider and is a growing area of interest for the BVRLA's members. Some stakeholders noted that the second-hand market is currently buoyant, but that the market will be impacted once the next tranche of vehicles becomes available. Some BVRLA stakeholders stated that the Government needs to do more with assisting EV purchasing for the BVRLA's members in the immediate term, otherwise it prevents the vehicles from hitting the second-hand market.

Some stakeholders have pointed towards a Government role incentivising used vehicle buyers – whilst incentives towards the first buyer initially made sense, a shift to incentives towards used vehicle buyers may lessen the second-hand purchase cost gap between EVs and ICEVs. There is a role for Government to assess whether further support is required for the second-hand market, and how the policies and tax incentives for the new vehicle market align with the second-hand market.

It must be noted that a balance must be struck in consideration of any incentives to used BEV buyers – the impact on non-BEV second-hand vehicle purchase and the ability of the fleet sector to sell second-hand ICEVs (and the associated impact on new BEV purchase) must also be considered.

"There's more to be done to support used vehicle supply. The majority of current financial incentives to switch to electric are aimed at new car drivers. Financial incentives could help to close the affordability gap, but consumers also need to be informed about whole life cost and need confidence around second-hand battery health. At the start, it made sense to give incentives to the new buyer to encourage new registrations, but now it may be time to consider how we shift the balance to used vehicle market incentives."

Lauren Pamma – *Electrification Propositions Lead, Motor Finance & Leasing, Lloyds Banking Group*

"If Government does not do more to assist with EV purchasing for BVRLA's members, then it inhibits the vehicles from hitting the second-hand market. Currently VED is penalising to the fleet sector and doesn't encourage the purchase of low emission cars to cycle them into the community quick enough – the fleet sector has to buy at a premium and keep them for longer."

Ben Lawson – *Vice President of Strategy and Project Development for Europe, Enterprise Holdings*

Supply constraints for different BVRLA member segments

As indicated in the table at the beginning of this section, the different BVRLA member segments have differing opinions with respect to supply of EVs. Based on feedback from stakeholders consulted in the development of this report, the passenger car EV market is less constrained from a supply perspective than other vehicle categories. Whilst numerous of these stakeholders noted that demand is currently outstripping supply, few stakeholders reported experiencing supply issues when procuring EVs. However, some stakeholders noted a growing interest from consumers in EVs and as such they anticipate future supply constraints. Nevertheless, range anxiety remains a critical obstacle for many – a 2020 SMMT survey suggests 38% of buyers still hold this as a reason for not buying an EV.

With respect to BVRLA member segments experiencing issues, electric vans were continually highlighted during the stakeholder engagement process as being a constrained market, both in terms of vehicle models and stock of vehicles, along with their suitability for certain operations. Some stakeholders pointed towards the necessity of ensuring the TCO model for electric vans stacks up, which can be difficult due to the higher upfront costs and a lack of effective incentives. As outlined previously, the rental sector also experiences issues with respect to vehicle supply, with pure BEVs considered unsuitable for the sector without significant infrastructure in place.

Stakeholders operating specialist vehicles are sceptical of whether electric alternatives will ever be suitable for their sector, particularly specialist vehicles that require drawing power from the engine to power other machinery or equipment during operations. As such, the BVRLA's members are increasingly looking towards a hydrogen solution for this limited but important category of vehicles.

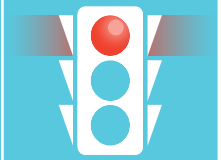
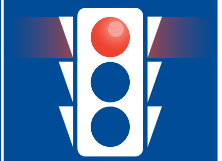
"Trying to find a vehicle that suits operational needs is an issue, due to the limited range of options – companies can't compromise operational requirements for the sake of procuring an EV. There are still some vehicles that can't be transitioned, particularly for vans. For larger vans, Centrica has taken a decision to extend diesel vehicles for another year, before a suitable larger van comes to the market within the coming year."

Steve Winter – Head of Fleet, Centrica

"For commercial vehicles in particular, there is a double whammy of challenges – firstly, there is a limited supply of batteries and therefore the manufacturers are putting them into vehicles they know they can easily sell without too much of a challenge, i.e. cars, and secondly, they are going to other markets where their governments are putting greater levels of incentives towards electric vehicles."

Tim Bailey – Fleet Director UK & Ireland, Northgate

Scoring for Supply

Segment	Description	Score
Car fleets	Passenger car EV supply is improving, with increased product range and improved functionality. The unknown impacts of Brexit are leading to significant uncertainty for the fleet sector in making longer-term decisions with respect to vehicle purchase.	
Retail		
Car clubs		
Rental cars	BEVs are less suitable for the rental sector due to the required rapid turnaround of vehicles and necessity to charge. Further support for the rental sector is required, possibly via support for PHEVs within the rental fleet.	
Vans	The supply of electric vans, both in terms of range of models and stock of electric vans, continues to be a serious issue. Some larger van categories are still yet to find a suitable electric alternative that matches operational requirements.	
Specialist vehicles	There is a query surrounding whether any electric alternative will be suitable for the specialist vehicle sector; there is growing interest in hydrogen as an alternative powertrain option, but there is no UK hydrogen strategy in place.	

Recommendations

- **UK's exit from the EU:** post-Brexit, ensure that the 10% UK Global Tariff on zero emission vehicle imports is removed – this measure received unanimous support from all BVRLA stakeholders consulted during this project.
- **Incentivisation for manufacturers:** the incentivisation given to manufacturers (or to consumers to create an attractive market for OEMs) must at least match, or beat, the incentives given to manufacturers across Europe to ensure continued investment in the UK.
- **No ZEV mandate:** rather than introducing a ZEV mandate, imposing an inflexible target on OEMs, policy measures should instead be aligned with EU markets where, according to the BVRLA and its members, grants and incentives have been more successful in stimulating a high EV market share.
- **Investment in the UK:** increased R&D expenditure is essential to ensure the batteries manufactured in the UK are world-leading; and continued investment in establishing UK gigafactories would reduce costs and address supply limitations.
- **Additional support for sectors experiencing difficulties:**

– **Commercial vehicles:** extend the 0% van benefit charge until 2030; ensure Project Rapid considers the needs of this vehicle segment; and provide clarity on the future for fuel duty to support business cases and investment in BEVs.

– **Specialist vehicles:** investment in R&D to resolve powertrain issues and assist with vehicle supply; and exploration of hydrogen as a viable option within this segment.

– **Rental vehicles:** support PHEVs within the rental sector as a transition technology, due to the difficulties currently experienced by this sector with pure EVs.

2 Report card
Demand for vehicles

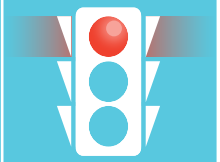
Cruising

- The extension of incentives and the tax and fiscal benefits announcement in the March 2020 budget helped to provide clarity for the passenger car EV sector, particularly for company cars.
- Confirmation of the extension to the Plug-in Car and Plug-in Van Grants as well as the drop in the VED surcharge for BEVs has given confidence for vehicle purchasing.
- Some BVRLA member segments require further support, for example rental companies do not benefit from fuel cost savings and the specialist vehicle market cannot benefit from existing demand measures due to a lack of vehicle options. Both of these segments require particular support to enable ZEVs to be affordable / profitable.
- Greater certainty is required on the future availability of incentives and grants to support the business case for ZEV investment.

Recommendations

- Commitment to longer-term support on grants and incentives.
- Conduct an annual review of the new car and van market to assess the effectiveness of incentives.
- Increase in-life incentives to make EVs attractive in the used market.
- Policy alignment to ensure incentives and disincentives line up with current technological developments – e.g. low emission zones should only be implemented in the context of vehicle availability / capability.

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 £3,000, now excluding cars costing over £50,000. The grant has experienced a reduction from £4,500 (prior to October 2018) and £3,500 (prior to March 2020) since the 2020 Budget. Category 2 and 3 vehicles (PHEVs) have not been included since October 2018. The grant is confirmed to exist at some level until 2023 but may be subject to change. £403m was allocated for the PiCG up to 2023. The BVRLA welcomes the continuation of the PiCG but would like to see it extended until 2025 to give the fleet sector more confidence in its vehicle purchasing. The continuation of grants for fleets is highlighted by other research efforts as being of particular importance[1].	
Plug-in Van Grant (PiVG)	The PiVG has been extended unchanged, providing up to 20% of the purchase price of an electric van up to a maximum value of £8,000. The grant is confirmed to exist at some level until 2023 but may be subject to change. £129.5m was allocated for plug-in grants for vans, taxis and motorcycles up to 2023. The level of grant funding remaining the same as 2019 is welcomed by the BVRLA due to the higher costs of electric vans; however, similar to the PiCG, the BVRLA would like to see the grant extended until 2025 to give the fleet sector more confidence in its vehicle purchasing.	
ULEV proportion of Government fleet	The previous Road to Zero Report Card (2019) recommended that Government should publish an action plan for increased levels of ULEV uptake in the central Government vehicle fleet, and report on progress against achieving Government ULEV targets. This has not yet been undertaken and information on progress is unavailable, though Government confirmed (in 2019) it is fully committed to achieving ULEV targets for 2022 (25% of fleet) and 2030 (100% of fleet). It is important that Government leads by example by publishing regular updates on this measure.	

[1] The Oxford Institute for Energy Studies (2020), EV Uptake in the transport fleet: consumer choice, policy incentives and consumer-centric business models, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/07/OEF122.pdf

Category	Status update	Score
Electric Vehicle Homecharge Scheme (EVHS)	The EVHS is providing £20m of funding in 2020/21 for charging infrastructure in residential locations with off-street parking. The maximum grant rate is £350 per charge point (reduced from £500 in April 2020). Whilst the continuation of the grant scheme is welcomed by the BVRLA and its members, and the reduction in grant funding was anticipated, there are no plans announced for continuation of the grant post-2021.	
Workplace Charging Scheme (WCS)	The WCS has a maximum grant rate of £350 per charge point socket (reduced from £500 in April 2020). No public information is provided on the budget for the WCS, though it was recently confirmed to be continued until 2020/21. The limit for number of sockets per employer also recently increased from 20 to 40 sockets, which was welcomed by the BVRLA and its members. Further clarity on plans moving forward is desirable.	
On-street Residential Chargepoint Scheme (ORCS)	OLEV has allocated £20m of funding to local authorities for 2020/21 for on-street residential charging projects. The maximum funding allocated is £6,500 per charge point, or £7,500 in special circumstances. A growing number of the BVRLA's members referenced the importance of on-street charging provision for fleets of vehicles, showing the continued importance of the ORCS. Similar to the EVHS and WCS, further clarity post-2021 would enable the fleet sector to more effectively assess charging infrastructure.	
Local government measures	In March 2020, a further £304m was allocated to enable local authorities to take steps to reduce NO_2 emissions, in conjunction with the NO_2 Plan. The funding covers the years 2020-2022. Whilst the funding to improve air quality is welcomed by BVRLA and its members, engagements with BVRLA's stakeholders have noted that local authorities can implement measures in a fragmented approach, and as such central Government guidance is necessary to ensure consistency for fleets.	
Go Ultra Low (GUL) campaign	The Go Ultra Low campaign has continued to be an important tool to ensure consumers are educated about the electric vehicle landscape. The BVRLA would welcome additional focus on the fleet sector within the Go Ultra Low campaign.	

"It is imperative that the TCO of EVs remains comparable with ICEVs. At the moment, the Government grants allow for this; but if they are reduced or withdrawn, then the TCO model is difficult to operate due to the capital costs of the technology. Getting the TCO model to work is absolutely paramount – companies will not pay a huge premium to operate the vehicles."

Steve Winter – *Head of Fleet, Centrica*

" Some vehicle segments will need grants and incentives increase and for a longer period of time than others - whilst the Plug in Car Grant has been hugely successful, and welcomed by most, there are still examples, especially in the Light Commercial and Multi-Person Vehicle Carrying segment where the current OEM offering is difficult to justify from a financial investment perspective. Government will continue to use the grants and incentives for the best methods for the public purse. They are working well at the moment, and the product will get less expensive over time. The grant could similarly change over time, for instance by targeting SMEs and public companies. "

Alan Carreras – *Sales Director, Bridle Group*

Tax benefits status update

Category	Status update	Score
Vehicle Excise Duty (VED)	ZEVs remain exempt from VED. Additionally, from April 2020 until March 2025 ZEVs are now exempt from the VED expensive car supplement which applies an additional cost of £325 per year for five years to other vehicles costing over £40,000. This policy update provides an incentive for BEVs and is in line with recommendations made by BVRLA in 2019[2], though neglects to incentivise PHEVs and other low emission vehicles by applying a flat rate which does not reflect fuel efficiency and hybrid electric miles from year two. Government also launched a VED call for evidence between March and September 2020, to which the BVRLA provided a response[3].	
Value Added Tax (VAT)	There remains no VAT reduction or exemption dependent on emissions for new car purchases or leases. Modelling by Cambridge Econometrics[4] 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 and carry out an annual review of tax measures for fleet vehicles.	

"It would be useful to have longevity for the programme to set road fund tax. We need Government to look a little bit farther out with respect to the system – this is the main thing that would give certainty to the fleet and retail market."

Stephen Latham – Head of Operations, NFDA

[2] BVRLA (2019), Road to Zero: Report card 2019

[3] BVRLA (2020), BVRLA response to HM Treasury's Vehicle Excise Duty (VED) Call for Evidence

[4] 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
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 March 2020 Budget confirmed that rates will then be frozen for a further two years until 2024/25. A similarly low rate applies to PHEVs with high electric mile range, with the exact BIK rates depending on the electric miles capacity. The rate for conventional cars depends on their CO_2 emissions though are notably higher. This measure is expected to result in a large and necessary surge in demand for EVs[5], and is welcomed by the BVRLA.	
Van benefit charge	In March 2020, HM Treasury announced that, from April 2021, the Government will apply a nil rate of tax to zero emission vans within the van benefit charge, bringing the Van Benefit Charge in line with company car BIK rates. There is currently no time period attached to this nil rating. The BVRLA welcomed the announcement on the Van Benefit Charge, bringing it in line with other zero emission vehicle policies.	
Capital Allowances	In March 2020, Government announced the extension of the period for which the 100% first year allowances (FYA) are available for zero emission vehicles from April 2021 to April 2025; however, this is not available to rental or leased vehicles, which is a shortcoming. The regular capital allowance threshold for special rate pool and lease rental restrictions has been lowered to 50gCO_2/km. The BVRLA states that the level of threshold was reduced too quickly, as the lower threshold gives consumers less incentive to choose, for example, a PHEV over a much higher polluting ICEV. Whilst the measures for zero emission vehicles are welcomed by the BVRLA, it has been noted that the changes will cost fleets an extra £185m over five years.	

[5] Autocar (2020), New tax rules herald EV sales boom, https://www.autocar.co.uk/car-news/industry/new-tax-rules-herald-ev-sales-boom

A focus on tax modelling

The modelling commissioned by the BVRLA[6] predicts that existing policy measures will deliver 50% market share for pure electric cars by 2030, rising to 84% in 2035 and 95% in 2038, which means an ICEV ban would be achievable by 2038, though not by 2035.

The analysis also highlighted policy measures that, if implemented, could encourage faster EV penetration that would deliver 95% market share by 2035, making the ICEV ban deliverable:

- **Maintaining the strong differential in Company Car Tax (CCT) rates between EVs and other vehicle types. Freezing CCT at 2% from 2025 to 2030, increasing it by 2 percentage points per year thereafter;**
- **Long term commitment to the Plug-in Car Grant for EVs. Continuing at £3,000 until 2032, then reducing by £1,000 per year until £0 at by 2035;**
- **A reduction in purchase taxes through:**
  - An extension of Enhanced Capital Allowances (ECA) to leases within the fleet market as well as direct purchases from 2021.
  - A VAT exemption for EVs in both fleet and private markets from 2021.

The analysis estimated the cumulative net discounted cost (discounted by monetised CO_2 emissions and air quality improvements[7]) to the Government of implementing these additional measures would be £95 billion over the period 2020-2050, with a peak annual cost of £16.7bn (undiscounted) in 2032, equivalent to less than 2% of total government expenditure in 2019. These figures do not include the economic benefits of the transition on job creation or vehicle and battery manufacture which are expected to impact on the net cost. The exact incentives for the fleet sector need to continue to be reviewed, based on an assessment of the surrounding economic and market conditions.

[6] 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

[7] Monetised by HM Treasury Green Book and DEFRA, respectively

Policy developments

Transport Decarbonisation Plan

In late March 2020 the DfT launched a policy paper called "Decarbonising Transport: Setting the Challenge"[8]. The document outlines the challenge of reducing emissions from all modes of transport to achieve net-zero emissions by 2050, and reviews existing climate policy in transport. The policy paper is quite high-level and has been referred to as "a plan for a plan". The Government is currently consulting with a wide range of stakeholders on what the plan may include. The intention is to publish the Transport Decarbonisation Plan before the end of 2020 or early 2021.

The BVRLA has engaged extensively with Government on the Transport Decarbonisation Plan. The Government held a series of workshops for two weeks – the BVRLA was requested to actively contribute to the workshops – the BVRLA provided a slide deck ahead of the Road Transport Decarbonisation session focused on the main challenges and opportunities from the 203X consultation. The session had 140 attendees joining 11 separate workshops. The BVRLA is advocating for focus in three areas, that address the needs of each of the BVRLA's diverse member segments: decarbonisation of road vehicles; accelerating modal shift to public and active transport; and decarbonising how we get our goods.

Possible scrappage scheme

In June 2020, it was reported that Government was at one stage considering a new scrappage scheme that would offer new vehicle purchasers up to £6,000 to switch from older petrol and diesel vehicles to new electric or hybrid vehicles[9], in connection to the COVID-19 situation. According to the source referenced, such a scheme is now thought to be very unlikely with HM Treasury reconsidering the best way to stimulate the UK economy, under the belief that a scrappage scheme would boost overseas manufacturers more than British firms.

Transport for London (TfL) also introduced a van scrappage scheme in February 2019 to help small business replace older, more polluting vehicles with vehicles that meet standards for the Ultra Low Emission Zone (ULEZ). Following a period of poor uptake of the initial offer (£3,500 per van, with just £2.3m spent out of £28m in 2019), TfL increased the offer to £7,000 per van. In September 2020 TfL stopped the van scrappage scheme due to unprecedented demand and limited funds, having allocated £30m of funding towards cleaner vans[10]. This shows that scrappage schemes can be successful in stimulating uptake of low emission vans, though they need to provide sufficiently high incentives.

The BVRLA and its members are supportive of a scrappage scheme, but under specific conditions. The BVRLA, in association with the Finance and Leasing Association (FLA), developed principles of an automotive demand stimulus scheme[11], which are recommended to be followed in the implementation of any scrappage scheme. At its core, the BVRLA and FLA recommend that, in order to be truly effective, any EV stimulus scheme must work for both the new and used market, and it should make the UK a more attractive market for OEMs to sell their EVs and help those who cannot afford to buy a new electric car to purchase or lease a new one.

[8] Department for Transport (2020), Decarbonising Transport; Setting the Challenge

[9] Autocar (2020), Report: new UK scrappage scheme unlikely, say ministers, https://www.autocar.co.uk/car-news/industry/scrappage-scheme-2020

[10] Smart Transport (2020), Transport for London cancels van scrappage scheme, https://www.smarttransport.org.uk/news/latest-news/tfl-scraps-van-scrappage-scheme

[11] BVRLA & FLA (2020), Principles of an Automotive Demand Stimulus Scheme

Additional policy measures / funding

In September 2020, on the first World EV Day, Government announced consideration of a series of measures to boost EV uptake, including additional charge points at supermarkets and tourist sites, consistent and clear public signage for drivers on UK roads, and guidance for local authorities on painting EV parking spaces green; this was in addition to an announcement of £23m funding for EV research projects. These measures are in relation to a Government-released study looking at a range of measures that could be used to increase EV adoption and reduce ICEV usage[12] – measures considered also include penalising petrol and diesel drivers.

Additionally, in June 2020, Government also announced the introduction of green number plates for EVs, to be introduced across the UK from autumn 2020, following a consultation process. This announcement was also coupled with £10m for a new Zero Emission Vehicle Innovation Competition, run by Innovate UK, and £2m for UK SMEs to support research and development in battery technology, amongst other areas. The BVRLA and its members are supportive of the green number plate scheme as long as it is coupled with practical tangible benefits, such as access to bus lanes and subsidised parking.

It is important to note that other actors can also hasten the transition to EVs – Highways England recently invested more than £9m (part of an overall £100m Highways England aimed at reducing emissions on the strategic road network) in a try-before-you-buy scheme, with the funding allocated to local authorities with the intention to encourage businesses to switch from diesel to electric vans. Of note, the BVRLA is also working with the Green Finance Institute and Finance and Leasing Association to develop policy proposals in the area of a Green Finance Guarantee, aimed at reducing the risk of lending and consequently lowering the cost of finance for BEVs.

A focus on hydrogen

A growing number of stakeholders within the BVRLA's membership is considering that hydrogen may have a place in the transport mix, particularly for heavier vehicles such as commercial vehicles and specialist vehicles. As such, there is growing interest in ensuring the UK develops and accelerates its focus on hydrogen vehicles and infrastructure. The UK Government has already introduced the Hydrogen Transport Programme (HTP), which provides up to £23m of grant funding to support the growth of refuelling infrastructure and new vehicles[13]. However, some of the BVRLA's members have noted that the UK is now lagging behind other countries in terms of defining a hydrogen strategy, which is an opinion shared by other industry players[14].

In this respect, UK Government has recently confirmed it is working on a hydrogen strategy, which will be published in 2021, with the intention to "deliver a world leading hydrogen market". During an Environmental Audit Committee in September 2020, it was confirmed that the forthcoming energy white paper will include plans for hydrogen, which will be followed by a detailed strategy in early 2021[15]. It is unknown whether this will feed into the Transport Decarbonisation Plan – hydrogen is referenced in the "Decarbonising Transport – Setting the Challenge" policy paper.

"The role of soft incentives, such as the green number plates and local authority incentives, should not be underestimated. The softer incentives give a heart reason as well as a head reason – you want people to feel good about choosing an EV."

Anonymous vehicle manufacturer

[12] Behavioural Insights Team and TRL (2020), Driving and accelerating the adoption of electric vehicles in the UK: Final report

[13] Ricardo (2020), Hydrogen Transport Programme (HTP), https://ee.ricardo.com/htpgrants

[13] Ricardo (2020), Hydrogen Transport Programme (HTP), https://ee.ricardo.com/htpgrants

[14] The Chemical Engineer (2020), Lack of UK hydrogen strategy is holding back industry, https://www.thechemicalengineer.com/news/lack-of-uk-hydrogen-strategy-is-holding-back-industry/

[15] Smart Transport (2020), Government wants UK to be 'world leader' in hydrogen, https://www.smarttransport.org.uk/news/latest-news/government-wants-uk-to-be-world-leader-in-hydrogen

Additional focus areas

Advisory Electric Rate

The advisory fuel rate (AER) (i.e. the rates used to reimburse employees for business travel in company cars, or for employees to repay the cost of fuel used for private travel) is currently set at 4p/mile for EV users. The BVRLA's members say the AER for electric vehicles is no longer fit-for-purpose because the assumptions used to calculate the current 4p/mile AER are based on domestic electricity tariffs and a fixed average consumption.

Updated calculations from the BVRLA's members for the electric AER vary from 4p/mile to 6p/mile for domestic electricity tariffs, to up to 14p/mile when considering rapid charging tariffs, which could impact employees who are doing longer business journeys and who rely on public rapid charging. Whilst most people only use rapid charging as a small proportion of overall charging, the large discrepancy can disadvantage those who do rely on rapid charging, and as such the BVRLA and its members recommend reconsidering the AER for EVs.

User / fleet sentiment towards plug-in vehicles

The overall progression in user sentiment was covered extensively in the 2019 BVRLA Road to Zero Report Card, where it was found that cost of vehicles and availability of charging infrastructure are now bigger barriers to EV uptake than range anxiety.

From a fleet perspective, A 2020 survey by Go Ultra Low of 500 fleet managers revealed that one in three UK fleet managers expect half of their company car fleet to be electric by 2025; and seven in 10 fleet managers are preparing to buy an electric car within two years[16]. Additionally, half of UK fleet managers are predicting an uptake in electric company cars due to the aforementioned changes to Company Car Tax. Fleet operator user sentiment has also been highlighted as being particularly important in other studies[17].

Stakeholder feedback during the consultation process for this report has shown that user sentiment towards EVs varies dependent on the BVRLA member segment under consideration. Whilst there appears to be improving sentiment towards plug-in vehicles in car retail and car fleets, user sentiment towards EVs can be particularly problematic for rental and specialist vehicle fleets. Numerous of the BVRLA's stakeholders commented on the lack of availability of electric vans for the purposes they would be required. As noted in the 2019 BVRLA Road to Zero Report Card, user sentiment towards electric car club vehicles tends to be positive.

[16] Go Ultra Low (2020), New survey reveals one in three fleet managers will electrify at least half of their UK fleet by 2025, https://www.goultralow.com/news/new-survey-reveals-one-in-three-fleet-managers-will-electrify-at-least-half-their-uk-fleet-by-2025/

[17] Energy Systems Catapult (2019), Electric Vehicles: Innovation towards an excellent user experience

Demand for vehicles by BVRLA member segments

Demand for plug-in vehicles, both in terms of the incentives and tax / fiscal benefits offered towards the vehicles and the demand for the vehicles themselves, varies between the different BVRLA member segments. There is growing demand for EVs in car retail and car fleets, as evidenced by the BVRLA's stakeholders stating they had experienced an increase in interest in EVs from customers, which is likely at least partially attributed to the range of tax benefits offered to these fleets. The BVRLA and its members recommend not losing the momentum that has been achieved and continuing to offer incentives and tax benefits to these fleets.

Some stakeholders noted that COVID-19 may have an impact on the tax incentives. For example, fewer companies were purchasing vehicles during the UK lockdown, which meant fewer companies could benefit from the 0% BIK rate for 2020/21. As such, this benefit could be extended by another year so the fleet sector can more fully realise the benefits of this measure.

According to stakeholders, vans and specialist vehicles have differing issues in terms of a lack of available incentives to bring the vehicles to the market in the UK. Whilst the continuation of the PiVG and the Van Benefit Charge developments are beneficial to the market, there are still barriers to be overcome in terms of the suitability of the vehicles. As such, there is growing interest amongst the BVRLA's stakeholders in the potential for hydrogen in these vehicle categories, though noting that market-ready hydrogen fuel cell EVs may not be available for another few years.

Some stakeholders have also indicated that additional support is required for the rental sector, due to the fact that typical TCO benefits for fleet vehicles do not stack up for rental vehicles, and the purchase costs for EVs are significantly higher, whilst customers do not wish to pay more for the vehicles. The rental sector also requires a greater use of higher-powered charging, which can be very expensive to install in rental branches, particularly if the branch is on a short-term lease. With respect to car clubs, these vehicles continue to be gradually transitioned to EVs, and they can benefit from the range of incentives offered towards car retail and car fleets.

"It was slightly frustrating that the rates for BIK came in just after the UK went into lockdown. There is an argument for extending the BIK rollout, so the zero rate would last for another year. The impact of this benefit hasn't been fully felt by the sector."

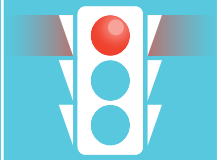
Anonymous vehicle manufacturer

"More needs to be done by Government, particularly to incentivise the rental and leasing sector. Rental and leasing companies are early adopters of new technology and the main source for the second-hand market. Wider adoption can be achieved if more EVs are available (at an affordable cost) to that market so it is really down to Government to step up and incentivise it. It is not just about overtaxing ICEVs - there need to be genuine alternatives and at the moment for vans there just aren't. Almost the entire van market is diesel."

Tim Bailey – Fleet Director UK & Ireland, Northgate

Scoring for Demand

Segment	Description	Score
Car fleets	The extension of incentives and the tax and fiscal benefit announcement in the March 2020 budget helped to provide clarity for the passenger car EV sector, particularly for car fleets. Fleet purchasers would benefit from additional and longer-term clarity on incentives and tax measures. However, the retail market is said to be preferred over the car fleet market in terms of OEMs supplying for the demand.	
Retail		
Car clubs		
Vans	There have been some positive demand measures specifically for electric vans announced as part of the March 2020 budget; however, a lack of vehicle stock and model availability inhibits the van sector from fully realising these demand benefits.	

Segment	Description	Score
Rental cars	The rental sector's demand for BEVs is less than other BVRLA member segments due to the business model for BEVs being less suitable for the rental sector, as the upfront cost cannot be recouped by TCO due to the short fleet cycle. As rental companies do not fuel their vehicles, they do not benefit from fuel cost savings unlike other segments and so require particular support to enable ZEVs to be affordable / profitable. The quick turnaround for the fleet necessitates higher infrastructure costs, and consumers tend to be more apprehensive about choosing BEVs as rental vehicles. Additional support is required for this sector.	
Specialist vehicles	The measures benefiting other BVRLA member segments are not as beneficial to the specialist vehicle market due to a lack of vehicle options. As such, further demand support measures should be focused on specialist vehicles.	

Recommendations

- **Due to the uncertainty surrounding the economy and the impact of the EU exit on the UK automotive market, Government should carry out an annual review of the tax and incentive needs of the fleet sector and set aside funding so that extra incentives can be injected into the market if the decarbonisation trajectory of the market is in question. Suggested measures as outlined below are to assist the delivery of the accelerated transition that Government is requesting of road users.**
- **Continue to offer, and provide clarity on, the range of plug-in vehicle grants available to the fleet sector:**
  - **Plug in Car / Van Grant:** extend the grant until at least 2025 to ensure price parity between BEVs and ICEVs.
  - **Home & Workplace charging grants:** extend these grants in some form until 2025.
  - **Future certainty:** provide future certainty on the grants and incentives available, supporting the business case for ZEV investment.
  - **Used vehicle market:** Government should explore offering incentives to cover the price gap between second-hand ICEVs and equivalent BEVs to ensure strong demand for used BEVs.
- **Build on the range of tax and fiscal incentives outlined in the March 2020 budget and provide future certainty on the range of benefits available:**
  - **100% First Year Allowance:** extend the 100% FYA on purchase of EVs, which is not currently available for rental or leasing.
  - **0% VAT on EVs:** this would allow a rapid transition to EVs particularly in the retail car segment.
  - **5% VAT rate on workplace charging:** this would bring workplace charging in line with the VAT rate on domestic electricity.
  - **Vehicle Excise Duty:** ensure the forthcoming VED review reflects the need for an incremental transition to EVs and hybrid vehicles by continuing to incentivise the cleanest ICEVs over the next five years.
  - **Benefit in Kind:** extend the 0% BIK for one more year; and freeze BIK beyond 2025 to ensure continued momentum in this market.
- Provide policy leadership and alignment to ensure a continued move towards electrified road transportation:
  - **Reform of Advisory Electric Rate:** review and update the AER for electricity, as the 4p/mile is no longer fit-for-purpose for those reliant on public / rapid charging.
  - **Policy roadmap:** ensure a clear roadmap is provided with respect to targets for what level of uptake is required, by when, and how Government will work with industry to achieve these goals; this can possibly be through the Transport Decarbonisation Plan.
  - **Policy alignment:** ensure incentives and disincentives align with current technological developments – e.g. low emission zones should only be implemented in the context of vehicle availability / capability.
  - **Hydrogen strategy:** ensure any developing strategy for hydrogen has an active voice from the fleet sector.
- **Provide additional support to the vehicle rental market due to the challenges faced by this member segment:**
  - **VAT on EV rental:** provide 0% VAT on ZEV rental to bring them in line with other forms of shared transport.
  - **State Aid:** ensure direct grants and funding given to businesses to support EV infrastructure development do not count as State Aid under a future UK regime post-Brexit.
  - **Infrastructure scheme:** provide a grant scheme for rental branch locations due to the additional costs of high-powered infrastructure in these locations.

3 Report Card
Infrastructure

Accelerating

- The Project Rapid initiative and the 'Rapid Charging Fund' will lead to an increase in provision of higher-powered chargers for longer distance journeys.
- The Government is consulting on the consumer experience of utilising charging infrastructure, which it can be assumed will form part of the reporting on the Automated and Electric Vehicles Act.
- The costs of grid connections are highly variable and may unfairly fall on early adopters of EVs and installers of the associated infrastructure.
- Infrastructure required for both rental cars and specialist vehicles is less understood than other segments – for the rental sector, vehicles may require very rapid turnaround to the next customer, and as such expensive high-powered infrastructure may be required onsite; and specialist vehicles will need access to power when operating off-road.

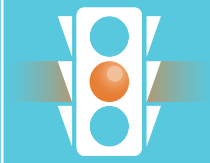
Recommendations

- Re-evaluate the grid upgrade process and support firms affected by upgrade costs.
- Regulate to ensure a universal access / payment method for charging infrastructure.
- Mandate open access to static and dynamic charge point data.
- Increase provision of on-street charging for fleet users.

Infrastructure status update

Category	Status update	Score
Infrastructure provision	The deployment of public charging infrastructure has accelerated in recent years, with the public charging network more than doubling between 2017 and 2019[1]. The continuation of charging infrastructure grants is seen to be beneficial by the BVRLA's stakeholders. The BVRLA and its members have identified a necessity to increase the deployment of higher-powered charging in public areas, due to perceptions of BVRLA member fleets for a greater reliance on public higher-powered charging. Upcoming funding streams will contribute to this, but a clear roadmap would be desirable.	
Ad hoc infrastructure access	In July 2019, Government announced that all newly installed rapid and higher-powered charge points should provide debit or credit card payment from April 2020. In May 2020, Government announced its intention to consult on ensuring debit / credit card payment is provided for all new public charge points (both rapid and normal-powered charge points), and on developing a roaming solution, particularly for rapid charge points. The BVRLA's members noted the UK is lagging behind European countries in this area.	
Dynamic data availability	In May 2020, Government announced an intention to assess how to make static and dynamic data for all public charge points openly available and in a standard format. Government intends to engage with stakeholders to develop and test options for making data openly available. Government echoed a recommendation of the EV Energy Taskforce (EVET) regarding open data availability. This workstream also intends to determine what may supersede the National Chargepoint Registry (NCR).	
Reliability / maintenance standards	In May 2020, Government announced an intention to consult on enforcing reliability standards for public charging infrastructure, noting that a significant number of charge points are out of order at any given time and this can be inconvenient and frustrating for drivers. The intention to consult noted that there is 99% network availability for networks in the Netherlands, and that the UK can be considered to be lagging behind.	

[1] ZapMap (2020), EV Charging Statistics 2020, https://www.zap-map.com/statistics/ [Accessed 16 Sept 2020]

Category	Status update	Score
Smart capabilities	Government consulted between July and October 2019 on proposals for regulations to ensure that EV charge points sold or installed in the UK have smart charging functionality included. Government published its response to the consultation in May 2020 – whilst the response didn't contain a formal Government policy response, it emphasised that it remains the Government's intention to mandate that all private charge points have smart functionality. A full policy response from Government will also follow.	
Motorway Service Area (MSA) requirements	The Road to Zero Report Card 2019 noted that the powers within the AEVA regarding mandating installations at key strategic locations or allowing Metro Mayors to designate charger provision at fuel retailers had not been taken. Whilst these powers have not been taken, the market has responded, and Project Rapid (see Page 40) is addressing charging requirements on the Strategic Road Network, with associated funding.	
Pricing transparency	In May 2020, Government announced the desire to see all operators charging for the electricity they provide in p/kWh, noting the confusion caused by the lack of a consistent approach to pricing at public charge points between operators. Government is seeking feedback on this aspect via the overall consumer experience consultation.	

"Open interoperability between charging point operators and e-mobility service is key to the country's electrification efforts. For individuals and companies to feel comfortable making the move to electric, they need to have the certainty that they can easily charge wherever they travel. The best way of doing this is through opening up different networks to roam with each other, making sure that the consumers have access to charging wherever they are and through whichever network they prefer."

Christopher Burghardt – *EU Managing Director, ChargePoint*

"Charging needs depend on distance driven and time parked. Depot-based fleets are possibly the most challenging to electrify, due to the high concentration of likely high-powered charge points and quick turnaround required. The rental sector experiences similar challenges, since the vehicles are often stationary for such a short period of time."

Tom Callow – *Head of External Affairs, bp Chargemaster*

Policies, projects and funding streams

Automated and Electric Vehicles Act

Government committed to reporting on the AEVA 2018 legislation after two years in operation. With the announcement of a consultation on the consumer experience of utilising charging infrastructure, it can be assumed that this consultation forms part of the reporting on the AEVA, as Government is consulting on four additional focus areas within the AEVA.

The BVRLA is supportive of taking additional measures via the AEVA, including a universal method of payment, standardised dynamic data, reliability and maintenance standards, and transparent pricing. The BVRLA has also been involved in workshops run by OLEV with KPMG to assess how to make static and dynamic data from public charge points available in a standard format. The BVRLA's members frequently cited these areas as requiring improvement.

Project Rapid

The UK Government is currently undertaking Project Rapid, which brings together evidence and feedback from industry stakeholders to assess how rapid charging infrastructure should be deployed along the SRN. Project Rapid can be considered to be Government's work related to the MSA requirements stipulation within the AEVA.

In May 2020, UK Government announced the "Rapid Charging Fund" that forms part of a £500m Government commitment for EV charge points (announced as part of the March 2020 Budget). The funding will be allocated to supporting strategic sites across the SRN where connection upgrades are prohibitively expensive for higher-powered charge points. Project Rapid and the associated Rapid Charging Fund has the following ambitions:

- **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, its members and industry in general is supportive of the Project Rapid initiative, noting it will lead to an increase in provision of higher-powered chargers for longer distance journeys. However, the BVRLA is calling for Project Rapid to extend its coverage to urban areas and rural locations, particularly to ensure the public charging requirements of the fleet sector are sufficiently catered for. Of note, the public rapid charging network in the UK is currently underutilised whilst overall vehicle take-up remains low.

Charging Infrastructure Investment Fund

The Charging Infrastructure Investment Fund (CIIF) is a £400m fund intended to develop charging infrastructure in the UK. The Government is investing £200m, to be matched with £200m in private funding. The funding was announced in 2017, with ongoing requests for proposals for access to the funding. Zouk Capital was

announced as the fund manager for the CIIF in 2019; the fund has a 10-year life up until 2030.

Two projects have thus far been awarded CIIF funding, with one project having a total value of £70m intending to deploy 3,000 InstaVolt rapid chargers in the UK by 2024[2], and another project with a total value of £80m with no designated charging use case specified aside from "public charging infrastructure"[3]. An additional £125m of private funding needs to be raised to achieve the CIIF target. The CIIF is expected to result in a greatly increased deployment of public charging in the UK in the coming years, which will be of benefit to the fleet sector.

[2] Zouk (2019), "Masdar and Zouk Capital joins UK Government leaders at Charging Infrastructure Investment Fund event", https://zouk.com/news/38-infrastructure/215-masdar-and-zouk-capital-joins-uk-government-leaders-at-charging-infrastructure-investment-fund-event

[3] Electrive (2020), "CIIF secures Church support in the UK", https://www.electrive.com/2020/04/21/ciif-secures-church-support-in-the-uk/

"Access to reliable, national and publicly accessible high-power charging infrastructure and roaming across operators continues to be a significant barrier to wider uptake of electric vehicles, particularly for those drivers who would otherwise adopt EVs, but do not have access to off street charging facilities. This requires better understanding of rental industry needs, better collaboration with utilities and understanding the physical supply, legal and landownership that are slowing down this process."

Ben Lawson – *Vice President of Strategy and Project Development for Europe, Enterprise Holdings*

Market developments

Higher-powered charging

The charging infrastructure market continues to move towards higher-powered charging, with an increase in chargers being deployed having a power in excess of 100kW. Whilst deployment in 2020 has slowed compared to 2019, likely due to the impacts of COVID-19, there has been an increase in the number of rapid and ultra-rapid chargers installed in the UK, with 2,221 fast chargers (7-22kW) being deployed in comparison to 1,350 rapid and ultra-rapid chargers. As outlined previously, indications from Project Rapid and from the CIIF point towards an accelerated rollout of rapid and ultra-rapid charge points within the coming months / years, which may benefit the fleet sector and enable users to make longer journeys.

In terms of a vehicle's capacity to accept higher levels of charge, this is dependent on the vehicle's on-board charging voltage. Almost all EVs in 2020 operate at a charging voltage of 400V, which are incapable of charging using very high-powered charge points (above 150kW). Some OEMs are developing vehicles with a voltage of up to 800V or 1,000V, with more vehicles likely to enter the market in the next five years; however, these are likely to remain relatively low in number, mostly in the premium and sports vehicle segments. Larger commercial vehicles and vans have higher charging voltage capacities.

Information provision

The provision of information related to charging infrastructure continues to be cited by the BVRLA's stakeholders as an issue affecting the fleet industry. Provision of accurate information for charging infrastructure includes static data on location and pricing, dynamic data on availability and working order, amount of time different types of chargers take to charge a vehicle, and also signposting to infrastructure on a highway. During the consultation process undertaken as part of this project, stakeholders continuously pointed towards confusion around data availability as an issue affecting the fleet sector's usage of charging infrastructure, particularly for those who may not be used to driving an EV. The BVRLA and its members are supportive of the focus on static and dynamic data and on pricing transparency in the forthcoming consumer experience consultation, noting it should be as intuitive as driving / refuelling an ICEV.

"Making a charge point charge a car is the easy part; giving the client what they want in terms of data is the bigger challenge."

Tom Callow – *Head of External Affairs, bp Chargemaster*

"Centrica expects approximately 40% of its fleet workforce to have access to home charging. For the remainder, they will likely need to rely on public charging, which becomes an issue as the TCO model does not stack up."

Steve Winter – *Head of Fleet, Centrica*

Costs of charging

The costs of charging using public charge points, in particular rapid charge points and higher-powered charge points, continue to be cited by fleet stakeholders as a barrier to EV usage. Publicly accessible charge points tend to charge a premium for utilising the infrastructure in order to try to make a return on investment. However, the costs of charging are known to greatly vary between charging operators and dependent on whether an EV user has a membership with an operator. Consumers that rely more heavily on public charging infrastructure are more impacted by these higher costs of public charging. The BVRLA is supportive of measures to equalise the taxation level on all electricity for EV charging, including domestic, workplace and public charging.

Electrical grid upgrades

Costs of connections and grid upgrades

The costs of grid connections are extremely highly variable, dependent on proximity to the substation and the intervening land type / ownership, whether the connection of charging infrastructure to the electrical grid triggers a necessary substation upgrade if there is not sufficient spare capacity in the local secondary substation or, at a higher level, if it triggers an upgrade at the primary substation level. Estimates of grid connection costs for charge points range from approximately £1,000 to in excess of £1m, based on the location of the charging infrastructure, the available spare capacity and the potential necessity for grid upgrades.

The BVRLA and its members, along with other stakeholders, are concerned about the potential for charging infrastructure to trigger grid upgrades, where the procurer of the infrastructure can be liable for a portion of the costs associated with the upgrade of the grid. Fleet operators have questioned the fairness of being liable for these costs if they are early adopters of EVs and installers of the associated infrastructure. Additionally, current regulations prevent DNOs from investing in grid infrastructure ahead of demand, which can delay the installation of charging infrastructure. The BVRLA is supportive of measures to subsidise the purchase of charging infrastructure for early adopters, including grid connection / upgrade costs.

[4] V2G Hub (2020), "V2G around the world", https://www.v2g-hub.com/

"A database of historic grid connections could be shared to give examples of connection costs – these could be anonymised, but it can give an indication about how much grid connections cost, and gives the ability to compare the costs for different sites where industry players are happy to share this information. The data could be aggregated so it does not disadvantage any DNOs (e.g. average cost in a one-mile radius). Grid connections are so highly variable that they can quadruple dependent on the side of the road the infrastructure is installed."

Tom Callow – *Head of External Affairs, bp Chargemaster*

"Grid upgrades are a 40-year commitment. Those that are installing now are committing to the 40-year life of the grid connection asset which is very difficult for an emerging market. HM Treasury has recognised there is a market failure here – people are struggling to think 5 years ahead, even in spite of the 40-year commitment. For MSAs, do you build now just for cars, or for cars, trucks and buses? The infrastructure should be there for 40 years, so we should at least be providing the upgrades for this now."

Graeme Cooper
– Project Director Transport Decarbonisation, National Grid

Technologies / innovations

Several innovative technologies are available on the market or coming to the market which could lessen the necessity for expensive grid upgrades. Smart charging is particularly beneficial for vehicle fleets, where the large power demand from fleets of vehicles may be deferred until the period of lower overall electricity demand during the night-time hours, when electricity consumption is also cheaper for consumers. Stakeholders consulted in the development of this report are unanimously supportive of the rapid inclusion of smart charging within infrastructure.

Vehicle-to-grid (V2G) technologies may also be beneficial for larger vehicle fleets. V2G-enabled vehicles can utilise V2G chargers to enable bidirectional flow of electricity between the vehicle and the grid, allowing fleets to sell electricity back to the grid at times of high demand. There are numerous V2G projects ongoing globally that are seeking to unlock the business case benefits of V2G and define the customer proposition for using V2G infrastructure[4].

The progress made within the smart charging consultation is a positive step towards ensuring smart capabilities are included within charging infrastructure, which is supported by the BVRLA and its members; however, further clarity is now required with respect to exact specifications. Respondents to the smart charging consultation also supported the inclusion of V2G technology in regulations but noting that the technology and business cases are in the very early stages of development, and as such nothing too specific should be regulated as of yet. Many industry stakeholders supported Government defining smart charging between 2022-22, to be effective from 2025.

DNOs are also undertaking projects to assist in developing innovative solutions to grid connection and upgrade costs. One such example is WPD's DC Share project, which is developing a smart DC network solution that facilitates rapid charging in constrained areas by using and sharing the available latent capacity across a number of substations.

"Smart charging and load management can already achieve a lot of benefits and can reduce grid congestion risks. This technology is available today, but more needs to be done to ensure that all stakeholders are fully educated on it and that it is widely implemented. V2G also makes a lot of sense from a fleet and technological perspective, but it needs to be automated and have an economic incentive."

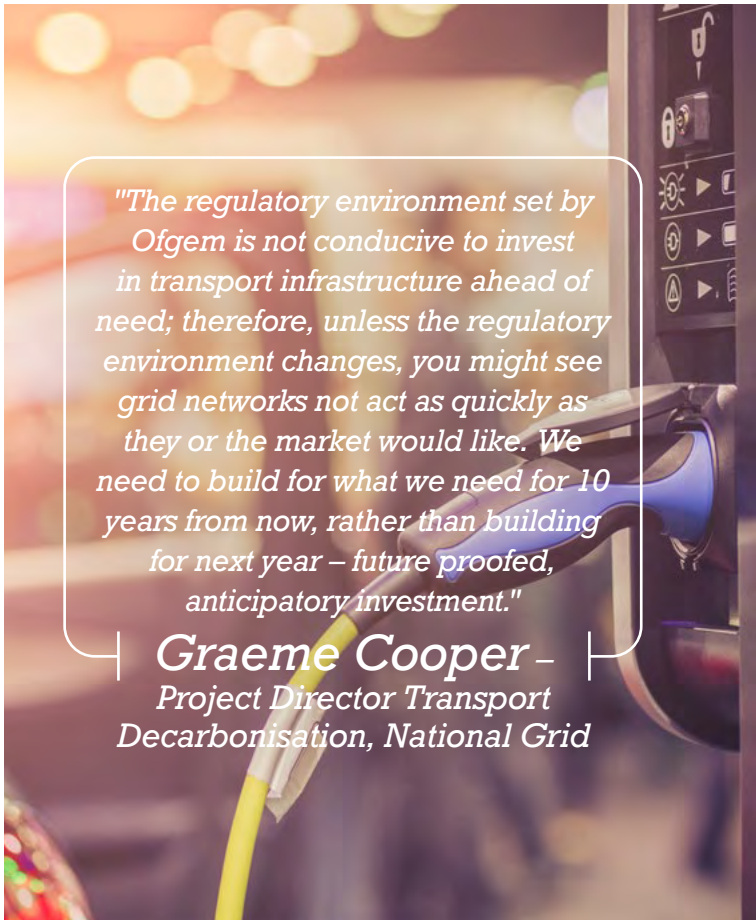
Christopher Burghardt – EU Managing Director, ChargePoint

DNO progress

DNOs are actively anticipating the additional demands on the electrical grid from EV charging, with the BVRLA's stakeholders commenting that all DNOs now have the necessary systems and processes in place to cater for EV charging demand and grid connections.

Some DNOs have actively sought to become market leaders in the area of EV charging and innovators in terms of unlocking the benefits achievable through EV charging. UK Power Networks produced its Innovation Strategy in 2020[5], which references several new and ongoing projects related to EV charging and fleet charging. These include Shift, focused on smart charging; TransPower, focused on unlocking V2G benefits for different vehicle fleets; Optimise Prime, addressing the electrification of commercial vehicles; and the White Van Plan, assessing how small to medium sized enterprises (SME) will transition to EVs and where DNOs can support them.

Western Power Distribution has also produced an electric vehicle strategy[6], which explicitly references engaging with fleets. WPD has also produced a guide for local businesses regarding how to connect to the electrical grid and speak to a DNO[7]. Increased knowledge sharing between DNOs could enable them to ensure that the charging and grid requirements of vehicle fleets are well-understood to ensure this is not a barrier to infrastructure provision.



[5] UK Power Networks (2020), "Innovation Strategy", https://innovation.ukpowernetworks.co.uk/wp-content/uploads/2020/01/UK-Power-Networks-Innovation-Strategy-2020.pdf

[6] WPD (2020), Electric Vehicle Strategy, https://www.westernpower.co.uk/smarter-networks/electric-vehicles

[7] WPD (2020), A Guide to Electric Vehicle Charging for Local Businesses, https://www.westernpower.co.uk/smarter-networks/electric-vehicles

Charging infrastructure for BVRLA member segments

In consideration of charging infrastructure for the different BVRLA member segments, stakeholders consulted during the development of this report commented that different member segments will require different types of charging infrastructure. Car fleets and retail vehicles may be well-suited to privately situated home and workplace infrastructure, whilst car clubs and commercial vehicles may be more reliant on publicly accessible and higher-powered charging (or, dependent on the commercial vehicle, also home-based or depot-based charging). The required infrastructure for both rental cars and specialist vehicles is considered less understood by stakeholders, and a potential focus area for suppliers – for the rental sector, these vehicles may require very rapid turnaround to the next customer, and as such expensive high-powered infrastructure may be required onsite.

In general, all stakeholders consulted during this project would like to see an increase in deployment of public charging infrastructure, and all stakeholders noted issues with grid connections and the costs of potential grid upgrades. Depot-based charging was highlighted as a particular area of concern, due to the large power demand from these fleets in a clustered formation. In a public statement, LeasePlan has stated that a lack of sufficient charging infrastructure, on a global scale, is a major roadblock for the mass adoption of EVs, and called on governments to act to increase the provision of charging infrastructure, noting its commitment to have a net zero fleet by 2030[8].

"For freehold sites, it is more simplistic to install the infrastructure, as the tenants will be there for a long time. For leasehold sites, there's a question over who pays, and where does the fairness lie. One option is to seek a body to finance the infrastructure – and I know some financiers are considering this as an offer. Other landlords consider that electrifying the site is beneficial in general, as whoever moves in will probably want infrastructure in the future."

Tom Callow – Head of External Affairs, bp Chargemaster

[8] Smart Transport (2020), "Lack of charging infrastructure is an EV roadblock, says LeasePlan", https://www.smarttransport.org.uk/news/latest-news/lack-of-charging-infrastructure-is-an-ev-roadblock-says-leaseplan

The BVRLA's members pointed towards some additional issues inhibiting charging infrastructure deployment for the fleet sector:

- **The provision of on-street infrastructure needs to accelerate for fleet users without access to off-street parking and who take their vehicles home at night, as these drivers represent an important use case for on-street charging, to ensure the vehicles are fully charged overnight and ready to be operational the following day;**
- **There is no central, unified strategic oversight for all categories of charging infrastructure in the UK, which is essential to ensure effective coverage;**
- **Some BVRLA member segments can be prevented from installing charging infrastructure due to having short-term leases on land.**

A recent study undertaken by Frost & Sullivan on behalf of the Society of Motor Manufacturers and Traders (SMMT) suggested that meeting charging infrastructure requirements for a 2035 ICE sales ban will cost in the region of £16.7billion, requiring 1.7 million public charge points (7-22kW) by 2030 and 2.8 million by 2035, in addition to 7,000 150kW chargers at MSAs and 8.3 million private residential charge points by 2035[9]. It should be noted that some industry players have questioned the data underlying this study and these conclusions but nonetheless, it is an example of some views on the scale of the required infrastructure.

[9] SMMT (2020), "Billions invested in electric vehicle range but nearly half of UK buyers still think 2035 too soon to switch", https://newspressuk.com/publicReleaseView/94119/50830

"For company cars, charging at work or home is becoming commonplace but an electric van is "working" throughout the day, so charging is more challenging than for cars. Therefore, making sure the infrastructure and capability exists for quick and easy charging whilst in use, is essential. There is certainly a role for local councils to address on-street, universal, fast-charging to support both "at work" charging and overnight charging for those vans taken home each evening."

***Tim Bailey** – Fleet Director UK & Ireland, Northgate*

"There is an opportunity for Government to be the central buyer of grid upgrades. The way DfT has often funded things is via grants – the minute the money is given, the value is lost. If Government continues to give the funding for chargers but underwrites the connections, they spend the money, but Government retains the value. If Government becomes the central buyer, then they can manage the rollout in a strategic way. This allows the charge point providers to compete with each other on a level playing field in strategic locations."

***Graeme Cooper** – Project Director Transport Decarbonisation, National Grid*

Scoring for Infrastructure

Segment	Description	Score
Car fleets	The reliance of car fleets on privately located charging is enabled through grant funding; though some car fleets may be more reliant on public / rapid charging, for which issues related to consumer experience and charger coverage remain.	
Retail	The retail sector is expected to be particularly reliant on privately located charging such as domestic and workplace charging, which is already supported by grant funding.	
Car clubs	Some car clubs rely on the rapid charging network in the UK to charge the vehicles whilst not in use, which still has issues related to pricing, data availability, coverage and reliability.	

Segment	Description	Score
Rental cars	The rental car sector is disadvantaged by the requirement for expensive high-powered chargers in locations convenient to the rental branch, which are significantly expensive to procure and install.	
Vans	Commercial vehicles may be particularly reliant on the public / rapid charging network, which is still experiencing issues. Depot-based charging for fleets of electric vans can also be particularly costly if a cluster of high-powered chargers are installed in the same depot.	
Specialist vehicles	Due to the lack of availability of suitable electric alternatives for specialist vehicles, the charging infrastructure to support the vehicles has not been fully thought out.	

Recommendations

- **Solving the issues with grid connections and grid upgrades:**
  - **Costs of upgrades:** The Government & Ofgem must re-evaluate the grid upgrade process, ensuring that early EV adopters do not bear the brunt of the costs associated with grid upgrades.
  - **Invest ahead of time:** Ofgem should also consider amending regulations to allow DNOs and National Grid to invest in grid infrastructure ahead of demand, hastening the delivery of infrastructure in areas where known future demand exists.
- **Improving the consumer experience of utilising charging infrastructure: Government should act fast following the consumer experience consultation, as numerous issues are already known to exist:**
  - **Universal access method:** ensure a universal access / payment method is regulated, and that issues involving roaming between networks are solved.
  - **Data extraction:** develop an agreed industry standard / API for those using multiple charge point providers.
  - **Open access to data:** mandate open access to data on location, pricing, speed, availability, state of repair and queue length.
  - **Transparent pricing:** illuminate tariffs for EV charging, similar to those outside petrol stations.
  - **Pricing cap:** consider setting a maximum pricing cap on pay-as-you-go charging to ensure consumer confidence on EV affordability.
  - **Reliability and maintenance:** enforce reliability standards on public charging infrastructure to ensure public charge points remain in working order.
- **Ensuring effective coverage of the public charging network:**
  - **Extend Project Rapid:** consider rapid charging needs in areas outside the SRN, including urban centres, rural areas and transport hubs.
  - **Infrastructure roadmap:** charging suppliers and DNOs should work with fleets to understand their energy needs and provide assurances on how they will be met; and Government should seek to enable strategic oversight of the entire charging ecosystem in the UK.
  - **Address high-powered charging:** in addition to the Rapid Charging Fund, Government should continue to seek to provide support to these chargers.
  - **Compatibility between chargepoints and vehicles:** Government should set a mandatory requirement for compatibility between charge points and vehicles, via ISO15118, to ensure a scalable and cost-effective solution for fleet management.
- **Addressing difficult categories of charging infrastructure:**
  - **On-street charging:** local government should work with fleet operators to ensure that on-street charging is provided to fleet users without access to off-street parking as a priority.
  - **Depot-based charging:** Government should assess whether additional support is required to enable fleets to deploy depot-based charging due to the higher power requirements.
  - **Rental & leasehold properties:** Government should seek to review the rights and obligations of tenants and landlords when it comes to installing and maintaining charging infrastructure.

Acknowledgements

The BVRLA would like to thank the following members and industry experts who contributed to this report, both for direct interviews and in engagement activities during the lead up to the development of the report:

Contributors to interviews	
Company	**Individual**
BP Chargemaster	Tom Callow
Bridle Group	Alan Carreras
Centrica / British Gas	Steve Winter
ChargePoint	Christelle Verstraeten
Energy Networks Association (ENA)	Alex Auda
Enterprise	Ben Lawson
Lex Autolease	Lauren Pamma
National Grid	Graeme Cooper
National Franchised Dealers Association (NFDA)	Stephen Latham
Northgate	Tim Bailey

Additional contributing organisations to the information gathering		
Dawson Group	Europcar	Miles and Miles
Zenith	Rivus Fleet Solutions	Agility
Arnold Clark Car & Van Rental	ALD Automotive	Go Plant Fleet Services
Tusker	Hertz UK Ltd.	DriveElectric
Autohorn	Hitachi Capital	Arval
Autorama	Prohire	Innogy
Close Brothers	*Vehicle manufacturers wish to remain anonymous*	

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