



# Road to Zero:

Report Card 2019



Produced in association with



## Foreword

# The 'Road to Zero' is neither clear nor straight.

Policymakers and industry across the world have entered the co-ordinates into their SatNav and set off on this essential journey, but there is still a lot of uncertainty over the exact route and how long it will take.

The UK Government set out its original plan nearly a year ago, launching its original 'Road to Zero' report and calling for an end to petrol and diesel car or van sales by 2040. The BVRLA followed suit with its 'Plug-in Pledge', promising that the UK vehicle rental, leasing and car club sector would register nearly 750,000 plug-in cars and vans by 2025.

Less than a year on, and these goals are already being challenged. The Committee of Climate Change and a group of influential MPs have called on the 2040 zero emission vehicle target to be brought forward to 2030 or 2032. Meanwhile, the latest Bloomberg NEF Electric Vehicle Outlook has reduced its forecast for passenger EV sales, partly because it sees such a growth in demand for shared EVs.

The UK Government has pledged to review its plans in 2025. As a sector that is already spending billions on EVs and providing affordable zero emission motoring to people and businesses across the country, we think a more regular, fleet-oriented assessment is required.

Produced in conjunction with our colleagues at Ricardo, we hope that the BVRLA Road To Zero Report Card will provide an essential snapshot of the progress, potential and pitfalls facing the fleet industry's zero emission transition.

This report focuses on the outlook for cars and vans, using five key factors to assess progress: Policy Measures, Tax Benefits, New Vehicles, Charging Infrastructure and User Sentiment. We have produced a simple and appropriate traffic light rating for each of these factors, summarising the key measurement criteria and making appropriate recommendations. More detailed justification for these assessments are available in the report's appendix.

We would like to thank the many stakeholders who shared their insight and perspectives for this report. We plan to update this Road to Zero Report Card on a regular basis and look forward to charting the course towards a sustainable future for the fleet industry.

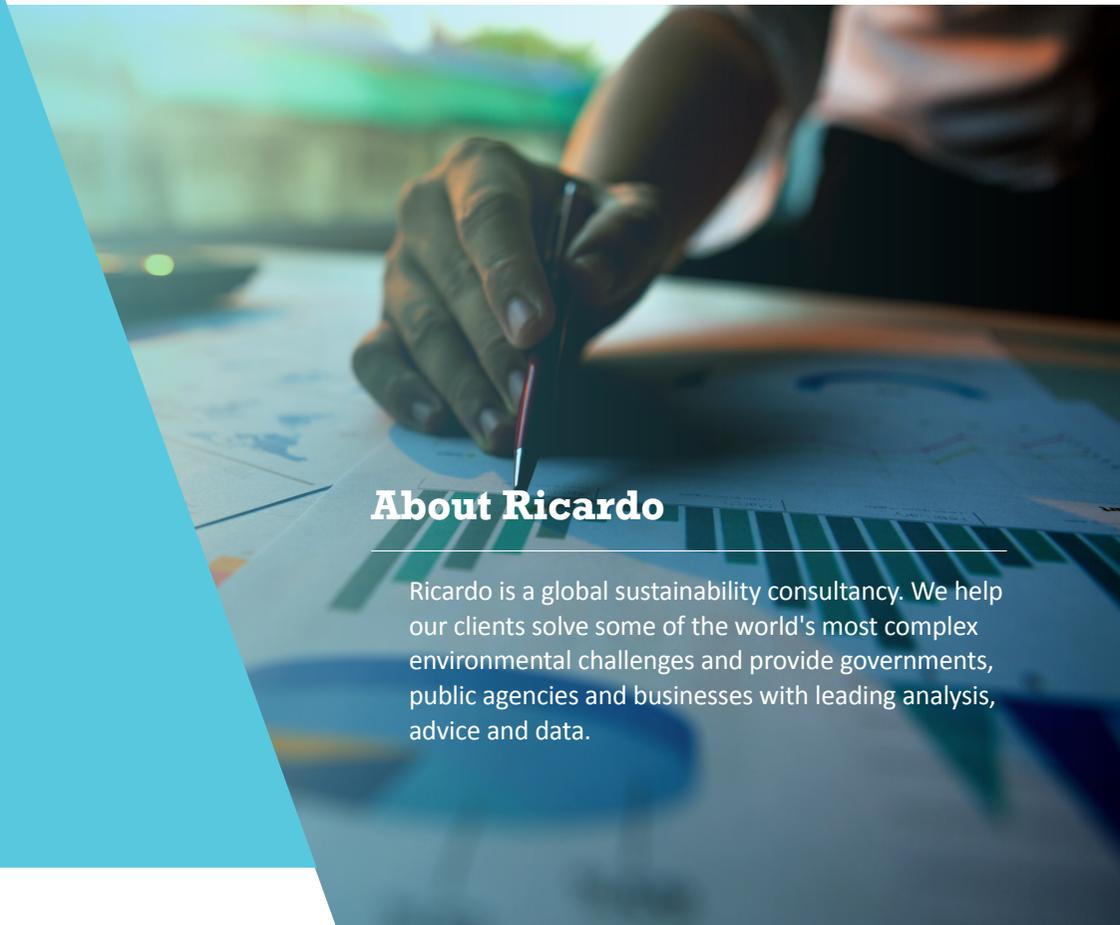
## Gerry Keaney

BVRLA Chief Executive



## About BVRLA

Established in 1967, the British Vehicle Rental & Leasing Association (BVRLA) is the UK trade body for companies engaged in vehicle rental, leasing and fleet management. On behalf of its 980+ member organisations, the BVRLA works with governments, public sector agencies, industry associations, consumer groups and other stakeholders across a wide range of road transport, environmental, taxation, technology and finance-related issues. 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-5 trucks. The vehicle rental and leasing industry supports over 465,000 jobs, adds £7.6bn in tax revenues and contributes £49bn to the UK economy each year.

A photograph showing a person's hands writing on a document. The document features a bar chart with green bars of varying heights. The background is blurred, showing what appears to be an office setting with a laptop and other documents.

## About Ricardo

Ricardo is a global sustainability consultancy. We help our clients solve some of the world's most complex environmental challenges and provide governments, public agencies and businesses with leading analysis, advice and data.

## About this report

**This report provides a measure of progress for the UK with respect to ‘Road to Zero’ issues for vehicle fleets. It reflects on the readiness of the fleet sector to transition to ultra-low emission vehicles (ULEV) and recommends where further Government action may be required to accelerate the switch to cleaner cars and vans.**

The ‘Road to Zero’ Strategy sets out the Government’s planned steps to enable a large-scale roll-out of ULEVs throughout the UK, confirming its ambition that at least half of new cars sold are ultra-low emission by 2030. However, the Committee on Climate Change (CCC) recently advised the UK Government to show greater leadership and more ambition in the global fight against climate change and to slash greenhouse gas (GHG) emissions to almost zero by 2050, with the Government recently committing to legislate for net zero emissions. The CCC recommended that by 2035, at the very latest, 100% of new cars and vans sold in the UK need to be battery electric – a dramatic increase from the low levels of take-up seen today (so far in 2019, around 2% of new cars sold are plug-in electric vehicles).

An even earlier (e.g. 2030) switch to electric vehicles (EV) would be desirable in the UK, reducing costs for motorists, improving air quality and reducing GHG emissions. This would also help position the UK to take advantage of expected growth in the global market for products and services related to low emission vehicles.

Norway is showing that this is not an unachievable target, as pure battery-electric vehicles already account for close to 40% of new vehicle sales and a further 20% of new car sales are plug-in hybrids. Other European countries are also achieving higher levels of market penetration for ULEVs than in the UK.

The vehicle leasing, rental and car club industry can play a fundamental role in this transition and is already making strides towards the electrification of fleets. Ambitious pledges to hasten EV uptake in fleets have been made by BVRLA members and the Clean Van Commitment (CVC) signatories, and many businesses have already deployed EVs in their fleets. The presence of EVs in fleets has wide-ranging advantages beyond the immediate environmental benefits, including exposing a greater number of people to EVs and pump-priming the used EV market; but the reality is that further Government support is needed to truly unlock the full potential presented by increasing EV proportions in fleets.

### BVRLA Plug-in Pledge – July 2018

- By 2025, the UK rental and leasing sector will increase its annual purchase of new plug-in vehicles from 17,000 to 300,000 per year.
- The industry’s share of annual plug-in hybrid and pure EV registrations will rise from 36% to 60%.

This report is structured as five Report Cards that each focus on a specific topic in relation to the move towards ULEVs in fleets:



## Policy measures



## Tax benefits



## New vehicles



## Charge points



## User sentiment

The Report Cards each start with an introduction to the topic in the context of the rental and leasing industry, followed by a score and recommendations and actions for the Government. Sub-sections delve into the topics in more detail and include supporting quotes from relevant stakeholders. The score in each Report Card reflects the status and progress achieved to date for each topic and is supported by a short rationale.

The report has been developed considering the latest literature and industry news and has been supported by extensive stakeholder engagement activities. BVRLA members have had the opportunity to provide insight on their experiences in transitioning to EVs, including both the barriers they faced and the success stories. Several other stakeholders from the Government and industry have been interviewed for further validation of content and insight into the various topics.

## 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.

Score	General definitions <i>(score usually means one or more of the following):</i>	
<b>Red</b> <i>Parked</i>	<ul style="list-style-type: none"> <li>Progress is significantly behind targets that have been set.</li> <li>Market is not responding well to government policy / fiscal incentives.</li> <li>The UK is behind other EU countries.</li> <li>EV market significantly behind ICE market.</li> </ul>	
<b>Amber</b> <i>Brakes on (getting worse)</i> <i>Accelerating (improving)</i>	<ul style="list-style-type: none"> <li>Progress is slightly behind targets that have been set - room for improvement.</li> <li>Market response to government policy and fiscal incentives is average and/or varied.</li> <li>The UK is in line with other EU countries.</li> <li>EV market approaching parity with ICE market.</li> </ul>	
<b>Green</b> <i>Cruising</i>	<ul style="list-style-type: none"> <li>Progress is in-line with, or exceeding, targets that have been set.</li> <li>Market is responding well to government policy/fiscal incentives.</li> <li>The UK is a 'front runner' compared with other countries.</li> <li>EV market at parity with / exceeding ICE market.</li> </ul>	

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.

Many organisations are now committing to contribute to the switch to electric; the Government must now build on this good work by strengthening support for ULEVs, providing businesses and individuals with the confidence and impetus to accelerate towards the road to zero.

# Overall scoring

## Brakes on



### Policy measures

#### Accelerating

##### Recommendations

- Extend Plug-in-Grant support to 2025
- Review the effectiveness of the Workplace Charging Scheme

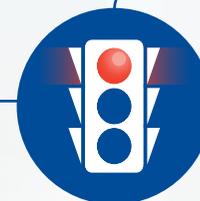


### Tax benefits

#### Parked

##### Recommendations

- Provide a five-year fiscal roadmap for EV-related motoring taxes and incentives
- Remove the £320 VED surcharge for EVs costing over £40,000



### New vehicles

#### Brakes on

##### Recommendations

- Set a national quota for EV registrations that ramps up between now and 2030
- Set a ten-year strategy for battery development and associated EV technologies in the UK



### User sentiment

#### Accelerating

##### Recommendations

- Continue to support EV education and awareness initiatives, including Go Ultra Low
- Provide more support for shared-use EV mobility models, including car clubs and car rental



### Charge points

#### Brakes on

##### Recommendations

- Mandate universal methods of access and payment for public EV charging
- Enforce reliability and maintenance standards for public charging infrastructure



## Glossary

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- **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
- **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)
- **RTEAG**
  - Road Transport Emissions Advice Group
- **RV**
  - Residual Value
- **SMMT**
  - The Society of Motor Manufacturers & Traders
- **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

# Report Cards





# Report Card Policy Measures

## Fleet perspective

The BVRLA's members already operate a fleet that comprises vehicles amongst the youngest and cleanest in the UK; however, a number of barriers are still inhibiting the widespread rollout of plug-in vehicles amongst this fleet. In its 2018 Plug-in Pledge, the association said that its members would increase the proportion of ultra low emission vehicles (ULEV) within their fleets to reach a total of 720,000 plug-in vehicles by 2025. It is essential that sufficient policy support is put in place to facilitate this transition.

The 'Road to Zero' Strategy sets out the Government's planned steps to enable a largescale roll-out of ULEVs throughout the UK, confirming its ambition to see at least half of new cars being ultra low emission by 2030. Many of the measures included in the strategy can directly benefit the BVRLA's rental, leasing and

car club members on their road to zero emission road transport. More recently, the Committee on Climate Change (CCC) suggested an updated target of 2030-35 for all new car and van sales to be pure battery electric to contribute to the fight against global warming, placing even greater importance on hastening the transition to cleaner vehicles.

It is important to assess progress against the measures included within the Government's Road to Zero Strategy, particularly those that can enable a quicker transition to plug-in vehicles for the BVRLA members' high-turnover fleets. This report card examines how specific policy measures related to fleets within the Road to Zero strategy have progressed since the introduction of the strategy in July 2018.



## Accelerating



The Government has made progress against each of the eight Road to Zero measures that were selected for analysis, with some measures already completed.



The BVRLA particularly welcomes the outcomes of the Road Transport Emissions Advice Group (RTEAG) and the Go Ultra Low campaign's focus on fleets.



Actual deployment of ULEVs has been slow, with only 2% of new car sales falling into this category; the Committee on Climate Change's recent "Net Zero" report shows that the Government's ULEV ambitions are too low.



Financial support (for both plug-in vehicles and charging infrastructure) is still important, and incentives and support need to continue for both vehicles and infrastructure to enable quicker uptake in fleets.

## Recommendations and actions

- **Plug-in vehicle grants are still of utmost importance to the rollout of EVs.**
  - The Government should continue to provide plug-in grant support to 2025. The grant level should be linked to progress in achieving total cost of ownership parity with conventional vehicles. As progress towards parity improves, funding can reduce and then be phased out.
  - Consult with the fleet industry on the form that incentives should take beyond 2020, as committed to in the Road to Zero strategy, due to the experience and feedback the fleet industry can provide with respect to total costs of ownership.
  - Prior to making any changes to plug-in grants, the Government should consider the negative effects that the removal of the grant for plug-in hybrid EVs had on purchasing behaviours.
- **Charging infrastructure provision is essential to the ease of uptake of EVs in fleets – the Government should work with industry to assess the issues experienced with respect to installation of infrastructure for vehicle fleets and should explore further infrastructure support for businesses and fleets based off this analysis, ensuring any support (e.g. financial, guidance) is fit-for-purpose.**
  - Review the effectiveness of the Workplace Charging Scheme, and whether it is currently fit-for-purpose. Numerous BVRLA members noted the high costs of installing workplace charging infrastructure, and that the scheme could be targeted towards larger fleets.
  - Explore taking further powers through the Automated and Electric Vehicles Act 2018 to improve the deployment of charging infrastructure [expanded on further in Report Card 4: Charge Points].
- **As soon as practicable, publish an action plan for increased levels of ULEV uptake in the central Government vehicle fleet, and report on progress against achieving Government fleet ULEV targets.**
  - Encourage local authorities to transition to ULEVs by extending central Government fleet manager guidance to local authorities.
- **The BVRLA supports and welcomes the suggestions within the CCC “Net Zero” report relating to the EV market, including stronger policy-making; increased public engagement; more thought into how support for the zero-emission vehicle transition is funded; support with industrial EV skills; and more thought on infrastructure funding. The BVRLA advocates adopting these suggestions / targets as long as Government adapts policy accordingly. The BVRLA welcomes the Government’s new commitment to legislate for net-zero emissions by 2050.**
  - BVRLA also supports CCC’s suggestion that the Government must do more to incentivise modal shift to active travel and public transport.
- **The Road Transport Emission Advice Group and other government working groups should include representation from the fleet industry to ensure the fleet sector has a strong voice within these groups.**
- **The Government should set clear targets for ULEV uptake and should regularly reassess these targets due to the fast-moving nature of the market and the impacts of different levers (e.g. policy, market) [expanded on further in Report Card 3: New Vehicles]. The Government should consult the fleet sector to get feedback on achievable targets and to understand if there are any barriers which may be slowing the uptake.**



*"From a policy perspective, there's a lot of ground to cover. We know where we're going to, we know where we are now, we know what manufacturers are planning on doing for 10-15 years – we can adapt policy now and take a stepped approach to give everyone a long-term view."*

**Mark Evans – ALD Automotive**

## Road to Zero Strategy

The UK government released its "Road to Zero" strategy in July 2018, which states, "We want to see at least 50%, and as many as 70%, of new car sales and up to 40% of new van sales being ultra low emission by 2030."

The Road to Zero strategy lists a total of 46 measures to achieve the main aim of the strategy. Amongst these measures, we have selected eight that are particularly relevant to fleets and to BVRLA members.

Almost a year after the launch of the Road to Zero strategy, we measure how the eight fleet-related measures chosen for analysis have progressed, which also highlights where progress could be accelerated, including a red-amber-green (RAG) scoring for each measure.

Road to Zero measure	Existing information	Developments	Progress
<p><b>Plug-in grants</b></p>	<p><b>Plug-in car grant:</b> the grant will pay for 35% of the purchase price, to a maximum of £3,500. The previous grant level was £4,500 for Category 1 cars until October 2018. Category 2 and 3 cars are no longer eligible for a plug-in grant.</p> <p><b>Plug-in van grant:</b> the grant will pay for 20% of the purchase price, up to a maximum of £8,000. The first 200 larger vans or trucks (N2 or N3) will benefit from a higher grant amount of up to £20,000.</p>	<p><b>Plug-in car grant:</b> there has been no commitment made regarding the current grant rate; the grant will continue at some level until at least 2020.</p> <p><b>Plug-in van grant:</b> in December 2018 the Government extended the commitment to the current grant rate until April 2019. A further announcement may be made during summer 2019. The grant will continue at some level until at least 2020.</p> <p><b>Beyond 2020:</b> central Government is currently looking at options for consumer incentives beyond 2020 and assessing the market to decide what form they will take.</p>	
<p><b>25% of Central Government fleet to be ULEVs by 2022</b></p>	<p>Very little public information is available; the response to a November 2018 MP written question to the Government suggests less than 2% of the central Government fleet was ULEV at that time<sup>1</sup>.</p>	<p>The Government has recently sent guidance to Central Government fleet managers and Departments on how the 2022 target will be met, and which vehicles should be included in the target.</p> <p>The Government will be reporting annually on its progress towards meeting the target.</p> <p>The Government is fully committed to meeting this target.</p>	
<p><b>100% of Central Government fleet to be ULEVs by 2030</b></p>	<p>No public information available.</p>	<p>The Government is fully committed to meeting this target.</p> <p>The Government may review guidance in 2022.</p>	

<sup>1</sup>UK Parliament, 'Department for Transport: Motor Vehicles: Written question – 184986'

Road to Zero measure	Existing information	Developments	Progress
<b>VED van consultation</b>	<p>This consultation has now been completed. The key decisions that the Government has taken are to:</p> <ul style="list-style-type: none"> <li>➤ further develop its understanding of the impacts of WLTP on CO<sub>2</sub> emissions for vans, ahead of announcing the new rates and bands, for introduction from April 2021;</li> <li>➤ ensure the new system considers the weight of the van by introducing a two-category approach;</li> <li>➤ provide ongoing incentives, beyond the first-year, for new zero emission, ultra low emission and other alternatively fuelled vans from April 2021.</li> </ul>	<p>The consultation on VED for vans has concluded; HM Treasury will now lead on the next steps in the implementation of the changes.</p>	
<b>Used vehicle market support</b>	<p>NFDA's electric vehicle approved (EVA) pilot scheme to certify EV retailers' excellence in retail and aftersales of EVs received OLEV approval in December 2018.</p> <p>Very little public information available on the possible changes to the DVLA V5 vehicle registration certificate.</p>	<p>Funding for training for car dealerships is being administered through the Energy Saving Trust.</p> <p>The NFDA EV accreditation scheme for dealerships was launched in parliament on 15 May 2019.</p> <p>OLEV is working with the DVLA to assess what additional information to include in the V5 certificate (e.g. battery size, electrical energy consumption) to ensure accurate representation when cars are resold.</p>	
<b>Technology neutral approach</b>	<p>The Road to Zero strategy takes a technology neutral approach, whilst recognising the current industry focus on plug-in vehicles.</p> <p>The Transport Energy Model (TEM), published alongside the Road to Zero strategy, assessed emissions from numerous different powertrains.</p> <p>The Government has provided £23m funding for developing the UK hydrogen vehicle market.</p>	<p>OLEV continues to be technology neutral. All schemes and competitions are open to all technologies.</p>	

Road to Zero measure	Existing information	Developments	Progress
<p><b>Road Transport Emissions Advice Group (RTEAG)</b></p>	<p>The RTEAG aims to bring Government, industry and consumer groups together to help ensure clear and consistent consumer messaging and advice on a number of changes that will impact motoring consumers. The areas of focus currently include new fuel labelling, WLTP fuel economy and emissions testing; Clean Air Zones; changes in vehicle taxation; and new fuel choices.</p>	<p>Three formal RTEAG meetings have taken place.</p> <p>The group’s membership comprises: DfT, AA, Energy Saving Trust, LowCVP, National Franchise Dealer Association (NFDA), RAC, RAC Foundation, SMMT and UKPIA. Other Government Departments, industry stakeholders and media are invited as appropriate.</p> <p>The group is currently developing the core consumer messaging and planning how the information may be disseminated.</p> <p>The RTEAG has a 12-month programme that is reviewed bi-monthly; no end date has been announced. The group also works closely with the Government’s Joint Air Quality Unit (JAQU).</p>	
<p><b>Launching the 2018/19 Go Ultra Low campaign</b></p>	<p>The aim of the Go Ultra Low (GUL) campaign is to provide facts and information for consumers to make an informed decision with respect to ULEVs. Go Ultra Low is an important tool for consumer acceptance and education, as it helps to publicise the benefits of the vehicles.</p>	<p>Very little was undertaken during the 2018/19 campaign.</p> <p>A new 2019/20 GUL campaign, aimed at both consumers and fleets, was launched in February 2019, and will run until March 2020.</p> <p>The Government is working in partnership with all UK zero emission vehicle manufacturers, and a number of energy and infrastructure providers to tell the full story of EV ownership.</p> <p>GUL is working closely with the Energy Saving Trust to deliver a campaign targeted towards fleets in summer 2019.</p> <p>Whilst plans have been made, the BVRLA believes these plans have not been well-publicised.</p>	

### BVRLA Member Spotlight:

- **Provision of financial incentives (plug-in vehicle and charging infrastructure grants) is the most important measure to BVRLA members.**
  - Engagement with BVRLA members revealed that all members believed grants are still important, but that they can be rescoped as the market develops.
- **The RTEAG is the second-most important measure to BVRLA members.**
  - The vast majority of members believe the Government is not doing enough to promote zero emission vehicles and address barriers to adoption.
- **A majority of BVRLA members believe Government is not moving fast enough on measures, and that policy measures need to be aligned.**
- **BVRLA members are generally supportive of the outcomes of the VED consultation; though some noted a new system may be required.**

## Local government push policies

Local government policies, particularly push policies (i.e. policies that penalise drivers rather than incentivising them), have also been shown to be effective in encouraging the transition to ULEVs – numerous additional high-profile companies joined the Clean Van Commitment (CVC) the same day London's Ultra Low Emission Zone (ULEZ) came into force. Clean Air Zones (CAZ) are focused in areas where targeted action is taken to improve roadside air quality – some of these include charging schemes whilst others focus on a package of measures to improve air quality. CAZs can hasten the uptake of plug-in vehicles in these areas.

BVRLA members acknowledge the benefits of CAZs, though noting that there are not enough vehicles currently available on the market, and consistency is needed for the zones. Engagement with freight transport associations echoes this sentiment, with a preference for as little fragmentation and bureaucracy as possible. It has been noted that CAZs can be more problematic for some BVRLA member categories than others, such as the van sector, and that more support should be provided to businesses in their transition to electric vans in addition to the implementation of punitive measures. However, the air quality benefits of CAZs and their potential influence in changing behaviours cannot be underestimated when considering their implementation, despite being considered by some as a last-resort measure to improve air quality. Freight transport associations strongly recommend considering the fleet replacement cycle when implementing CAZs, and not disadvantaging SMEs.

*"Government can avoid disruption to electric vehicle uptake by providing assurance that grant levels will only be assessed and altered in line with cost parity being achieved with internal combustion engine equivalents, expected by 2025. Removal of the grant for plug-in hybrid vehicles at short notice caused unplanned cost increases for fleet operators introducing these cars on policy and further uncertainty should be avoided."*

**Claire Evans – Zenith**

## EV charging infrastructure grants

The Government offers numerous grants towards the costs of installing charging infrastructure, with the intention of enabling the transition to EVs by providing better access to infrastructure. BVRLA members are supportive of grants towards the cost of charging infrastructure.

- **Workplace Charging Scheme (WCS):** provides 75% contribution towards the total capital costs of workplace charge points and associated installation costs, to a maximum of £500 per socket, for up to 20 sockets per company (which may be increased to 20 sockets per site).

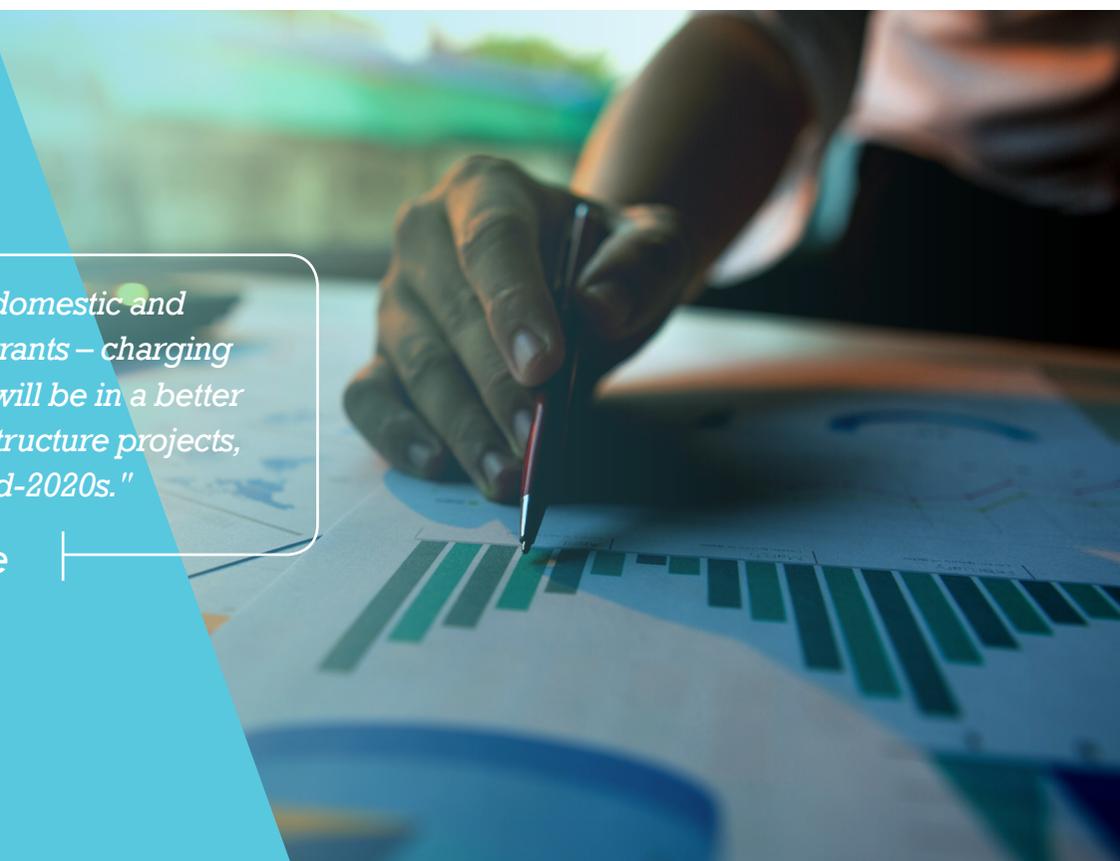
- Some BVRLA members suggest the level of this grant may not be fit-for-purpose, considering the high installation costs; others suggested the grant could be rescoped to target large fleets of vehicles. Some members were unaware of the grant.

- **Electric Vehicle Homecharge Scheme (EVHS):** provides 75% contribution towards the total capital costs of domestic charge points and associated installation costs, up to a maximum of £500 (including VAT) per household / eligible vehicle.
- **On-street Residential Charging Scheme (ORCS):** provides funding to local authorities to install on-street residential charge points, with funding available for 75% of the capital costs of procuring and installing charge points, up to a maximum of £7,500 per charge point. £2.5m of funding is available for 2019/20 on-street residential charge point projects.

*"We would like to see much more targeted support from the Government for fleets like ours to go electric. This would be on the basis of the catalyst effect that we can have towards broader electrification. The number of people that we are exposing to electric vehicles on a daily basis, the normalising sight of them on the streets of London as well as the demand they create for infrastructure. We know that electric has to be the way forward for fleets like ours but the reality in the short term is that considerable hurdles remain to be overcome and where targeted support can be a real enabler."*

**Jonathan Hampson – Zipcar**





*"In the short- to medium-term, charge point grants (both domestic and commercial) are probably more important than the vehicle grants – charging infrastructure is vital to the adoption of EVs. The Government will be in a better position to support things here, as it is easier to support infrastructure projects, and cost parity between EV and ICE is expected in mid-2020s."*

*Mark Evans – ALD Automotive*

*"The rapid growth of registrations for alternatively-fuelled vehicles (AFVs) clearly illustrates a growing confidence in EVs and demand to move towards low carbon transport. However, the issue of overcoming the up-front costs fleets face from making the switch to EVs and providing adequate charging infrastructure, are both vital to address if we are to accelerate EV transition further. Business is already rising to the challenge as we have seen from our involvement in Optimise Prime, the world's biggest trial of commercial electric vehicles but further support is needed."*

*Jon Lawes – Hitachi Capital vehicle Solution*

## International comparison

- **Many countries have implemented dates to ban sales of conventional fossil fuel vehicles:**
  - UK Road to Zero: 2040 for the majority of new cars and vans to be 100% zero emission (noting the recent CCC recommendation to bring this date forward to 2030-35 by which all new cars and vans should be battery-electric).
  - Norway: 2025 for sales ban.
  - Sweden: 2030 for sales ban.
  - China: 2030 for sales ban.
  - India: 2030 for sales ban.
- **The UK offers industrial support including R&D support for EVs and incentives towards the production of batteries; China has implemented other policies including minimum battery production size incentives.**
- **The UK's regulatory policy is similar to countries such as Norway, the Netherlands and France, including provision of incentives. China has recently cut back on incentives offered to consumers.**
- **Norway and the Netherlands lead the way in terms of offering consumer support, contributing to the high EV adoption rates in these countries; however the measures adopted in these countries may not be suitable for the UK.**

# 2 Report Card Tax Benefits

## Fleet perspective

The BVRLA actively engages with the public sector on a wide range of road transport, taxation and finance-related issues. As part of their pledge to increase uptake of plug-in electric vehicles the BVRLA has called upon the Government to support fleets in their drive to improve air quality through the rapid take up of these vehicles.

Tax incentives have a history of effectively driving historical transitions in vehicle technologies and are considered one of the most important drivers

of EV uptake today. Several examples of direct tax incentives at the national and regional level exist and typically countries and cities with significant fiscal measures have been more successful at transitioning to electromobility.

Inconsistent signals from the UK's fiscal regime has hindered EV market uptake by not providing drivers and businesses with clear messages that shifting to ultra-low emission transport is an important objective. This report card summarises the current state of fiscal tax measures used by the UK Government in an effort to encourage the adoption of EVs.

The UK's successful switch from petrol to diesel cars in the fleet market during the 2000s was largely driven by fiscal policy, particularly the linking of Company Car Tax (CCT) and Vehicle Excise Duty (VED) to vehicle CO<sub>2</sub> emissions. With its rapid renewal cycles, the fleet industry is very effective at changing purchasing behaviours; however a clear and consistent long-term tax policy is key.



## Parked



The various tax incentives in place by the UK Government do play a role in encouraging the uptake of zero emission vehicles.



Rates of incentives for pure EV deployment need ramping up and there should be no further discrimination against plug-in hybrid electric vehicles (PHEVs) since this technology is a critical stepping stone to transition.



Lack of clarity over future company car tax rates is preventing businesses from making informed decisions on how they transition to electric fleets.



Different motoring taxes need to be more coordinated in terms of timings, rates and what qualifies as an ultra-low emission vehicle (ULEV).



## Vehicle Excise Duty (VED)

VED is an annual tax levied on most vehicles on UK roads. Between 1<sup>st</sup> March 2001 and 31<sup>st</sup> March 2017, VED was based solely upon the vehicle's CO<sub>2</sub> emissions performance. Since April 2017, the standard rate, which applies for all subsequent years of a vehicle's life, is the same regardless of CO<sub>2</sub> performance (see table).

The VED system is considered confusing – there are many different elements that those looking to purchase a vehicle have to be aware of:

- **The First Year Rate:** Electric or alternatively-fuelled vehicles that emit less than 50 gCO<sub>2</sub>/km are exempt from the first year VED; or above this receive a £10 discount compared to conventional vehicle rates.
- **The Standard Rate:** There is a flat standard rate (SR) (£145 a year or £135 for alternatively-fuelled vehicles

including PHEVs) for all vehicles apart from pure EVs which are discounted to £0. There is now not a strong enough incentive to encourage users to buy PHEVs or low CO<sub>2</sub> petrol / diesel cars - this is in keeping with the need to ramp up pure EV deployment but not PHEV use.

- **The £40,000 threshold for supplementary rates:** All cars (including zero emission) with a list price above £40,000 have to pay an annual £320 supplement (from 1<sup>st</sup> April 2019) in addition to the SR for the first 5 years that SR is paid. This is not consistent with the Government's aims to encourage uptake of ULEVs and is potentially problematic given that many EVs currently cost more than this when new. This also has the potential to discourage the second-hand car buyers from purchasing used plug-in EVs that were originally priced above £40,000.

The complexity of the system means that it is easy for buyers to make mistakes, which means they end up paying more VED than they expected to pay.

Engagement with BVRLA members revealed that a large majority of BVRLA members felt the removal of reduced VED for all vehicles except pure EVs has affected their decision to purchase fleet low emission vehicles.

### VED rates for the cars registered from 1st April 2019

CO <sub>2</sub> emissions (g/km)	Petrol and diesel*	Electric and Alternatively fuelled	Petrol and diesel*	Electric and Alternatively fuelled
	First Year Rate (FYR) (£)		Standard Rate (SR) (£)**	
0	0	0	N/A	0
1-50	10	0	145	135
51-75	25	15		
76-90	110	100		
91-100	130	120		
101-110	150	140		
111-130	170	160		
131-150	210	200		
151-170	530	520		
171-190	10	0		
191-225	10	0		
226-255	10	0		
Over 256	10	0		

\*Cars that do not meet new diesel Real Driving Emissions Step 2 (RDE2) test cycle will be moved up a tax band

\*\*Cars costing over £40,000 will pay an additional £320 supplement for the first 5 years in which SR is paid

## Value Added Tax (VAT)

VAT is a consumption tax payable on new car purchases at the standard VAT rate of 20%. VAT is also levied on road fuels and electricity. Electricity supplied for business use and public charging is subject to the standard 20% rate, however electricity supplied for domestic properties, non-business and charity use attracts a reduced VAT rate of 5%, much lower than for road fuels (20%). This contributes to the lower running costs of EVs compared with petrol and diesel vehicles. It is unlikely that a premium rate would be applied to electricity used for domestic EV charging due to the difficulties in identifying how electricity is used in homes (charging versus other purposes).

## Reduced rates of Company Car Tax (CCT)

Company cars represent approximately 54% of all new car registrations in the UK<sup>4</sup>. The Government considers them as an additional bonus on top of an employee's annual salary – known as a 'benefit-in-kind' (BIK). As a result, employees pay tax on company cars with BIK rates dependent on the vehicles list price and CO<sub>2</sub> emissions. The employer also pays Class 1A National Insurance on all company cars.

<sup>4</sup>ICCT, 2016. White Paper: Comparison of leading electric vehicle policy and deployment in Europe.

Until tax year 2014/15, the UK Government levied an annual BIK CCT rate of 0% on the list price of zero emission company cars (and just 5% for 1-75g CO<sub>2</sub>/km). These rates were significantly lower than the rates for equivalent conventional vehicles, encouraging company car users to choose PHEVs. However, between 2015/16 and 2019/20, PHEVs have been subject to significant annual increases in BIK tax rates, rising to 16% in 2019/20 for zero emission EVs. These rates are due to reduce again to 2% in 2020/21 but this is effectively encouraging company car purchasers to wait until then before they invest in an EV. Ultra-low emission vans are not affected by CCT because they are subject to van benefit charges.

No further information is currently available on the status of these rates after March 2021. Engagement with BVRLA members showed that information on the CCT rates that will apply after 2020/21 is essential to encourage greater investment in ULEVs.

CCT rates				
CO <sub>2</sub> emissions (g/km)	Zero emissions mileage	2018/19	2019/20	2020/21
0		13%	16%	2%
1-50	>130			
1-50	70-129			5%
1-50	40-69			8%
1-50	30-39			12%
1-50	<30	16%	19%	14%
51-54				
55-59				16%
60-64				17%
65-69				18%
70-74		19%	20%	19%
75				

*"2% CCT from 2020 does incentivise EV uptake, but what customers and drivers need before they commit is consistency and reassurance – they require a defined CCT structure that shows how much the vehicle will cost for the full duration of the contract term, typically 3/4 years."*

**Claire Evans – Zenith**



*"The leasing industry struggled to understand why the 100% first year allowance was removed. ULEVs are perceived by the public as expensive compared with ICE equivalents, so leasing is a great way to enable large numbers of people to access these vehicles without significant cost upfront. It also helps to drive availability of ULEV product further down the line into the second use market."*

**Simon Carr – Alphabet (GB) Limited**

## Van benefit charge

Many BVRLA Members have stated that the van benefit charge exemption should also include plug-in hybrids or range-extended electric vans.

The van benefit charge is levied when an employer provides an employee with a van for private use. Since 6<sup>th</sup> April 2019, the charge is currently set at a flat rate of £3,430. The employee pays income tax on this amount and the employer pays National Insurance Contributions. The charge does not apply if the private use of the van is only ordinary commuting in and out of work or is otherwise incidental.

In 2019/20, the van benefit charge for zero emission vans is set at 60% of the main rate. This is set to increase on a tapered basis each year, reaching parity with the main rate in April 2022.

Van benefit charges for zero emission vehicles	
Year	% of main rate
2019/20	60%
2020/21	80%
2021/22	90%
2022/23	100%

## Enhanced capital allowances

An enhanced capital allowance (ECA) allows a business to write off the whole cost of an asset against taxable profits in the year of purchase. ECAs for cars are based on their CO<sub>2</sub> emissions:

From April 2018 until March 2021:

- **Cars purchased for business that emit ≤50 gCO<sub>2</sub>/km qualify for a 100% First Year Allowance (FYA). This allowance only applies to new ULEVs bought, not to vehicles acquired through leasing. Cars that emit up to 110 gCO<sub>2</sub>/km qualify for a writing down allowance at 18% a year.**
- **Cars that emit more than 110 gCO<sub>2</sub>/km qualify for a lower "special rate pool" writing down allowance of 8% a year.**
- **A 100% FYA is available for zero emission goods vehicles, although vans are not eligible for both the Plug-in Van Grant and the FYA.**

The Government will review the case for the FYA and the appropriate emission thresholds from 2021 at Budget 2019.

## International comparison

The UK can be considered on a par with many of its European neighbours in terms of the tax incentives in place to support the uptake of ULEVs. France, Germany and the Netherlands all have similar exemptions (or reductions) in registration and vehicle taxes for zero emission or alternative fuel vehicles. Both the Netherlands and Norway also offer reduced CCTs like the UK. Norway is an example of a very advanced player when it comes to EV deployment, with both incentives for ULEVs and penalties for purchasing conventional petrol and diesel vehicles (unlike elsewhere). Very generous EV incentives including exemption from import tax, VAT, annual road tax and re-registration tax, and 50% parking fees and tolls for roads and ferries are matched by extra charges for users of conventional (ICE) vehicles. This has led to 49%<sup>5</sup> of new passenger cars registered in 2018 being fully electric or plug-in hybrids.

Engagement with BVRLA members revealed that all BVRLA members agreed leased ULEVs should be included in the 100% FYA.

Europe, China and the US are currently the largest electric vehicle markets. Within the US, the incentivisation of federal plug-in EV tax credits on new purchases are also accompanied by state incentives similar to the UK (mainly alternative fuel/vehicle use tax exemptions). In China, as well as direct subsidies and a New Energy Vehicle (NEV) sales mandate, there are also extensive fiscal incentives to encourage EV adoption, including an annual vehicle tax exemption for pure electric and plug-in hybrids, EV parking fee reductions, EV licence plate fee waivers, and caps on charging service fees. China has raised the stake for EVs, with clarity and confidence in future demand from Chinese markets and automakers setting their own EV goals. This has given the Government more confidence to set bigger, bolder targets in the future, and is a prime example of an ambition loop where Government policies and ambitious business initiatives work together to fuel prosperity as they set higher goals to curb CO<sub>2</sub> emissions.

<sup>5</sup>Electrek, 2019. Electric car sales grew by 40% in Norway this year (<https://electrek.co/2019/01/02/electric-car-sales-norway-2018/>)

# 3 Report Card New Vehicles

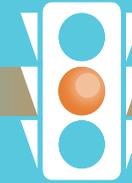
## Fleet perspective

The UK's leasing, rental and car club industry operates a young fleet, purchasing more than a million new cars and vans each year, and so these sectors can provide valuable insight into the health of the new vehicle market and the popularity of EVs. Factors such as whole-life cost, functionality and availability of aftermarket services for EVs influence user demand and the purchasing decisions of fleets.

Fleets are leading the charge in EV uptake:

- The BVRLA has pledged to increase uptake of plug-in vehicles across all its member organisations to 300,000 per year by 2025.
- The Clean Van Commitment (CVC) has 25 signatories, who are collectively pledging to electrify over 65,000 vans by 2028<sup>6</sup>.
- Zipcar, Heathrow, Milk & More, and Royal Mail are just a few examples of the many businesses that have already deployed EVs in their fleets.

<sup>6</sup>Clean Van Commitment signatories, available at <https://www.globalactionplan.org.uk/clean-van-commitment-signatories>. Accessed on 29/05/19



## Brakes on



Price and functionality continue to improve, and several schemes are supporting dealers and technicians to transition from ICEVs to EVs.



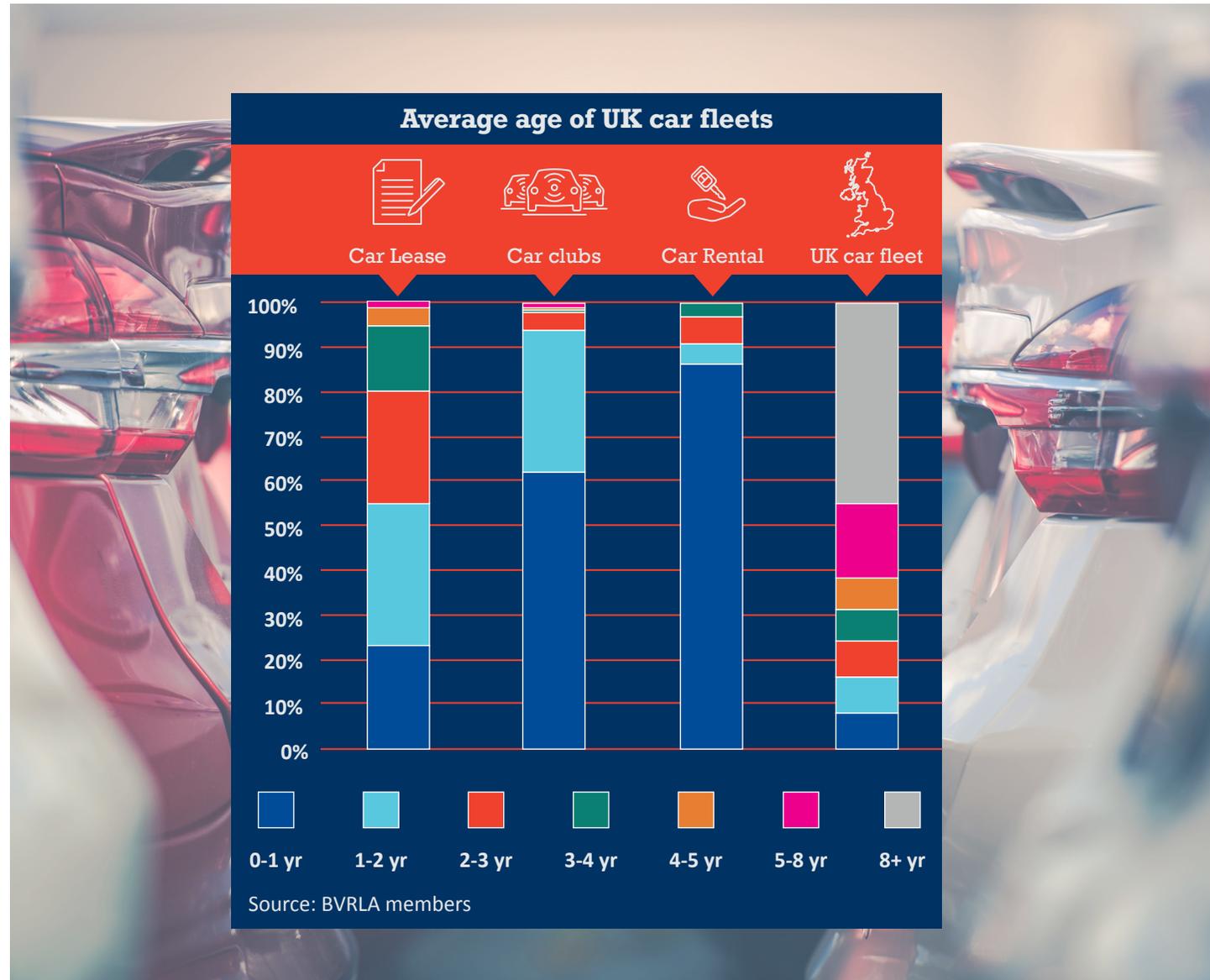
Pure-electric sales continue to increase.



There are serious supply constraints with some of the most popular new EV models.

## Recommendations and actions

- The Government should set a national quota for the number of EVs that carmakers must sell in the UK, as seen in California, Quebec and China.
- Set out a longer-term strategy, across 10 years, for battery development and associated EV technologies in the UK.
- Stronger and clearer fiscal incentives to purchase, lease and operate an EV, through taxes and grants. [expanded on further in Report Card 1: Policy Measures; and Report Card 2: Tax Benefits]
- Develop a clear strategy for supporting the transition of the supply chain from ICE to EVs, including the endorsement of the Institute of the Motor Industry (IMI) established EV professional standard.
- The Government should commit to maintaining the Block Exemption Regulation and support its modernisation in light of technological advances, to protect fair access to data and maintain a level playing field.
- Continue to support measures aimed at upskilling and accrediting EV retailers and the EV aftermarket.

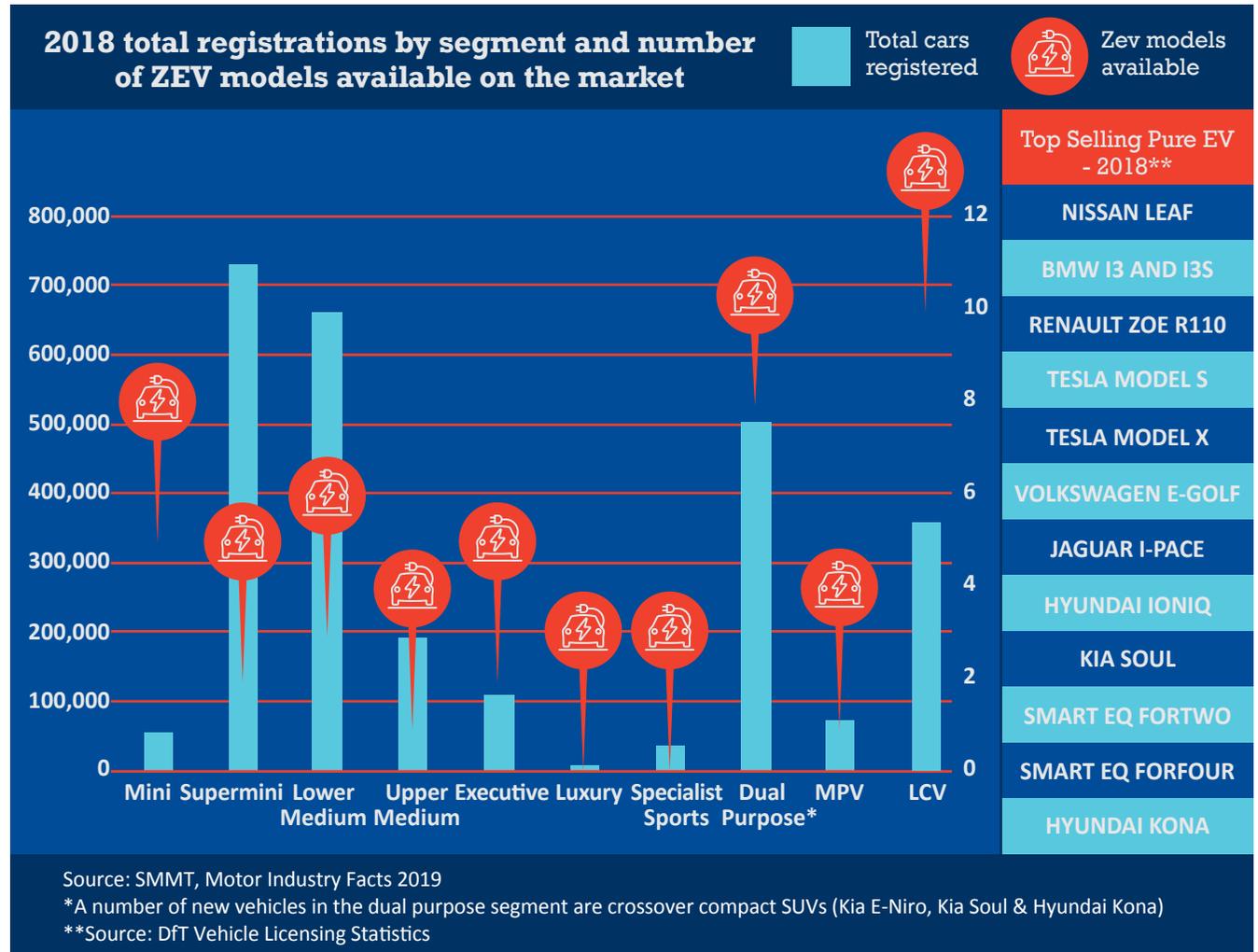


## Product range

The most popular vehicle segment in the UK is the Supermini (e.g. Ford Fiesta), which is closely followed by the Lower Medium (e.g. VW Golf). These segments are also the most popular for fleets and businesses. Currently, there is a limited choice of plug-in electric cars in the Supermini segment, and while there are more electric options in the Lower Medium segment, choice is still limited. Electric offerings in larger segments are dominated by plug-in hybrids and some vehicle types, such as estate cars, have no pure electric models.

In 2018, we saw a number of new pure electric cars introduced to the market and the trend is expected to continue with over 20 new or upgraded electric models arriving in 2019. However, many of these models are full SUVs or crossover compact-SUVs, which are not typically demanded by fleets and businesses. Recently, there have been constraints in parts of the market, with several PHEVs being withdrawn, although we expect that new versions of these PHEVs will come to market in the near future with bigger batteries that enable them to be categorised as ULEVs when tested under the WLTP.

When it comes to plug-in electric vans, the market is much less mature and there are few options, particularly in the 2.5 – 3.5 tonnes segment and above. Popular models in the UK include the Nissan e-NV200 and Renault Kangoo ZE.



*"The range of ULEV vans currently available is lagging behind when compared to cars, particularly in the large panel van segment, where the list price premium over fossil fuel equivalent models is significant and a limiting factor to adoption."*

*Leigh Merry – Hitachi Capital Vehicles Solutions*

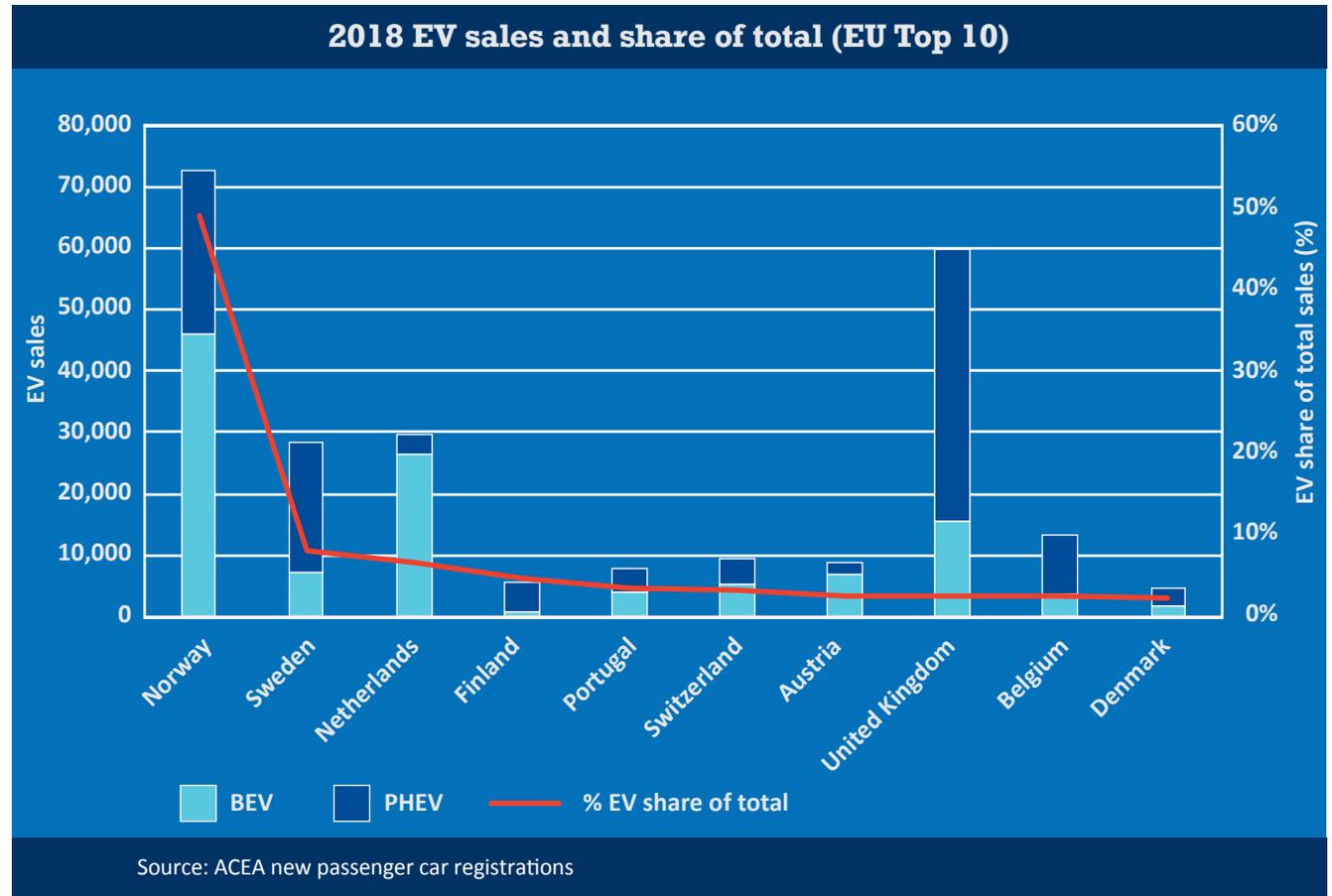


NEW VEHICLES

## Supply constraints of plug-in vehicles

In 2018, the European EV market experienced a drop in new pure EV models and the withdrawal of several PHEVs as manufacturers responded to the new WLTP emissions test. This restriction in the market combined with supply constraints and accelerating EV demand has resulted in long waiting times and delays, frustrating businesses and customers. Some have also blamed carmakers for deliberately delaying EV sales and protecting non EV models until they need to be compliant with the CO<sub>2</sub> targets in 2020 and 2021. Concern is mounting that battery supply cannot keep pace with increased demand. In April this year it was reported that Audi had reduced the e-tron production target by almost 20% due to bottlenecks in battery supply<sup>7</sup>.

Despite these supply constraints, new vehicle sales in the UK have remained strong. In 2018, the UK was third behind Norway and Germany for the number of plug-in electric vehicles sales and while this only accounts for 2.5% of total vehicle sales, that is the highest share amongst other EU countries who have over a million annual vehicle sales.



<sup>7</sup>The Brussels Times, Battery shortage forces Audi Brussels to slow down production. 2019. Accessed on 08/05/19

## What businesses are saying about supply?

- ▶ **David Watts, fleet consultant at Arval:** *“Due to the level of tax incentives, a significant proportion of the EV production allocation for Europe has so far been directed towards Norway. The remainder of the European allocation, whilst also influenced by local incentives, is to some extent dictated by currency exchange rates and as such has impacted vehicle supply to the UK.”*
- ▶ **Hannah Collishaw, director of E.ON Drive:** *“You don’t really want to wait 11 months for vehicles to arrive if you want to change your fleet today.”*
- ▶ **Jonathan Hampson, general manager at Zipcar:** *“Manufacturers have been very clear that they are not prioritising the UK for delivery of EVs. Whilst that remains the case, it is going to make life difficult to achieve the goals that we have set out. We do believe that we can mitigate this to an extent through strong partnership working with manufacturers as we have with Volkswagen which led to us introducing 325 e-Golfs last year.”*

## Whole life cost

When the whole life costs of vehicles are considered, EVs are shown to be cheaper<sup>8</sup>. Comparisons by the Energy Saving Trust found that for pool car, company car and van fleet scenarios, the total life costs for pure-electrics are less than for conventional vehicles<sup>9</sup>. Many BVRLA members have developed modelling tools that can provide a complete picture of whole-life costs, helping businesses and individuals to test different scenarios for grade boundaries and employee contributions.

The higher purchase, lease and rental costs of EVs are often quoted as being the main barrier to EV uptake, but prices are continuing to fall in line with shrinking battery prices. The CCC believes there will be price parity by 2024-5, while Bloomberg NEF forecasts price parity for large vehicles as early as 2022. In 2018, the monthly lease costs of the five best-selling electric cars in the UK, fell by 9.5%<sup>10</sup>.

Ongoing costs for pure-electric vehicles are lower than for conventional cars and this can more than offset higher purchase/lease costs over the vehicle’s life. Fuel costs are typically three to four times cheaper, maintenance and repair costs tend to be lower, and there are number of fiscal benefits associated with running a ULEV.

A vehicle’s residual value (RV) is a key consideration for fleet operators and drivers, particularly as it dictates lease and rental rates. RVs are closely related to demand, such that as demand increases in line with popularity and consumer confidence, the vehicle will depreciate less, and the RV will be higher. What Car? research in 2019, found that EVs currently have some of the strongest residuals across many segments<sup>11</sup>, although it is unlikely that this will be sustained as ULEV volumes increase.

<sup>8</sup>The ICCT, Using vehicle taxation policy to lower transport emissions an overview for passenger cars in Europe. 2018

<sup>9</sup>Energy Savings Trust, A guide to ultra-low emission vehicles for fleet manager. 2017

<sup>10</sup>CAP HPI, Falling lease costs will unlock the sales for electric vehicles. 2019. Accessed on 08/05/19

<sup>11</sup>WhatCar?, The 10 slowest-depreciating cars. 2019. Accessed on 08/05/19

## Functionality

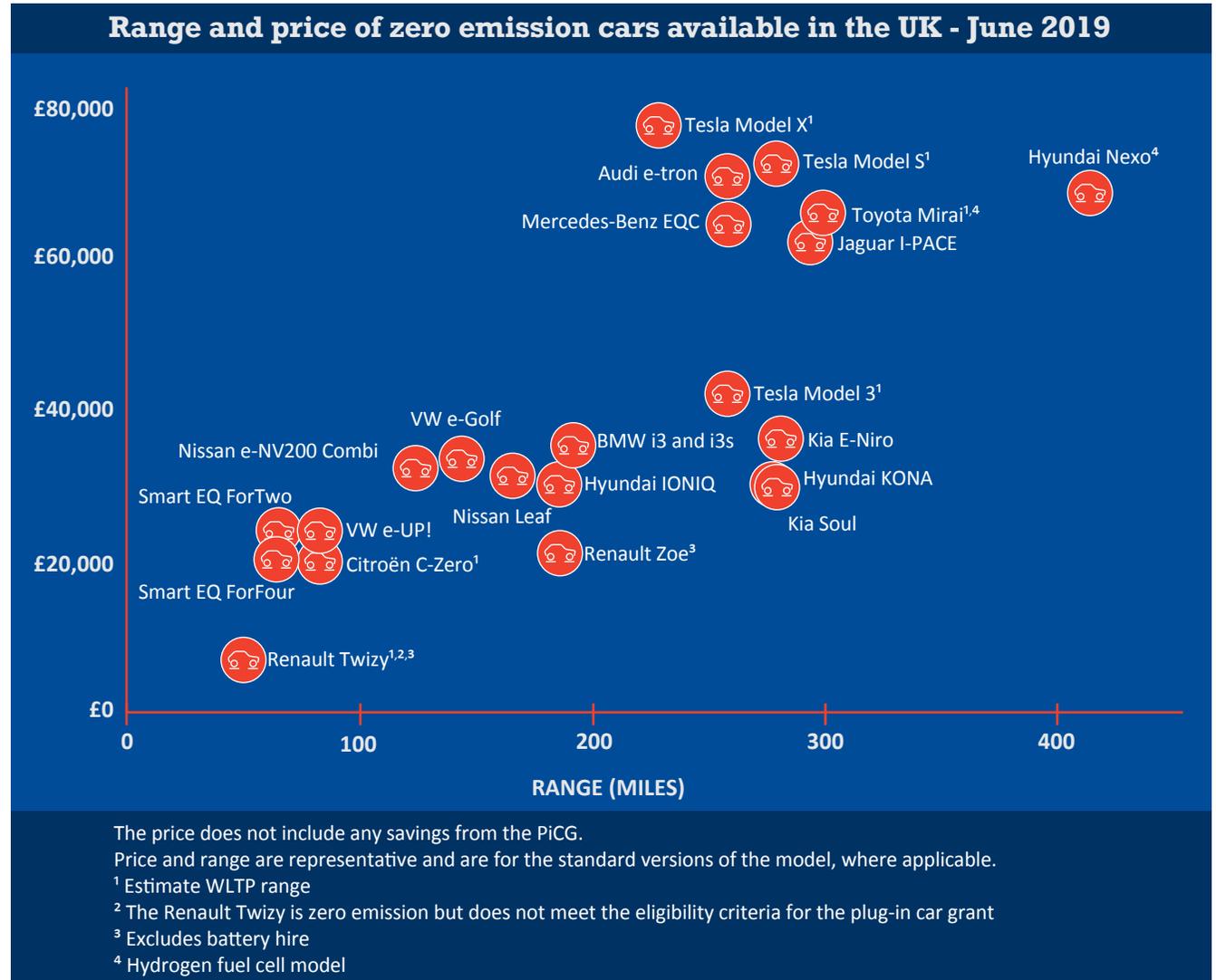
While EV range is increasing rapidly, it is generally not yet comparable with ICE vehicles and this shortfall is responsible for feelings of range anxiety, a key barrier to EV uptake. While EVs don't have the range that many people perceive they need, the ranges are more than enough for the majority of journeys.

Battery degradation is another concern, although most EV batteries will last around 1,000 charges (or 10+ years) before the battery needs replacing. Drivers should be further comforted by the knowledge that new EVs will have a warranty that typically covers the battery for 8 years or 100,000 miles. Some manufacturers offer battery leasing, so when the battery efficiency drops below an agreed level, the battery is repaired or replaced for free.

The legal maximum gross vehicle weight (GVW) for a standard UK driving licence is 3.5t, and with batteries weighing more than an engine, there was concern that the legal payload of electric vans would be reduced. In response, the Government increased the GVW for electric vans to 4.25t, compensating for heavier batteries.

### Electric vehicles are comfortable to drive

- High spec interiors
- Quiet
- Smooth to drive
- Instant acceleration



### Influence of range on fleets

- ▶ **The majority of car club trips are 25 miles or less<sup>12</sup>.**
  - Vehicle range is less of a concern for car club users.
- ▶ **The average daily mileage for rental vehicles is around 70 miles, and the average rental period is typically over 4 days<sup>13</sup>.**
  - At least one charge would likely be normally required. Range meaning range becomes more of an influencing factor in the decision making.
- ▶ **The average contract length for leased fleets is 36 months for cars and 48 months for vans, and the average annual mileage is around 15,000<sup>14</sup>.**
  - Range becomes a significant consideration especially when the vehicle forms a key part of the business's activities.

## Regulatory and industrial policy

Alongside consumer incentives (see Tax and Policy report cards), regulatory and industrial policy plays a key role in supporting the development of the electric vehicle market. EU regulation sets CO<sub>2</sub> emissions standards for vehicles sold in the UK, and while the targets are progressive there are no ULEV-specific sales targets of the like seen in ten US states and the Canadian province of Quebec. China's New Energy Vehicle quota system also includes a target for electric vehicle sales and is one of the reasons behind its rapid expansion in EV production. The UK has planned to ban the sale of new petrol and diesel cars by 2040, but the Committee on Climate Change has recently advised the Government to bring forward this ban to 2030-35.

The promotion of battery production can also support domestic EV manufacturing. Europe lags behind other global markets for battery production, although expansion is planned through the European Union Battery Alliance. The UK is already taking steps to be a global leader in batteries, with the four-year Faraday Battery Challenge managing a fund of £246 million. Jaguar Land Rover and Williams Advanced Engineering have both recently committed to battery production in the UK, while Aston Martin also has ambitions to base battery production in the UK.

However, SMMT figures show that investment into the UK automotive sector has fallen 80% since 2016,

and the UK's industrial strategy received a large setback when Honda announced the closure of its car assembly plant in Swindon to focus on making electric cars in Japan. In comparison, activity in other European countries is accelerating. German chemical company BASF is building a plant in Finland to supply up to 300,000 electric cars a year, and the Belgium company Umicore, is opening a cathode materials site in Poland. France and Germany also have pledged over €1.5 billion between them to invest in the EV battery industry. Outside of Europe, progress is even further ahead, with Tesla and Panasonic constructing a \$4 billion battery plant and China continuing to construct multiple battery 'giga-factories'.

### CO<sub>2</sub> emission standards for cars and vans in the EU

- Average CO<sub>2</sub> emissions of new cars registered in the EU will have to be 15% lower in 2025 and 37.5% lower in 2030, compared to the emission limits valid in 2021.
- The CO<sub>2</sub> emissions of new vans will need to be 15% lower in 2025 and 31% lower in 2030

### Brexit

In a no-deal Brexit scenario, the UK would no longer fall under EU CO<sub>2</sub> regulations. DfT have stated that:

"The UK would ensure continuity to minimise the additional requirements placed on industry and would ensure that the UK's commitment to maintaining regulations that are at least as ambitious as current arrangements is met."

<sup>12</sup>Carplus, Carplus annual survey of car clubs. 2017

<sup>13</sup>BVRLA, UK Rental industry report. 2018

<sup>14</sup>BVRLA, Q4 Quarterly leasing survey summary. 2018

## Aftermarket services

There is concern in the UK over the shortage of skilled technicians with the abilities to service ULEVs. Of the 180,000 individuals who are known to work on cars every day, only around 5% are thought to be qualified or have a working knowledge of EVs, and few operate in the independent sector. There is currently no recognised EV standard and so the IMI have established 'TechSafe', which has already been adopted by Halfords. TechSafe includes four levels of standards that range from a basic knowledge of EVs to carrying out full repairs on the vehicle's electric system. As well as safeguarding the safety of repair personnel, this standard can support reskilling of the existing ICE workforce as we transition towards EVs.

The availability of skilled technicians is especially important in the used vehicle market where there is concern about who will look after the vehicles and owners still want the choice they have always had. New electric vehicles will initially be covered under warranty and serviced by dealerships, but as vehicles

### Ramifications of skills shortage

- Increased costs of repair
- Longer waiting times for repair
- Higher insurance premiums
- Reluctance of dealerships to sell EVs
- Endanger untrained technicians

age, owners will increasingly rely on the services of independent garages to keep their electric vehicles functional. If drivers do not have confidence in the EV repair industry, demand for used EVs may reduce, which could negatively impact residual values and the purchasing decisions of fleets.

### A boost for EVs

In April 2019, the RAC announced that it is introducing a new technology that can help stranded EV drivers at the roadside with a power boost<sup>15</sup>.

The motor vehicle Block Exemption Regulation has been effective at giving customers access to quick and lower cost vehicle repair. However, with advances in technology the exemption is becoming less powerful and some manufacturers do not appear to recognise the servicing completed by independent repairers on the EV batteries, reducing fair competition in the market.

Through the Energy Saving Trust, the Government has funded free training for around 50 used car dealers and over 300 individuals, helping to improve their understanding of EVs and help consumers make informed choices. OLEV has also endorsed the NFDA's Electric Vehicle Approved (EVA) scheme that certifies EV retailers who meet standards for retail and aftersales of EVs, increasing consumer confidence.

<sup>15</sup>RAC, RAC develops UK's first lightweight charger to deliver a 'journey-saving' boost to electric vehicles. Accessed on 08/05/19



*"The auto service & repair sector craves simplicity and the Government can help by putting their weight behind initiatives such as TechSafe. This would give the industry confidence about which standards to follow and encourage the apprenticeship and MOT accreditation processes to align to it, which are two key mechanisms to introducing the relevant skills into the market."*

*Steve Nash – the IMI*



NEW VEHICLES

# 4 Report Card Charge Points

## Fleet perspective

Sufficient provision of charging infrastructure is essential to enable the rollout of EVs in all vehicle fleets. It is widely agreed that there is no “one size fits all” charging infrastructure solution – charging infrastructure can be located in a wide array of locations (domestic; workplace or depot; public destination; motorway service areas) and comes at numerous different charging speeds (slow; fast; rapid; ultra-rapid). Individual EV users or EV fleets will choose the infrastructure that best serves their needs and their driving behaviours.

This is also valid for BVRLA member fleets – dependent on the fleet, some vehicles will make use of publicly available charging and rapid charging, whilst others will be well-suited to depot charging or, in some cases,

residential charging. Indeed, the charging needs within BVRLA member fleets span the various different types of charging infrastructure, but availability and suitability of charging infrastructure varies between fleets.

Irrespective of the differences in charging needs between fleets, there are common issues that affect all infrastructure installations and all EV users. Paramount is the ability to roam between charging networks, the reliability of charging infrastructure and the speed of recharging. Legislation has been introduced by the Government to improve the deployment of charging infrastructure throughout the UK and to introduce elements of commonality to infrastructure provision. This report card assesses the current state of the UK’s charging infrastructure market and analyses the legislation that has been introduced to assist the market.

*"The Government needs to do work on education – people don't know how to charge, where to charge, how much it's going to cost to charge."*

*Mark Evans – ALD Automotive*



## Brakes on



Charging infrastructure deployment is increasing rapidly in the UK, with regular month-on-month growth.



Recharging EVs remains cheaper than refuelling internal combustion engine vehicles (ICEVs); and there is a move towards faster, higher-powered charge points in public locations.



The key remaining issues affecting the charging infrastructure market can be considered to be roaming between networks (including ease of payment) and reliability of the public charging network.



Speed and availability of recharging can also be considered a remaining barrier for the fleet sector, particularly for high mileage fleets. Rapid charge points are often currently installed as single charge points in locations (rather than hubs), which can increase likelihood of queuing.

## Recommendations and actions

- The Government should consult with industry with a view to mandating a universal method of access and payment for public EV charging. Roaming between networks and ease of payment for recharging is considered a major barrier to recharging of fleets.
- The Government should take powers through the Automated and Electric Vehicles Act 2018 to enforce reliability and maintenance standards for public charging infrastructure.
- The Government should provide funding and support to encourage the installation of charging infrastructure in rural areas, as suggested in the Road to Zero Strategy.
- The Government should work with charging infrastructure suppliers to develop a consistent method of displaying pricing across infrastructure providers, such as advertising charging pricing in the same manner as fossil fuel pricing. The Government should also encourage the provision of better information on public charge point pricing and times.

*"The primary barriers affecting the charging infrastructure market are accessibility, local planning restrictions and a lack of progress with the wide-scale roll-out of the £400m Government investment fund in charging. Around one third of UK households – mainly those in towns and cities – don't have their own dedicated parking so public charging is an important piece of the jigsaw. We need to make it as easy for people to charge an EV as it is for them to fuel a petrol or diesel car."*

*David Bushnell – Alphabet Leasing*

- The Government should provide regular updates on how the market is progressing against the various aspects included within the Automated and Electric Vehicles Act 2018, which may also indicate where powers should be taken. The Government should set targets with clear timelines for deliverables.
- With larger batteries and higher-powered chargers, there is confusion with respect to how long it takes rapid charge points (and higher-powered charge points) to charge vehicles. The Government should work with industry to ensure up-to-date information is disseminated regarding the likely charging times of EVs.
- Priority should be given to higher-powered charge point installations in public areas on strategic routes, and where they are likely to be highly used, to ensure the availability of these chargers.



## Charging infrastructure in the UK

As at June 2019, there are over 23,000 public charging point connectors in almost 14,000 devices available at over 8,500 locations in the UK. There are also almost 2,200 rapid charge point devices installed in over 1,500 locations<sup>16</sup>. The number of publicly accessible UK charge points tends to increase month-on-month, and rapid charger installations increased greatly year-on-year between 2017 and 2018; continued accelerated deployment of rapid charge points is expected.

There has been an increase in the installation of “hubs” of high-powered charge points in the UK, which have been highlighted as being beneficial to encourage fleets to transition to ULEVs. Charging infrastructure hubs have already been deployed in Dundee, Milton Keynes and Sunderland.

Engagement with BVRLA members showed that charging infrastructure availability has affected approximately half of BVRLA members' purchasing decisions. Some members have noted that they have experienced queuing at charging stations, suggesting an increase in availability is required.

Highways England has a commitment to having charging infrastructure coverage for EVs so that 95% of the road network is within 20 miles of a charge point. Focusing on rapid charge points, analysis undertaken by the RAC Foundation (using National Chargepoint

Registry (NCR) data) estimates that approximately 89% of British trunk roads are within 20 miles of any rapid charger (i.e. both at service areas and within 1km of the trunk road network), ranging from 42% in Wales to 95% in England.

When considering rapid charge points located only at service areas, the analysis estimates approximately 61% of British trunk roads are within 20 miles of a rapid charger at a trunk road service area, ranging from 28% in Scotland to 78% in England. Service areas have proved to be a very popular location for rapid charge point installations – these figures highlight the need for a UK-wide network of rapid charge points.

## Legislation

The Alternative Fuels Infrastructure Regulations 2017 (AFIR) is the underpinning legislation to resolve issues encountered during the early rollout of infrastructure. The Automated and Electric Vehicles Act 2018 (AEVA) grants the Government powers to intervene in areas of market failure – the Government intends on monitoring the market and only using powers if the market fails to or takes too long to deliver further improvements.

The adjacent table summarises some of the measures that are included within AFIR 2017 and AEVA 2018 and provides commentary on where action has been taken and where the market is responding to the measures.

<sup>16</sup>Zap-Map Statistics, 2019 (<https://www.zap-map.com/statistics/>)

Category	Existing information	Legislation	Development	Progress
Consumer experience	Ad hoc access to infrastructure; common minimum method of access to infrastructure	<b>AFIR 2017</b> <b>AEVA 2018</b>	The AFIR 2017 mandated ad hoc access to charging infrastructure but did not specify a uniform minimum level of access; the AEVA 2018 gives the Government power to mandate a common access method, which has not yet been utilised.	
	Geographic location of charge points	<b>AFIR 2017</b>	Geographic location data was mandated as part of the AFIR 2017.	
	Dynamic data availability – whether charge points are occupied or in working order	<b>AEVA 2018</b>	These powers have not yet been taken; however, the market is responding, with many operators now supplying dynamic data.	
	Reliability and maintenance standards	<b>AEVA 2018</b>	Government has not yet taken powers to ensure reliability and maintenance standards, but some suppliers have set their own standards.	
	Minimum technical specifications for charge point connectors	<b>AFIR 2017</b>	The AFIR 2017 mandated technical specification standards for connectors.	

Category	Existing information	Legislation	Development	Progress
Smart capabilities	Ensuring that all charge points are smart-enabled	<b>AEVA 2018</b>	Government has begun to take powers, announcing that all domestic charge points installed via Government funding streams must be smart-enabled from July 2019; a government consultation will also be launched shortly on regulation for smart charge points.	
Motorway service area requirements	Mandated installation of charge points at key strategic locations	<b>AEVA 2018</b>	Government has not yet taken powers; however, the market has strongly responded, with charge points now installed at many fuel retailers.	
	Metro Mayors designating charge point provision at fuel retailers	<b>AEVA 2018</b>	Government needs to regulate to enable Metro Mayors to designate charge point provision at fuel retailers / key strategic locations. This power has not yet been taken; but the market is responding.	

## BVRLA Member Spotlight:

- The most important AEVA measures to BVRLA members are a uniform minimum access method and real-time information.
- The vast majority of BVRLA members stated they had experienced roaming issues and their preferred access method is contactless payment via a single card (or credit / debit card) that can be used across all networks.
- The second most important measures are setting reliability standards and motorway service area provision.
- Engagement with BVRLA members revealed that all members stated that they had experienced reliability issues; a majority supported Government intervention.
- Cost is the main barrier affecting infrastructure deployment, followed by the bureaucracy involved with installations.
- The vast majority of engaged BVRLA members would use an EV fuel card, noting interoperability is essential for this.

Government has committed to report on the AEVA 2018 legislation after two years in operation. Whilst this report is welcomed, sufficient evidence currently exists for further Government intervention in some key areas.

## Focusing on some key aspects within the AFIR 2017 and AEVA 2018:

### Minimum method of access

A specific uniform method of access has not yet been mandated via the AEVA 2018. Currently, infrastructure operators tend to use proprietary apps and RFID cards for infrastructure access, or by obtaining a code by calling a phone number, which can lead to confusion. This issue is compounded when considering fleets of vehicles and paying for fuel using these vehicles.

- All rapid charging infrastructure installed via Transport for London's (TfL) rapid charge point framework must be enabled with contactless debit / credit card payment.
- There is an Electric Vehicles (Standardised Recharging) Bill 2017-19 passing through Parliament that partly intends on addressing this issue (as well as connection standards for EVs).

### Reliability

The reliability of the public charging network in the UK is improving but is still an issue. The number of out of service charge points on the public charge point network has decreased from 14.8% to 8.3% between July 2017 and May to August 2018<sup>17</sup>. This is in contrast to the 99% availability expected by the Dutch public charge point network.

### National Chargepoint Registry (NCR):

The NCR is the national central location for charging infrastructure data and information. The NCR currently has incomplete coverage of charging infrastructure in the UK. The team in charge of the NCR is currently working with OLEV on a plan of enhancements to the NCR, in light of AEVA 2018 (e.g. dynamic data availability). The NCR team aims to roll out some enhancements to the NCR in early summer.

- Of note, Google Maps has recently announced that real-time availability of charging infrastructure can be accessed via its service.

*"A key area for the Government to focus on is roaming and interoperability. The UK public charging network is very fragmented with no ability to 'roam' between the differing networks with one charge card / account. In other European countries, the ability to access multiple charging networks via one charge card is much more common."*

*David Watts – Arval*

<sup>17</sup>RAC Foundation, 'Development of the UK Public Chargepoint Network'

## Charging infrastructure market developments

### Larger batteries; longer charging times:

Vehicle OEM forecasts show that battery sizes are increasing for both passenger cars and vans which will continue into the future. As a result, typical 50 kW rapid chargers will take longer to recharge (up to 80% capacity level) vehicles with larger batteries, i.e. beyond the current estimate of 20-30min. Recharging to 80% is now likely to take 30-60 minutes, depending on the battery capacity.

**Higher-powered rapid chargers:** 150 kW chargers are now being installed by a number of suppliers that can charge a battery to 80% capacity in 10-20 minutes (depending on battery capacity and ability to charge at this power). Several vehicles on the market can charge at rates of between 50 kW and 150 kW; it is expected that a charging rate of at least 100 kW will become the norm by 2030.

Ultra-rapid charge points can charge EVs at up to 350 kW in under 10 minutes, depending on battery capacity and ability to charge at this power. There are currently no mass market vehicles available that can charge at this power level and there is no evidence from the automotive industry that this is a trend that is being pursued for mass market vehicles; however, this could change in the coming years. IONITY is currently building a pan-European network of 350kW chargers (including in the UK), and Fastned recently opened an ultra-rapid charging hub in Sunderland.

### Charging infrastructure supplier partnerships:

Numerous existing fuel retailers / land owners have now purchased or partnered with charging infrastructure suppliers to enable quicker rollout of the infrastructure. Examples include Ecotricity and Engenie partnering with fuel retailers and land owners. Gridserve recently announced plans to install a UK-wide network of more than 100 “electric forecourts”, with dedicated zones for both private and fleet vehicles. Another notable example is BP’s acquisition of Chargemaster in June 2018.

## Costs of recharging

One of the most consistently mentioned benefits of EVs is the cheaper refuelling costs when compared with ICEVs. Recharging EVs can be orders of magnitude less expensive than refuelling ICEVs. Other aspects to consider with respect to the costs of recharging EVs include:

**Comparisons to ICEV refuelling:** The degree to which EVs are cheaper depends on the source of electricity used to recharge. Recharging using domestic or workplace charging infrastructure tends to be less expensive than recharging using public fast or rapid charging infrastructure.

**Pricing metric:** The metric used to price the charging process can also lead to confusion amongst EV users, such as pricing by recharging time or the amount of energy delivered. This issue is compounded by some networks applying supplementary membership/

subscription charges. All engaged BVRLA members showed a preference for pence/kWh as the preferred pricing metric.

**Visibility of costs:** There is confusion concerning the costs of recharging because prices are often not prominently displayed at charge points.

**Free charging incentives:** Many public charging suppliers have offered free charging as an incentive to boost the uptake of EVs; however, suppliers (and local authorities) are now moving away from offering free charging, as the business case for the infrastructure improves.

**Consistent parking policies:** Some local authorities offer free parking to EVs whilst others don’t; and there are inconsistent penalties for ICEVs parking in EV bays, which can be ineffective in discouraging this.

*"Getting to the point of having visibility of live availability for all charge points would greatly benefit the market."*

**Mark Gallagher**  
Grosvenor Leasing

*"We now work with four charge point operators. We have four access cards, four invoices, and four different processes."*

*Jonathan Hampson*  
*Zipcar*



CHARGE POINTS

## Electrical grid

The installation of charging infrastructure, particularly higher-powered charge points (50kW+), can trigger electrical grid upgrades to cater for the additional electricity demand. This can greatly increase the costs of installing charging infrastructure and can act as a significant barrier for charging large fleets of vehicles. Engagement with distribution network operators (DNO) can ensure charge points are installed in the most cost-effective manner. Innovative solutions are also available to reduce the risk of grid upgrades, such as smart charging and vehicle-to-grid (V2G) technologies.

## Hydrogen infrastructure

The Government is also supporting the deployment of hydrogen infrastructure. Hydrogen refuelling stations (HRS) are the key infrastructure component of the roll-out of fuel cell electric vehicles (FCEV). The deployment of these stations has been growing recently in the UK and there are now 15 installed throughout the country. A second wave of funding for five further projects has recently been announced as part of the second phase of OLEV's Hydrogen for Transport Programme.

## International comparison

- **Ratios of public charging to EVs vary by country; based on data from 2017<sup>18</sup>:**
  - Netherlands: 1 charger to 4 plug-in vehicles;
  - U.S.: 1 charger to 17 plug-in vehicles;
  - UK: 1 charger to 10 plug-in vehicles;
  - Norway: 1 charger to 20 plug-in vehicles (noting large preference for domestic charging in Norway).
- **Government investment varies between countries:**
  - UK: Charging Infrastructure Investment Fund (CIIF) – £200m, match-funded by another £200m from private sources;
  - U.S.: \$2bn to be invested over 10 years;
  - Germany: £300m to be invested over 4 years;
  - UK investment exceeds countries such as Canada and Japan.
- **Effort should be made to coordinate UK's connection standard policies for charging infrastructure with those of mainland Europe.**

## Urban / rural split

Charging infrastructure needs to be widely deployed in all areas in order to provide effective coverage of the UK similar to the current coverage of liquid refuelling stations, including in rural areas. The Road to Zero Strategy specifically mentions monitoring market developments to assess whether there is a case for direct central Government support in areas of market failure, including in rural areas. Engagement with BVRLA members showed that the vast majority of BVRLA members supported Government intervention here and have also experienced issues with charging in rural areas.

<sup>18</sup>IEA, 'Global EV Outlook 2018'



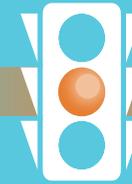
# Report Card User Sentiment

## Fleet perspective

User sentiment can vary greatly for the different vehicle fleets within the BVRLA's members, depending on the benefits and barriers most linked to their requirements of use. Issues restricting EV uptake commonly include: acceptance to change, vehicle costs, battery capacity and range anxiety, and charging infrastructure provisions. This report card provides an overview of how consumers and fleet operators currently view EV use and how these can be resolved.

*"Education is key to the widespread uptake of EVs in terms of the potential savings that can be achieved and to the practical capabilities of new EVs coming to market. Many of the misperceptions around the use of EVs are out of date which need to be addressed, as much as from within dealership sales staff and leasing companies as to the general public."*

*David Watts – Arval*



## Accelerating



Motorists recognise the need to decarbonise vehicle fleets and to some extent are willing to play their part, however there is still reluctance and there are gaps in the public understanding of EVs. Progress is being made to increase this understanding but more needs to be done.



Mass adoption of pure electric vehicles will mostly likely not be seen until the building blocks are in place e.g. affordable vehicles with a combination of range and recharging times that are as convenient for users as conventional vehicles. Tackling behavioural resistance will be an ongoing challenge.

## Recommendations and actions

- Gaps in public knowledge are preventing people from potentially purchasing EVs. The Government should continue to support EV education and awareness initiatives, such as Go Ultra Low. Increased awareness, understanding and clarity through improved customer education is needed and could reduce behavioural restrictions and misperceptions currently seen by anti-EV consumers. Education is needed on the characteristics of electric vehicles, their fuel cost savings, energy efficiency and charging to shift behaviours and encourage further uptake.
- The Government should support more shared-use EV mobility models, including car clubs and car rentals as an access point for trying EVs. The Government should also share and advertise previous positive fleet EV experiences from members / users to encourage further uptake.
- The Government should encourage the provision of better information on public charge point locations and status. More enhanced sharing of information on charging infrastructure availability would assist EV drivers with locating and gaining access to available and functioning charge points. The National Chargepoint Registry (NCR) is planning on implementing some enhancements in early summer 2019 – further enhancements could be brought forward to ensure this information is available sooner.
- The Government and local authorities should provide more support for local EV user incentives by introducing measures such as reduced parking charges and access to green (“ULEV-only” or bus) lanes (dependent on whether they are suitable to a particular area or UK-wide) to enhance user sentiment around EV use. Where feasible, local and national policy should be coordinated.



## User sentiment towards EV use

### Understanding and willingness to support fuel efficiency and EVs

Willingness to transition to EVs is an important hurdle to overcome, and different vehicle fleet types inevitably have varying sentiment towards them. There are high interest levels for some users, including fleet managers and car club members (a 2018 survey of 250 fleet managers<sup>19</sup> revealed that less than 2% claimed there are no benefits to electrifying their fleets, indicating the majority do support EVs; and a 2017 car club member survey<sup>20</sup> found, of the 86% who had not yet used EVs, 90% expressed an interest in using one). However, a lack of general public support still exists – only 3% of respondents to an RAC survey<sup>21</sup> would purchase a pure EV as their next vehicle and 7% a zero-emission capable plug-in hybrid, with 52% still choosing a conventional petrol engine.

### Against other European countries<sup>22</sup>, UK citizen attitudes are middling:

- A large majority (91%) support car company requirements to increase fuel efficiency of the vehicles they make – higher than the average of 89%.
- 67% believe car companies are not doing enough to encourage them to buy battery-electric or hydrogen fuel cell cars by attractive marketing, pricing and offering enough choice – higher than the average 62%.
- 32% state it very likely or somewhat likely that the next car they will buy or lease will be an electric or fuel cell car. However, this is lower than the EU average (40%) (with only France and Germany having a lower value (30%)), indicating willingness to purchase or use EVs is being influenced by different factors within the UK.

A lack of willingness is thought to relate to a lack of understanding, with 66% of public motorists confused regarding which fuel type their next vehicle should use. Research by “What Car?”<sup>23</sup> surveyed 9,000 motorists over three months and found that, when asked to rate EV understanding as they researched the technology, initial knowledge was low, increasing slightly after 10 days and then decreased after a month, interpreted as respondents coming across confusing / conflicting information. It was found to take consumers three months to obtain the same information level to close the ‘knowledge-gap’ on petrol or diesel vehicles.

It seems public knowledge gaps are influencing EV deployment and increased efforts into educating consumers are needed. Attempts to improve knowledge are occurring, e.g. the Government’s Road Transport Emissions Advice Group (RTEAG) and LowCVP and Cenex’s ‘The Low Emission Van Guide’; (published in May 2019); however, up-to-date information needs to be more publicly accessible and widespread.

<sup>19</sup>Geotab, 2018. New Study Finds 89% of UK Fleets Plan to Go Electric Before Government’s 2030 Goal (<https://www.geotab.com/press-release/uk-ev-fleet-survey/>)

<sup>20</sup>Carplus, 2017. Carplus annual survey of carclubs 2016/2017 London

<sup>21</sup>RAC, 2018. RAC Report on Motoring 2018: The frustrated motorist

<sup>22</sup>Transport & Environment, 2018. Consumer attitudes to low and zero-emission cars. This survey examined citizen attitudes towards fuel efficiency and EVs in nine European countries (Belgium, France, Germany, Great Britain, Hungary, Italy, Poland, Spain, and Sweden)

<sup>23</sup>“WhatCar?”, 2019. Knowledge gap to blame for slow electric vehicle sales.

## Previous EV use

EV users tend to have positive feedback about driving quality and experience. For London round-trip car club members in 2017, one in seven had already tried an EV and 14% had used a car club EV. Of these, 74% rated the driving experience 'good' or 'very good'. More information on positive EV use needs to be shared appropriately to encourage use.

- **According to BVRLA Members, positive feedback of previous EV use includes:**
  - Quiet
  - Great to drive – fast acceleration, good responsiveness and smoothness
  - Reduced cost of running – cheaper fuels
  - Lower Benefit-In-Kind taxation

In Scotland, 6%<sup>24</sup> of new cars sold in 2018 were ULEVs (with interest-free loans available), compared to just 2.1% in the UK as a whole.

## Policy, planning and incentive influence

Government policies and incentives are considered to be very important drivers of EV uptake, with a strong influence on user sentiment. From a fleet manager survey, Government incentives were highlighted by 48% as leading motivators in the fully electric fleet transition. Clear and consistent joined-up policies and incentives are needed for all fleets to ramp up EV deployment.

89% of UK citizens support incentives to make it more affordable for the public to purchase cleaner-fuelled cars (similar to EU average sentiment of 88%) and 61% feel that governments should mandate car companies to sell EVs (similar to the 60% average). 57% feel the EU should set ambitious but achievable targets to reduce new car CO<sub>2</sub> emissions in 2030 (slightly higher than the 55% EU average), whilst only 18% feel the EU should mandate zero emissions cars by 2030, compared to the 25% EU average.

In Scotland, 6% of new cars sold in 2018 were ULEVs (with interest-free loans available), compared to just 2.1% in the UK as a whole.

More specifically, 75% of fleet managers would be more likely to invest in EVs if grants doubled to £7,000 per car, and 70% would be more likely to if there was a 100% VAT rebate available or if interest-free loans were available to support purchase (as is the case for new vehicles in Scotland).

*"What would help user sentiment is a better understanding on how to use their electric or plug-in hybrid vehicle – there should be more education and support for drivers on how to get the best energy consumption out of the cars and maximise the range they can achieve."*

*Claire Evans – Zenith*

<sup>24</sup>Express & Star, 2019. Use of electric cars too low for Scotland to meet 2032 target. (<https://www.expressandstar.com/news/uk-news/2019/01/08/use-of-electric-cars-too-low-for-scotland-to-meet-2032-target-labour/>)

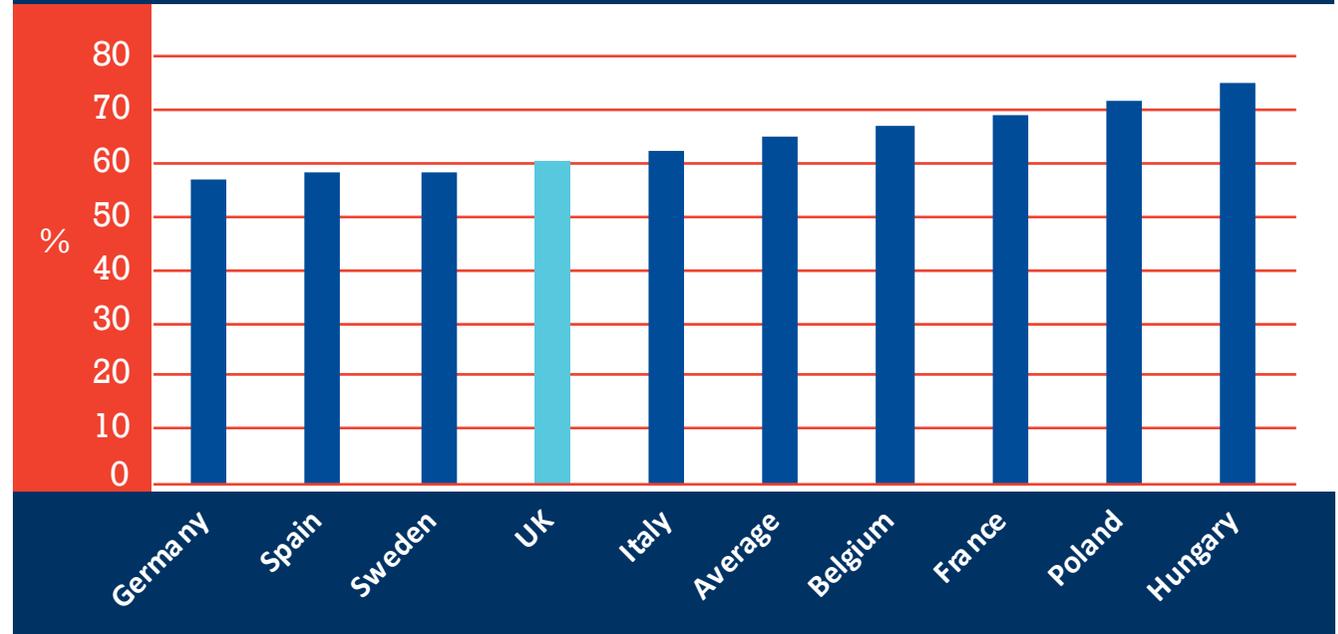
## Barriers and factors influencing positive user sentiment

### Perceived cost

EV cost is still regarded as the biggest uptake barrier for fleet owners and buyers; 60% indicate this an issue within the UK (lower than the 65% EU average). According to both the RAC and AA<sup>25</sup>, 33-40% of motorists said that to consider buying a pure EV the vehicles would have to be cheaper or no more expensive than ICE or hybrid equivalents. Battery cost is a specific issue for fleet operators and car share operators – whilst the EV powertrain component costs are roughly 50% of a conventional vehicle, when the battery pack is included, the EV powertrain is significantly more expensive. However, battery prices are reducing and the latest analysis by Bloomberg NEF forecasts that, in the EU, price parity will come first for large vehicles as early as 2022<sup>26</sup>.

Whilst 3% of renters have rented a pure battery EV, 62% would like to if price was comparable. (BVRLA, 2019)

Percentage of citizens that feel the cost of EVs is a barrier to uptake



The understanding of cost savings from more fuel-efficient cars is also limited. Norwegian car buyers have been found to rate energy efficiency an important factor when purchasing a car; however,

only 29% strongly agree they actually understand how much fuel they would save. More information should be readily available on this to encourage uptake.

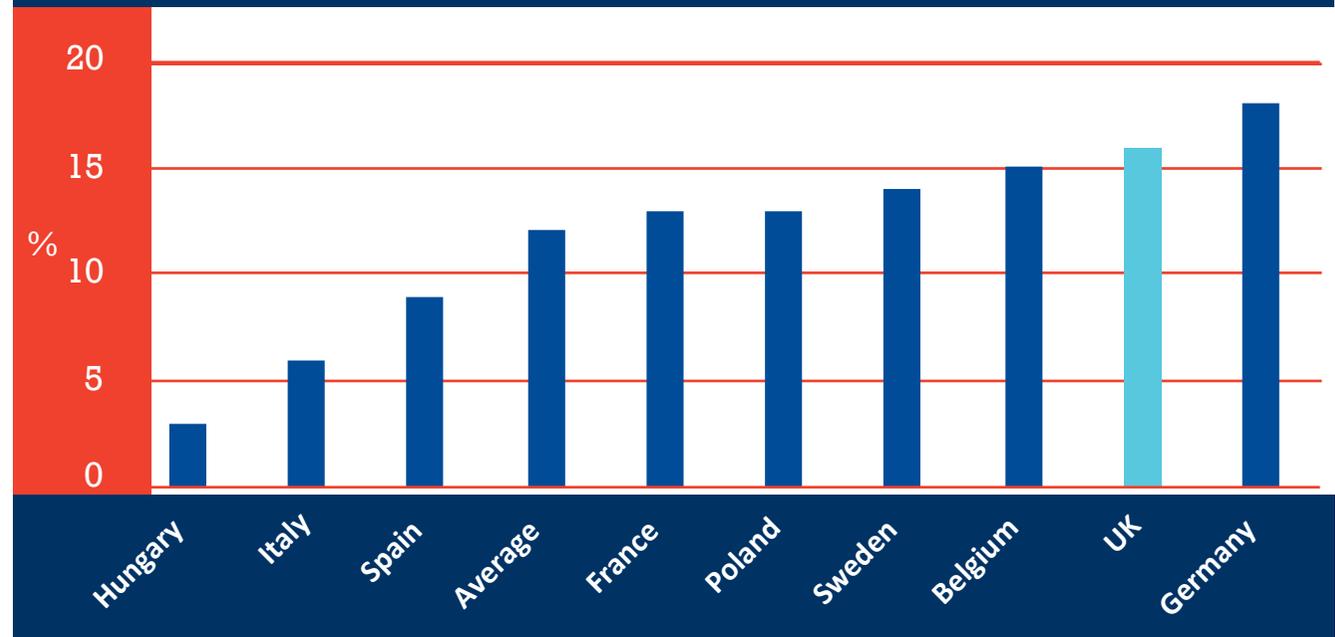
<sup>25</sup>AA, 2019. Charging Attitudes: What will it take for drivers to switch to electric cars?

<sup>26</sup>BloombergNEF, 2019. Electric Vehicle Outlook 2019.

### Range and range anxiety

Although battery electric vehicles (BEVs) can typically travel 100-200 miles on a single charge, range anxiety is still considered a large concern when considering EV purchase or use. 16% of UK citizens feel the ranges of current EVs are not appropriate to their needs (higher than the 12% EU average). During a motorist survey by “What Car?”, 28% were put off by reduced ranges, even though 10% would be able to drive an EV without making changes to their lifestyle. Another survey found only 4% would consider replacing their vehicle with an EV if it had a 250-mile battery range, increasing to 67% with at least 300 miles.

**Percentage of citizens that feel the travel range of EVs is a barrier to EV uptake**



Engagement with BVRLA members showed that all BVRLA members agreed users of their vehicles are ‘somewhat anxious’ about range anxiety.

### Charging infrastructure and time

To ensure journey confidence, users want rapid, public charging facilities available that offer interoperability to all – however such confidence is not currently felt, even with 14,000+ public charging devices at 8,500+ UK locations. A lack of infrastructure has been noted by 41% of UK citizens (above the 38% EU average but lower than Spain (46%) or Italy (49%)), and it seems infrastructure improvement is a leading motivator for fleet managers to transition to a fully electric fleet.

Car club users have not been completely satisfied with EV charging to date; according to a 2017 London survey, only 60% rated the experience “good” or “very good”, with many encountering problems with scarcity or broken infrastructure. However, currently it is car club operators that tend to charge most vehicles, although this could change. 50% of motorists do not want to wait more than 30 minutes to fully recharge mid-journey, and 62% agree charging points have to be available within a maximum five-minute detour from their chosen route or destination. As it stands, more information about available, functioning infrastructure needs to be in place for users to be more willing to transition to EVs.

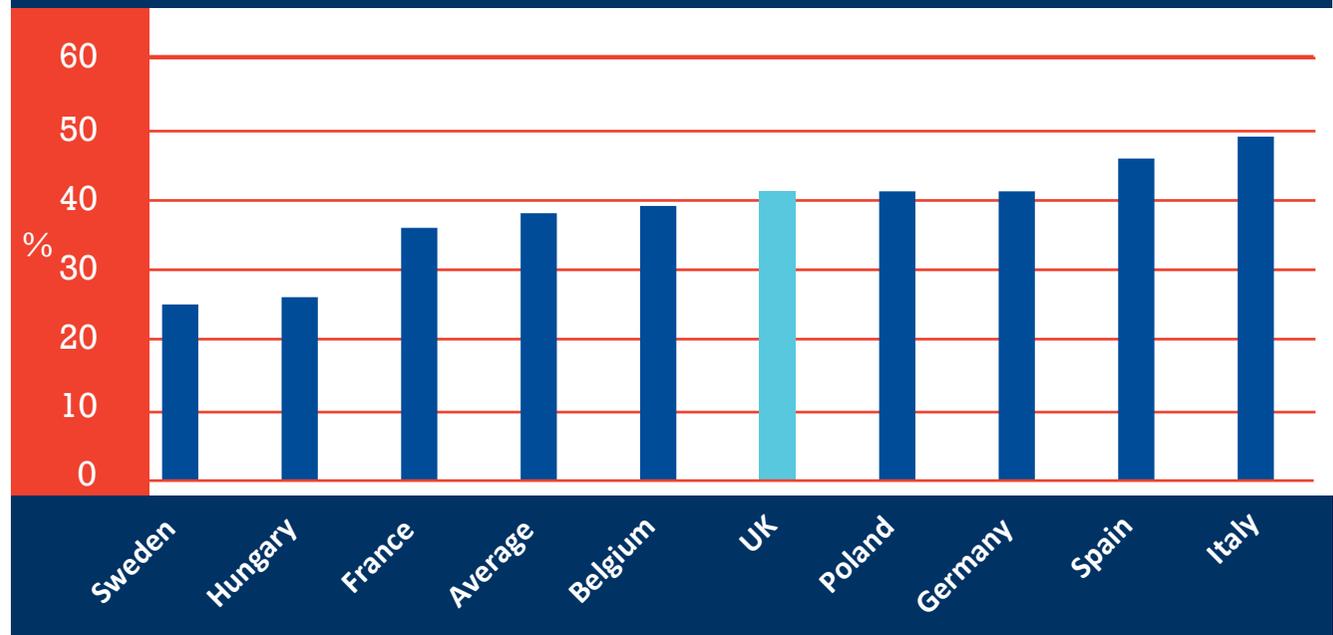
Only 17% of Outlander PHEV owners agree it's easy to find a location to recharge<sup>27</sup>.

<sup>27</sup>Mitsubishi. (2019). Outlander PHEV Study: Headline Report.

*"A lack of charging infrastructure is always presented as an excuse when asked to consider getting an EV. People are surprised when they find out how many public charge points are available to them and so there is a need to promote this infrastructure."*

**Mark Gallagher** – Grosvenor Leasing

### Percentage of citizens that feel a lack of recharging points is a barrier to EV uptake



## Behavioural Change

It seems limited understanding and resistance to change are still inhibiting UK EV deployment. Often, it can be suggested that range anxiety and limited charging infrastructure are a rhetoric created as an avoidance to change, and EV deployment cannot therefore be fully addressed through range and charger quantity improvements because people will always find exceptions of how this doesn't solve the problem. Behavioural research undertaken supports this theory:

- A Chinese study<sup>28</sup> investigated consumers' willingness to adopt EVs. It found a lack of charging facilities was unrelated to willingness to adopt (compared to EV performance features, perceived driving benefits and policy support) and could be interpreted that consumers presume they could charge at home, or the vehicle had adequate range to meet daily commuting needs.

- A study launched across five Nordic countries<sup>29</sup> showed that, even though limited range appeared to be a primary barrier within surveys, statistical evidence did not support this in travel patterns (93% who were disinterested in EVs because of range drove less than 80km a day).

Overcoming natural resistance to change will therefore require a nuanced approach, with increased effort to educate consumers correctly. However, it must also be noted that a visible network of charging infrastructure is considered as being very beneficial to giving EV users the confidence that they can recharge their vehicles anywhere.

## Urban/Rural Split

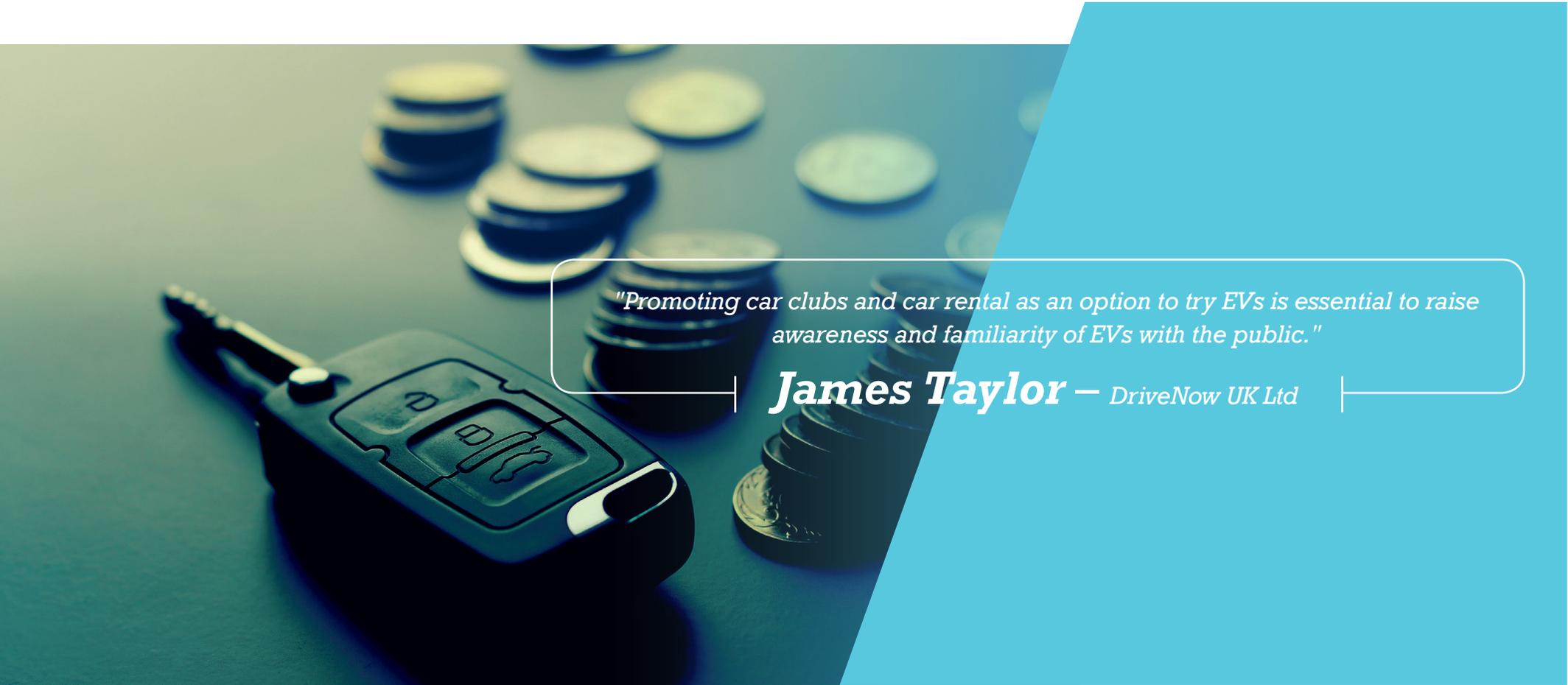
EV sentiment can also be influenced by urban / rural split –charging infrastructure has thus far tended to be installed predominantly in urban areas. Some users could be put off by accessibility issues and some fleets will be more affected than others:

- Rental fleets typically have daily mileages of around 70 miles and corporate rental periods can be up to 8 days for cars and 12 for vans – renters will therefore likely need to recharge and thus may be influenced by rural availability.
- If leased vehicles are being used by employees, a combination of urban and rural charging may be required.

More up-to-date information about available infrastructure needs to be accessible to ensure urban / rural split is not considered a barrier for uptake.

<sup>28</sup>Sovacool et al. (2019). Pleasure or profit? Surveying the purchasing intentions of potential electric vehicle adopters in China

<sup>29</sup>Noel et al. (2019). Fear and loathing of electric vehicles: The reactionary rhetoric of range anxiety.



*"Promoting car clubs and car rental as an option to try EVs is essential to raise awareness and familiarity of EVs with the public."*

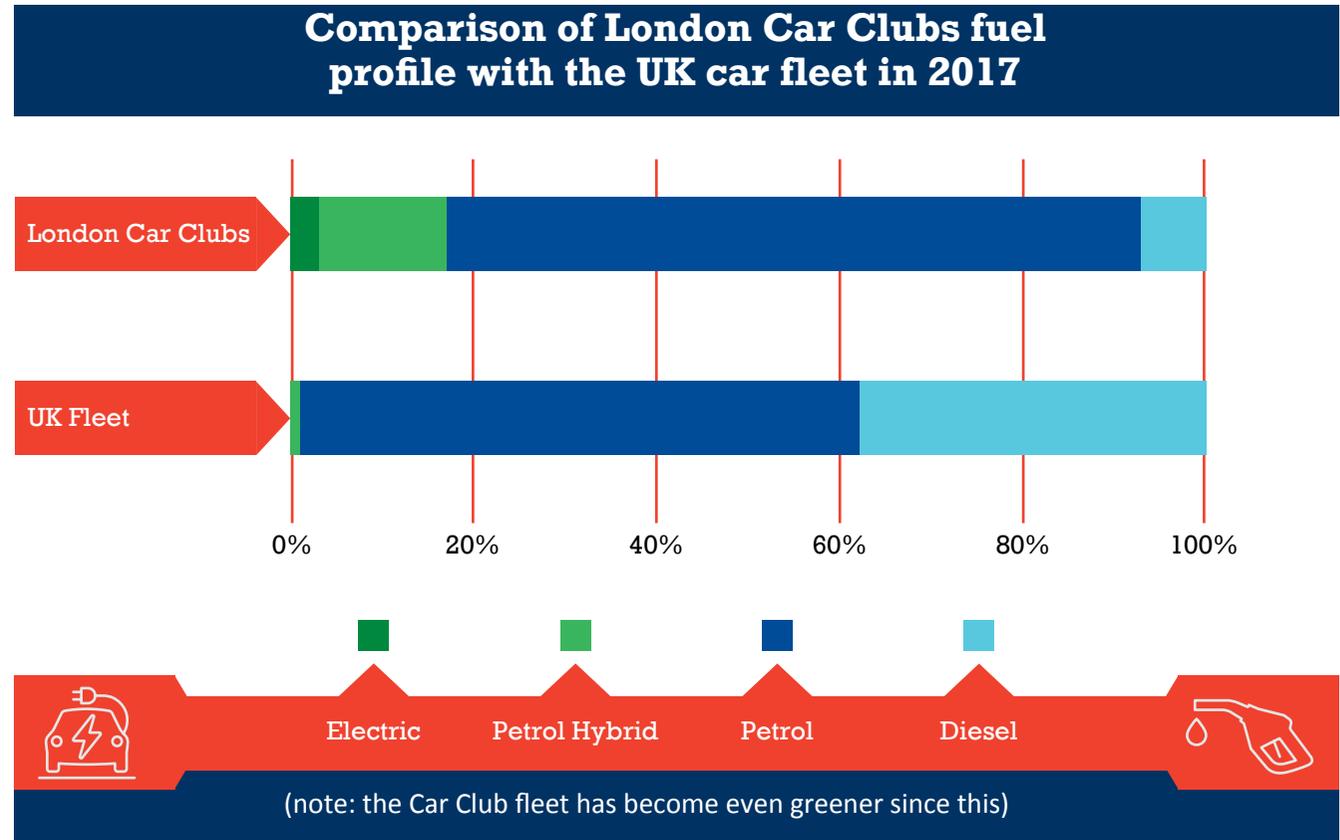
**James Taylor** — *DriveNow UK Ltd*

USER SENTIMENT

## Fleet Spotlight – Car clubs

Evidence suggests car clubs have had a positive impact on transport behaviour. They are driving behavioural change and highlight positive sentiment and progress towards EV adoption, with fleets having much cleaner profiles than the UK as a whole (only 7% of the 2017 London fleet was diesel powered (mostly vans), 99% of vehicles complied with the ULEZ, and 87% of flexible members that had used an EV rated the use “good’ or ‘very good’; the car club fleet has become even greener since the release of the 2017 report). Car clubs have introduced hundreds of pure EVs in recent months, with EVs being well-suited to car clubs. For example, within rental, customers are less willing to pick up increased charges because of EVs being more expensive than petrol or diesel equivalents.

- Zipcar has a fleet of 325 VW e-Golfs making it the largest shared UK EV fleet.
- Drive Now’s fleet is 25% electric after the introduction of 130 new BMW i3s in February this year.
- E-Car runs a 100% electric fleet.



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## Text References

- **AA. (2019).**
  - Charging Attitudes: What will it take for drivers to switch to electric cars?
- **ACEA. (2018).**
  - Overview of tax incentives for electric vehicles in the EU.
- **ACEA. (2019).**
  - Passenger Car Statistical Press Releases.
- **Air Quality News. (2019).**
  - Plans revealed for network of 100+ ‘electric forecourts’. Retrieved from Air Quality News: <https://airqualitynews.com/2019/04/01/plans-revealed-for-network-of-100-electric-forecourts/>
- **BloombergNEF. (2019a).**
  - Electric Vehicle Outlook 2019.
- **BloombergNEF. (2019b).**
  - Electric vehicle purchase costs analysis forecast.
- **BVRLA. (2018a).**
  - Industry Outlook Report 2019.
- **BVRLA. (2018b).**
  - Q4 Quarterly Leasing Survey.
- **BVRLA. (2018c).**
  - Road to Zero: time to shift a gear on tax.
- **BVRLA. (2019a).**
  - Car and Van Rental in the UK Report.
- **BVRLA. (2019b).**
  - Electric Vehicle Pledge.
- **CAP HPI. (2019).**
  - Falling lease costs will unlock the sales for electric vehicles.
- **Carplus. (2017).**
  - Carplus annual survey of car clubs 2016/17 London.
- **Carplus. (2018).**
  - Carplus annual survey of car clubs 2017/18 Scotland.
- **ClientEarth. (2019).**
  - Survey: Double plug-in grant to shift company fleets into greener gear.
- **Commercial Fleet. (2019).**
  - Fleets pledge to buy 65,000 electric vans as ULEZ goes live. Retrieved from Commercial Fleet: <https://www.commercialfleet.org/news/van-news/2019/04/08/fleets-pledge-to-buy-65-000-electric-vans-as-ulez-goes-live>
- **Cornwall Insight. (2019).**
  - Charged Up: Future Fleet.
- **Defra, DfT. (2018).**
  - Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations. Defra, DfT.
- **DfT. (2018a).**
  - Guidance: Reporting CO<sub>2</sub> emissions for new cars and vans if there’s no Brexit deal.
- **DfT. (2018b).**
  - The Road to Zero.
- **DfT. (2018c).**
  - Transport Energy Model: Report.
- **DfT. (2019).**
  - The Last Mile – Delivering goods more sustainably.
- **Electrek. (2019).**
  - Electric car sales grew by 40% in Norway this year. Retrieved from Electrek: <https://electrek.co/2019/01/02/electric-car-sales-norway-2018/>
- **Electrive. (2019).**
  - Fastned gets ready for HPC & Autocharge in UK. Retrieved from Electrive: <https://www.electrive.com/2019/04/17/uk-fastned-opens-first-350kw-ready-hpc-station/>
- **Emu Analytics. (2018).**
  - A Sustainable Future: Preparing for Electric Vehicles.
- **Energy Saving Trust. (2017).**
  - A guide to ultra low emission vehicles for fleet managers.
- **Energy Saving Trust. (2018).**
  - National Franchised Dealers Association’s electric vehicle approved (EVA) pilot scheme to certify EV retailers’ excellence endorsed by Office for low emission vehicles (OLEV). Retrieved from Energy Saving Trust: <https://www.energysavingtrust.org.uk/about-us/news/national-franchised-dealers-association’s-electric-vehicle-approved-eva-pilot-scheme>

- **Fleet News. (2019).**
  - Ionity plans 50 350kWh EV charging stations in UK by 2020. Retrieved from Fleet News: <https://www.fleetnews.co.uk/news/environment/2019/04/04/ionity-plans-50-350kwh-ev-charging-stations-in-uk-by-2020>
- **Geotab. (2018).**
  - New Study Finds 89% of UK Fleets Plan to Go Electric Before Government’s 2030 Goal. Retrieved from Geotab: <https://www.geotab.com/press-release/uk-ev-fleet-survey/>
- **Global Action Plan. (2019).**
  - Clean Van Commitment signatories. Retrieved from Global Action Plan: <https://www.globalactionplan.org.uk/clean-air/clean-van-commitment>
- **Go Ultra Low. (2019).**
  - Go Ultra Low. Retrieved from Go Ultra Low: <https://www.goultralow.com/>
- **Google. (2019).**
  - Finding a place to charge your EV is easy with Google Maps. Retrieved from Google: <https://www.blog.google/products/maps/finding-place-charge-your-ev-easy-google-maps/>
- **Green Alliance. (2018).**
  - How the UK can lead the electric vehicle revolution. Retrieved from Green Alliance: [https://www.green-alliance.org.uk/resources/How\\_the\\_UK\\_can\\_lead\\_the\\_electric\\_vehicle\\_revolution.pdf](https://www.green-alliance.org.uk/resources/How_the_UK_can_lead_the_electric_vehicle_revolution.pdf)
- **House of Commons. (2018).**
  - Electric vehicles: driving the transition.
- **ICCT. (2016).**
  - White Paper - Comparison of Leading Electric Vehicle Policy and Deployment in Europe.
- **ICCT. (2018a).**
  - White Paper - Assessment of electric car promotion policies in Chinese Cities.
- **ICCT. (2018b).**
  - Using vehicle taxation policy to lower transport emissions an overview for passenger cars in Europe.
- **IEA. (2018).**
  - Global EV Outlook 2018.
- **Innovate UK & Catapults. (2018).**
  - Electric Vehicles: Towards an Excellent User Experience.
- **Institute of the Motor Industry. (2016).**
  - On the road to sustainable growth - boosting electric vehicles in the UK.
- **IONITY. (2019).**
  - Pan-European EV infrastructure charges ahead after IONITY secures EUROP-E funding. Retrieved from IONITY.EU.
- **LowCVP. (2018).**
  - The Journey for the ‘Road Transport Emissions Advice Group’. Retrieved from LowCVP: [https://www.lowcvp.org.uk/news,the-journey-for-the-road-transport-emissions-advice-group\\_3890.htm](https://www.lowcvp.org.uk/news,the-journey-for-the-road-transport-emissions-advice-group_3890.htm)
- **Mitsubishi. (2019).**
  - Outlander PHEV Study: Headline Report.
- **Noel et al. (2019).**
  - Fear and loathing of electric vehicles: The reactionary rhetoric of range anxiety.
- **NREL. (2016).**
  - Consumer Views on Plug-in Electric Vehicles - National Benchmark Report.
- **OLEV. (2018).**
  - Tax benefits for ultra low emission vehicles.
- **OLEV. (2019).**
  - Electric Vehicle Homecharge Scheme: Guidance for customers: January 2019.
- **RAC. (2018).**
  - RAC Report on Motoring 2018: The frustrated motorist.
- **RAC. (2019).**
  - RAC develops UK’s first lightweight charger to deliver a ‘journey-saving’ boost to electric vehicles. Retrieved from RAC: <https://media.rac.co.uk/pressreleases/rac-develops-uks-first-lightweight-charger-to-deliver-a-journey-saving-boost-to-electric-vehicles-2866091>
- **RAC Foundation. (2016).**
  - Charge point availability on strategic roads. Retrieved from RAC Foundation: <https://www.racfoundation.org/research/environment/charge-point-availability-on-strategic-roads> [and as updated]

- **RAC Foundation. (2018).**
  - Development of the UK Public Chargepoint Network.
- **Ricardo. (2019).**
  - Hydrogen for Transport Programme (HTP). Retrieved from Ricardo: <https://ee.ricardo.com/htpgrants>
- **Shell. (2019).**
  - Welcome to Shell Recharge. Retrieved from Shell: <https://www.shell.co.uk/motorist/welcome-to-shell-recharge.html>
- **SMMT. (2019).**
  - SMMT Motor Industry Facts.
- **Sovacool et al. (2019).**
  - Pleasure or profit? Surveying the purchasing intentions of potential electric vehicle adopters in China.
- **The Brussels Times. (2019).**
  - Battery shortage forces Audi Brussels to slow down production. Retrieved from The Brussels Times: <https://www.brusselstimes.com/all-news/brussels-all-news/55536/battery-shortage-forces-audi-brussels-to-slow-down-production/>
- **The Energyst. (2019).**
  - EV Report.
- **Transport & Environment. (2018).**
  - Consumer attitudes to low and zero-emission cars.
- **Transport & Environment. (2019).**
  - Trump's US overtakes the EU in electric car race.
- **UK Government. (2017).**
  - Alternative Fuels Infrastructure Regulations 2017.
- **UK Government. (2018).**
  - Automated and Electric Vehicles Act 2018.
- **UK Parliament. (2018).**
  - Department for Transport: Motor Vehicles: Written question - 184986. Retrieved from parliament.uk: <https://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2018-10-29/184986>
- **UK Parliament. (2019).**
  - Electric Vehicles (Standardised Recharging) Bill 2017-19. Retrieved from Parliament.com: <https://services.parliament.uk/bills/2017-19/electricvehiclesstandardisedrecharging.html>
- **WhatCar? (2019a).**
  - The 10 slowest-depreciating cars. Retrieved from WhatCar?: <https://www.whatcar.com/news/the-10-slowest-depreciating-cars-2019/n17098>
- **WhatCar?. (2019b).**
  - Knowledge gap to blame for slow electric vehicle sales. Retrieved from WhatCar?: <https://www.whatcar.com/news/knowledge-gap-to-blame-for-slow-electric-vehicle-sales/n19097>
- **Zap-Map. (2018).**
  - Dundee Opens New EV Charging Hub. Retrieved from Zap-Map: <https://www.zap-map.com/dundee-opens-new-ev-charging-hub/>
- **Zap-Map. (2019).**
  - Charging point statistics 2019. Retrieved from Zap-Map: <https://www.zap-map.com/statistics/>

## Sub scoring appendix

Policy Measures		
<b>Plug-in grants</b>	Grants are still being offered, but support is needed to 2025	
<b>VED consultation</b>	Consultation complete; plan clarified	
<b>25% Gov fleet by 2022</b>	Plan of action needs to be published for the current Government fleet composition and progress towards the target needs to improve	
<b>100% Gov fleet by 2030</b>	Plan of action needs to be published for the current Government fleet composition and progress towards the target needs to improve	
<b>2018/19 GUL campaign</b>	The Go Ultra Low campaign has launched the 2019/20 campaign and is running until 2020; some focus on fleets	
<b>Road Transport Emissions Advice Group</b>	The Group is up and running; plans for information dissemination are being developed	
<b>Used vehicles</b>	The Government has provided support to the current used vehicle market through an accreditation scheme and training	
<b>Technology neutral</b>	The Government continues to take a technology neutral approach	

Tax Benefits		
<b>Vehicle excise duty</b>	Incentivising to pure EVs (£0 standard rate) but limiting to hybrids (£135/year standard rate); supplementary £320 for higher-end EVs should be removed	
<b>Value added tax</b>	Domestic electricity attracts a reduced rate of 5% (vs 20% for road fuels), which benefits EVs, and this is unlikely to increase	
<b>Company car tax</b>	Incentivising in 2020/21 when CCT rates reduce from 16% to 2%; but lack of clarity for further years is affecting purchasing decisions	
<b>Van benefit charge</b>	Incentivising to pure EVs until 2022, when it matches the main rate	
<b>Enhanced capital allowance</b>	Incentivising for vehicle purchases (100% FYA) but restricted to leasing fleets	

New Vehicles		
<b>Product range</b>	Expanded significantly in the last couple of years; but a lack of choice remains in certain segments	
<b>Supply</b>	Recent supply constraints have affected the UK's ability to meet fleet demand for ULEVs	
<b>Whole life cost</b>	Plug-in EV prices continue to approach parity with ICEVs and are often cheaper on a whole life basis, although vehicle cost remains a key barrier to uptake	
<b>Functionality</b>	Range is increasing; but continues to be a barrier to ULEV uptake	
<b>Regulatory and industrial policy</b>	The UK could build on vehicle CO <sub>2</sub> regulation with a ULEV sales mandate. Support has been given to the domestic battery industry; but further investment needs to be made	
<b>Aftermarket services</b>	Concern over shortage of skilled technicians but actions are being taken to provide training and create professional standards	

Charge Points		
<b>Availability</b>	Availability of infrastructure is increasing; though not consistent for different types of fleets (e.g. car club vs rental), and a UK-wide network of rapid chargers has not yet been implemented	
<b>Speed</b>	Charging speeds are increasing and rapid charging becoming more prominent; but still may be a barrier for fleets when compared with the speed of refuelling liquid fuels	
<b>Accessibility</b>	Connectors have become standardised and many suppliers provide live data; though still not consistent across suppliers	
<b>Reliability</b>	Reliability of the network has improved in recent years; but still one of the most prominent barriers to EV adoption	
<b>Pricing</b>	Cost of fuelling EVs remains greatly beneficial when compared with ICEV refuelling; however, there are still issues remaining with respect to transparency and visibility	
<b>Roaming</b>	No standardised method of payment, large variability across charging networks and a source of confusion	

User Sentiment		
<b>Willingness to use EVs</b>	Increasing; although many are still unsure and / or in favour of conventional vehicles	
<b>Perceived cost</b>	Considered as the biggest barrier of EV uptake, even though battery prices are lowering	
<b>Range anxiety</b>	Considered as a large barrier to EV uptake, even though ranges are increasing and sufficient for the majority of journeys	
<b>Charging infrastructure availability</b>	Increasing; but not consistently for different types of fleets and still considered a barrier of EV uptake due to lack of awareness	
<b>Behavioural restrictions</b>	Resistance to change means some barriers are still considered significant	
<b>European position</b>	In the UK cost is less of a concern than the EU average, but range anxiety and the perceived lack of charging infrastructure availability is more of a concern; likeliness to buy or lease an EV as a next car is less than the EU average	





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