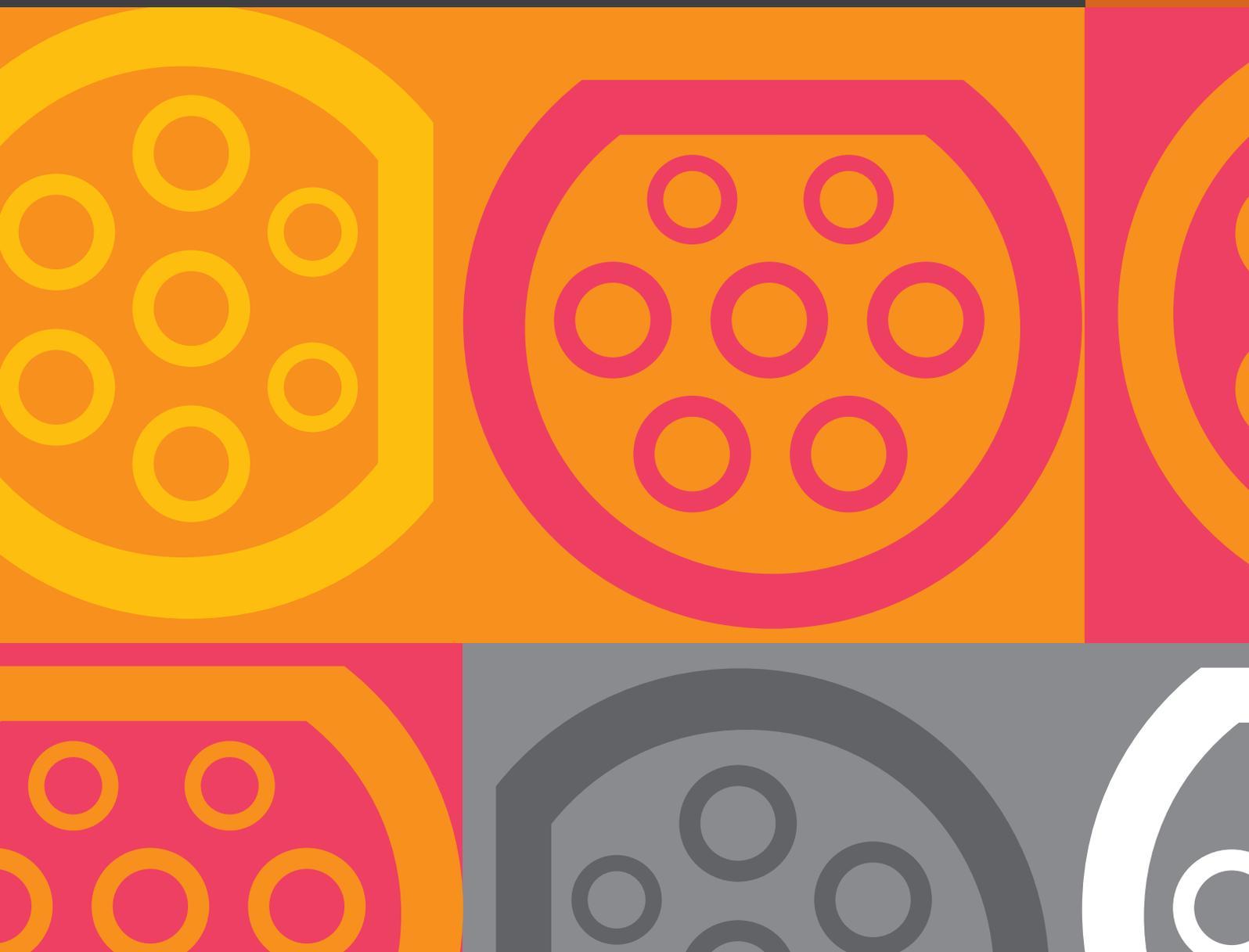


Leading the charge!

Fleet charging – a catalyst for the EV revolution



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Our approach and acknowledgements

PwC and Cornwall Insight have partnered on this research which combines strategic thinking and in-depth technical expertise relating to the electrification of fleets.

We have interviewed key stakeholders from across the value chain (from fleet managers and energy utilities to infrastructure operators and investors) to provide a rounded perspective of fleet charging.

Our key findings answer why the fleet revolution will be a critical component for the UK’s move to net zero and what the market impact of electrification will likely be.

Our analysis evaluated the **key segments of the fleet market** and pinpointed the characteristics of each segment, identifying which will be leading the electric vehicle (EV) revolution.

Within this framework we have **outlined a road map that fleets may follow** as they electrify. Our road map also provides some food for thought about the ways key stakeholders can play within a rapidly evolving market.

Ultimately this is going to be a market that redefines itself based on the actions of core stakeholder groups, and our research aims to find out what should be done next for **fleet owners, charge point operators and investors**.

For this report we interviewed over 25 of the leading fleets, charge point operators and investors. We would like to thank everyone who contributed to this report, of which some are below, for their insights, thoughts and time.

- AMP Capital
- BP Chargemaster
- BVRLA (British Vehicle Rental & Leasing Association)
- Centrica
- Drax Group
- Enel X
- Energy UK
- EO Charging
- Field Dynamics
- Jackson Civil Engineering
- John Lewis Partnership
- Menzies Distribution
- National Grid
- Octopus Electric Vehicles
- PCO Rentals
- Pivot Power
- Pod Point
- TfL (Transport for London)
- Western Power Distribution
- Zenobe Energy

Foreword

The much hyped electric vehicle revolution may seem like a secondary priority now as governments, industries and individuals cope with the impact of the COVID-19 pandemic. Quite rightly these groups are focused on crisis management.

However, the crisis has also served to highlight and potentially accelerate some of the fundamental structural forces shaping our economy, such as the energy transition. In some sense the need to decarbonise the transport sector has been strengthened by some of the consequences of COVID-19. These include improved air quality and lower noise pollution in cities, as vehicle use and overall travel has dramatically decreased during the lockdown.

These environmental achievements do, however, raise a stark challenge: how do governments manage a resumption of road traffic and air travel and overall economic activity without sacrificing some of the gains made in emissions reductions?

After all, the 2020s will be a critical decade to make progress in emissions abatement, some 8% year on year reductions are needed by 2030 if we are to deliver the 1.5°C temperature goal of the Paris Agreement according to the UN.

In the UK overall decarbonisation rates of about 10% per year are needed to hit net zero¹. UK transport emissions only decreased in 2019 by 3% and it is the largest emitting segment of our economy.²

In light of this, electric vehicles and the underlying power network and charging infrastructure will play a vital role in securing the long-term air quality and emission reductions we have seen recently. Investment in this area will also play an important role in stimulating a green economic recovery.

In this landscape we see fleets as a key catalyst in transforming the transport sector at scale and across critical segments such as corporate fleets, fields services and logistics.

We would like to thank all the contributors to this report who have highlighted how much desire, innovation and cooperation there is across the entire value chain and multiple industry sectors to enable the electrification of fleets.



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We see fleets as a key catalyst in transforming the transport sector at scale and across all critical vehicle types.

1. PwC Low Carbon Economy Index 2019

2. BEIS

Key findings

1 Fleet electrification is a critical catalyst that will enable the EV revolution in the UK.

- With a current base of over 5 million vehicles, fleet electrification offers the scale to accelerate the adoption of EVs in the UK.
- If this scale is achieved, it will reinforce the need for and underpin the economics of EV charging infrastructure across the UK.
- Given fleets are responsible for purchasing the majority of new road-going vehicles (56%), fleet electrification will enable the growth of a second-hand EV market, improving choice and affordability for consumers.
- The decarbonisation of the light vehicle fleet (i.e. cars and small to medium sized vans) will likely generate commensurate benefits in air quality, boosting transitioning firms' progress in the realm of corporate and social responsibility.

2 There is 'money to be made' in fleet charging now, whereas stable profitability in consumer-led charging is still in the future.

- The fleet market offers a more stable proposition than the current public charging network. It can guarantee utilisation of charging assets due to a combination of potentially millions of vehicles, with high mileage requirements providing a predictable demand for charging.
- Fleet charging assets are also more likely to be purchased by large corporates that can enter into long-term contracts providing certainty of revenue and profitability. These are highly desirable characteristics of any emerging market.
- Fleet charging does not have to rely on uncertain future sales streams and revenue stacking models, such as advertising or data analytics, which dominate consumer charging platforms.

56%

of new road-going vehicles are purchased by fleets. Fleet electrification will enable the growth of a second-hand EV market, improving choice and affordability for consumers.



3 Field services, depot-based logistics and leased corporate car fleets in particular are likely to electrify first and accelerate EV adoption. Electrification of buses also offers significant potential but is more complex.

- The nature of their operations suggests charging will be the least problematic. Logistics and field service players are typically depot-based, making charging a typically overnight and frequently fairly straightforward option. Alternatively, those drivers taking their vehicles home can similarly charge overnight. Corporate fleets by their nature are more flexible and can use a portfolio of charging solutions from home, rapid, workplace and destination.
- Driving patterns for all these segments are typically predictable and mostly over short and moderate distances.
- As for buses, their high mileage and predictability of routes guarantee high charging utilisation and a defined time window in which to administer the charge. However, energy demand will be significant and there are competing technology solutions, such as hydrogen.

4 Government policy has a critical role to play in enabling the EV fleet transition.

- Our research confirmed that government has a major role to play in enabling fleet electrification by providing certainty to all stakeholders across fleets, EV charging providers and investors.
- Our research found stakeholders involved in fleet electrification welcomed the clarification in the 2020 budget on the future of benefit-in-kind tax rates for company cars and the plug-in vehicle grant, which was thought to unlock some investment.
- However, there are still pressing concerns for policy to address including:
 - In the short-term, a more consistent approach to clean air zones (CAZ) in cities.
 - While in the long-term, a policy gap exists from 2032 to 2050 regarding fleet incentives that will need additional details if transport is to deliver its contribution to hitting net zero.



Fleet operators are crying out for policy certainty. Subsidies don't always need to be in place but knowing when they will expire or change is just as powerful for long-term planning.

**Joseph Cosier, Policy Manager,
New Energy Services, Energy UK**

5 The business models of charge point operators (CPOs) need to incorporate some key principles to be successful.

- Building partnerships across the value chain is a winning strategy. To electrify fleets the processes are long and customer solutions can be complex. Few if any CPOs will have the capabilities to master every facet and our research found that partnerships allow the biggest chance of success.
- Achieving scale is a critical determinant of success but there are different ‘shades’ of scale from basic infrastructure (i.e. number of charge points), to the scale of data or knowledge on the needs and business cycles of the fleets that are electrifying.
- Being the trusted advisor to the fleet is critical as it enters into a new and unfamiliar environment. Fleets will have needs ranging from basic questions to complex infrastructure requirements and only a trusted advisor can help navigate fleets through every stage of the electrification journey.
- Business models will need to be driven by constant innovation as the needs of fleets mature from basic charging infrastructure to complex energy management.

6 Fleet electrification providers will be an attractive opportunity for institutional investors – if the target can demonstrate the right capabilities and can access the scale that fleet electrification offers.

- Fleet charging providers need relationships with large corporate off-takers and/or fleet owners. These relationships should underpin a pipeline of fleet electrification projects.
- Providers will need in-house technical skills to meet complex design specifications across multiple electrification types (e.g. depot, home, en route).
- Providers will need a demonstrable track record of successful electrification. As the market grows, and more new entrants are enticed to enter, a proven history of success is very powerful.
- If investors are targeting businesses with large fleets, a robust strategy to electrify their assets will be essential to ensuring long-term value.

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Fleet charging providers need relationships with large corporate off-takers and/or fleet owners. These relationships should underpin a pipeline of fleet electrification projects.

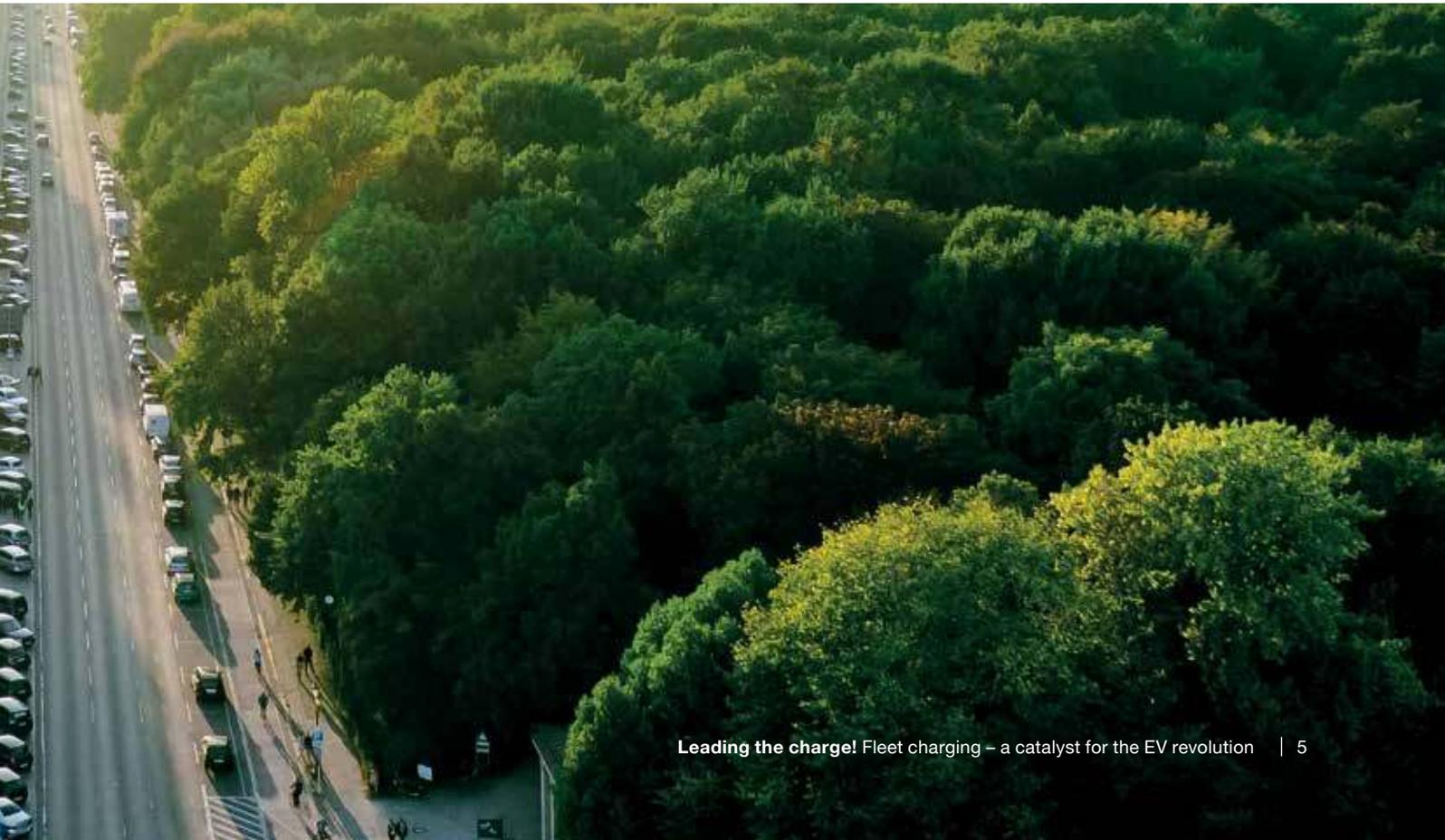
7 If fleets are to maximise the opportunity of electrification, they need to take some critical and preparatory steps in designing their own road map.

- Fleet electrification will have different capital requirements, compared to internal combustion engine vehicles, requiring new funding pathways.
- Fleet managers will have to educate their fleet drivers on the practicalities of going electric.
- Fleet managers will be obliged to enhance their understanding of all aspects of energy management (from the power rating of charging units to learning how to manage the increased load on the local electricity network).
- Outside of charging infrastructure located on their own premises, fleets will need to proactively learn how to make use of public charging networks and integrate these into daily duty cycles, if needed, to ensure no disruption to working practices.

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There is an opportunity for fleet to think differently. It's a whole new world for them as they move away from fossil fuel vehicles and into EVs. Some of these operators have fantastic geographic locations and are close to large population centres, meaning they can not only be in control of their own charging infrastructure, but also share the cost with others.

Chris Jackson, Head of Fleet & Transportation, Centrica Mobility Ventures



What is the ‘fleet market’ and why is it important?

The UK government has set a net zero target to be achieved by 2050. Despite progress being made to reduce emissions in certain segments (such as power), the transport sector in the UK has seen emissions decrease by only 3% between 1990 and 2018. Moreover, transport represents the largest share of total carbon emissions across all sectors, 28% in 2018 with the majority of the sector’s emissions stemming from road transport.³ Road transport contributes to air pollution in urban centres, adding a local health element to the national and international challenge of climate change.

The adoption of EVs offers a sustainable way forward, in particular for light vehicles (i.e. cars and small to medium sized vans). By 2030, 11.7 million EVs could be in use in the UK, according to National Grid’s ‘Two Degrees’ pathway.⁴ EVs will play an increasingly critical role in the zero emission future of the transport sector. In fact, in 2020 the UK government sought to accelerate the pace of electrification by bringing forward the ban on new petrol and diesel cars and now hybrids from 2040 to 2035.

The transport sector is made up of a range of players. A critical participant which is often overlooked is the fleet industry. A fleet can be defined as a group of vehicles owned, but more commonly leased, by a business, serving a commercial purpose. Field service vans used by engineers, corporate cars driven by the employees of a company and logistics vans delivering parcels, are all relevant examples of this category.

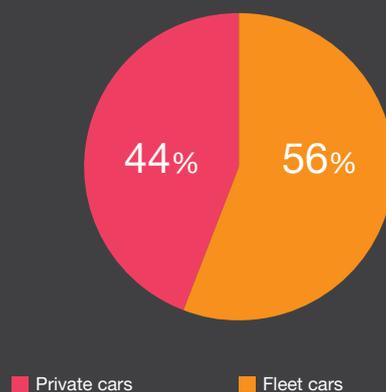
Fleets are important for a number of reasons. Firstly, they are large. In the UK the fleet market totaled 5.3 million in 2018, see Figure 1, significantly larger than the current stock of battery electric or plug-in hybrid vehicles (BEVs / PHEVs). Secondly, fleets are responsible for purchasing the majority of new road-going vehicles. As illustrated in Figure 2, fleets represented more than half of new car registrations (56%) in 2019, totalling some 1.3 million vehicles.

Figure 1
UK fleet market and BEV / PHEV stock



Note: fleet numbers are 2018. BEV (battery electric vehicle) and PHEV (Plug-in Hybrid Electric Vehicles) are 2019
Source: Department for Transport, Zap-Map, Cornwall Insight, PwC Strategy& research

Figure 2
UK car sales split by fleet and private 2019



Total car sales: 2,311,140
Source: Society for Motor Manufacturers and Traders, Cornwall Insight, PwC Strategy& research

3. BEIS, 2019, 2018 UK greenhouse gas emissions
4. National Grid, Future Energy Scenarios (2019)

The scale of fleets have important implications for EVs:

- 1** Fleet electrification can accelerate the adoption of EVs in the UK. At 5.3 million vehicles, the electrification of this segment would already represent almost half of the number of EVs expected by 2030 in the UK.
- 2** As fleets begin their electrification journeys en masse, this will provide the market with scale, reinforcing the need for and underpinning the economics of EV charging infrastructure across the UK.
- 3** Fleet electrification will enable the growth of a second-hand EV market, improving choice and affordability for consumers. Given fleets purchase most new vehicles and their vehicles typically have a life cycle of two to four years, these will subsequently help create a large private second-hand market. It is estimated that the vehicle rental and leasing industry sell 1.5million used vehicles annually to the second-hand market.
- 4** The decarbonisation of the light vehicle fleet will likely generate commensurate benefits in air quality. also has the potential to make fleets leaders in the field of corporate and social responsibility. In fact, if all 5.3 million fleet vehicles were to become 'zero tailpipe emission', this could an estimated some 30 million tonnes of CO² and some 425,000 tonnes of NO² emissions (around 25% of all transport emissions).⁵

The scale and characteristics of fleets also drive the charging infrastructure market that will be underpinning the revolution. There are important distinctions to be made between the market for providing fleet charging and the public charging networks for general consumers:

- Our research found that fleet charging offers a higher level of certainty and access to cash generation now. This is because the market is dominated by large corporates (such as car leasing companies) that are able to enter into long-term contracts.
- Given the number of vehicles, as well as the mileage of fleet vehicles (due to business use), cash flow for charging assets in the fleet segment has the potential to be stable. Moreover, fleet utilisation is likely to be robust, unlike the public charging market (due to the fact that overall EV penetration is still at a lower base).
- The public charging market is still in the high cost growth phase, where operators are attempting to secure the best location for assets (dictated by where players think vehicles will be parked in future).

In summary, the fleet market contains a diverse group of businesses, operating a varied group of vehicle types which are carrying out a broad range of tasks. However, what is clear is that the size of market in the UK makes it an attractive target for electrification offering economic (stable cash flow), as well as societal benefits (air quality improvements), which should make it an investment priority for industry and government.



The sheer volume of fleet vehicles and company cars that enter the market means there is no way this couldn't be significant for EVs overall. Fleet is and will always be an enormous part of the EV ecosystem.

James McKemey, Head of Insights Team, Pod Point

5. Office for National Statistics, 2018 data

Government should acknowledge the importance of the fleet and provide supportive policy

There are clearly multiple benefits for the fleets which transition to EVs. However, several barriers remain and one often cited by those we interviewed was the policy environment. A number of respondents described policy as sometimes ‘turbulent’ and not conducive to long-term planning.

For example, the UK government recently consulted to bring forward the ban on the sales of new petrol, diesel and hybrids from 2040 to 2035. From an environmental point of view the fleet operators that we spoke to think 2035 is positive. However, to achieve this aim, from a practical perspective they require a range of policies to support the achievement of the target.

In March 2020, the government also released its "Decarbonising transport: setting the challenge" document. In it, the government stated it would work closely with those in the transport sector and other key stakeholders to develop a comprehensive plan of action in lowering emissions. This fits in well with what we learned from our research where many stakeholders were keen to work closely with government, especially in developing long-term plans.

Despite this shared sentiment, several respondents called for clarity, several respondents called for clarity over company car tax rates in the 2023/24 and 2024/25 period to facilitate forward planning in fleet replacement cycles. Fleets typically refresh their vehicles around every four years, meaning visibility of tax rates four years ahead is helpful. The 2020 Budget did provide clarity over a five-year period, indicating that government is seeking certainty for fleet operators.

However, as the transition to e-mobility accelerates, continued clarity will be needed for all market players. For example, long-term certainty is critical for the plug-in car grant, which has not been extended beyond 2022-23.

Limited clarity could make it more challenging for investors and wider stakeholders to allocate resources to products, services and infrastructure.

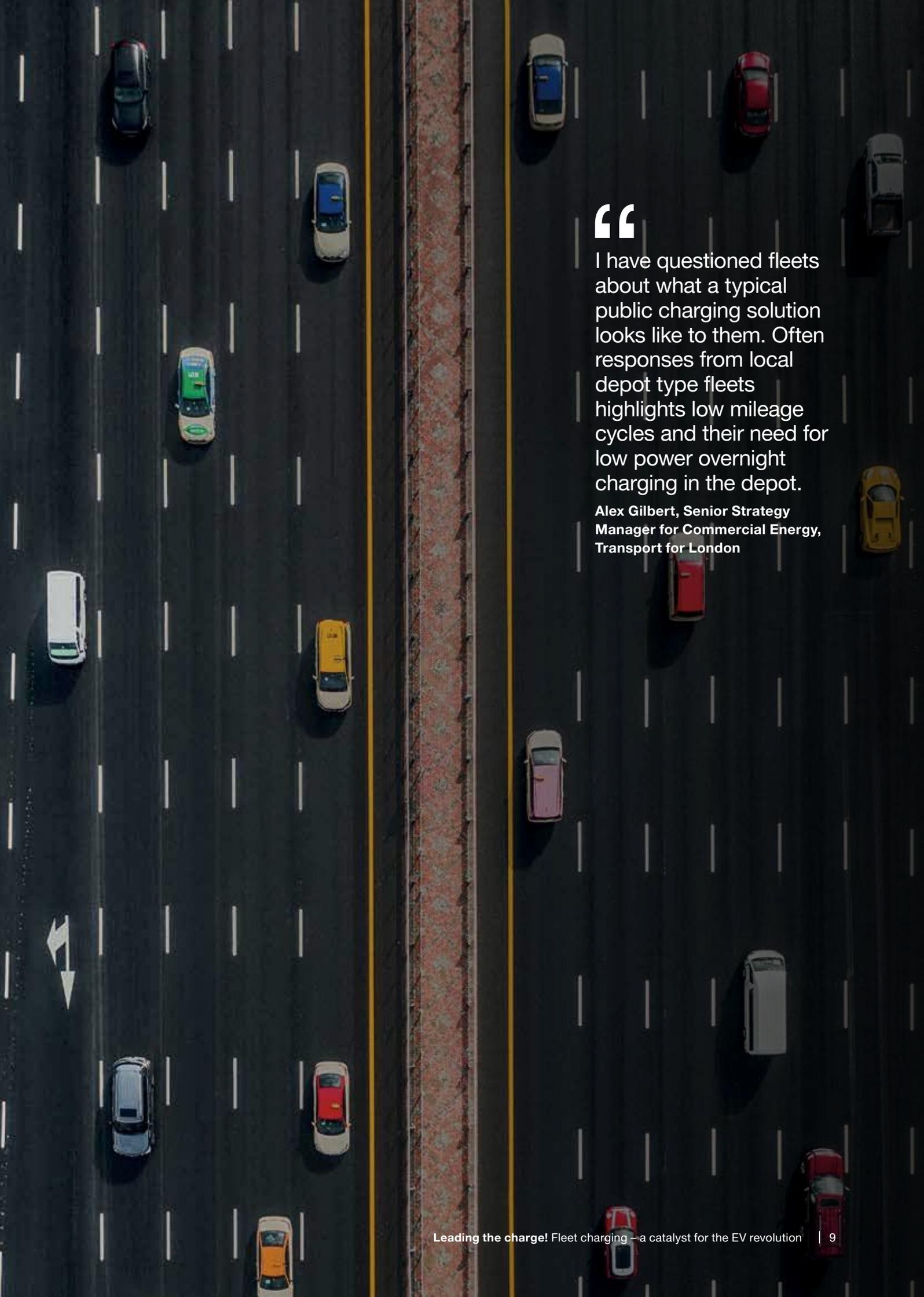
The emergence of clean air zones (CAZs), such as in Leeds, Birmingham and London's Ultra-Low Emission Zone also require a more clear and consistent approach. Each is different on level of payment for non-compliant vehicles, extent of scrappage schemes and which vehicles are affected. This is a barrier for fleets that operate on a national scale.

Finally, our research found that if a fleet operator is not comfortable that its vehicles can be charged publicly on a nationwide scale, then this could be a large enough barrier to stall electrification. Although some segments may have predictable daily routes, range anxiety still exists for some fleets. A further push towards interoperability would help fleets find better ways to charge, echoing the recent findings of the EV Energy Taskforce (published January 2020).



In the future, fleets will own large numbers of vehicles which would traditionally have been locked up in the private market. The fleet market will grow, making it even more critical to decarbonise.

Natalia Peralta Silverstone, Head of Propositions, Octopus Electric Vehicles



“

I have questioned fleets about what a typical public charging solution looks like to them. Often responses from local depot type fleets highlights low mileage cycles and their need for low power overnight charging in the depot.

Alex Gilbert, Senior Strategy Manager for Commercial Energy, Transport for London

Who will lead the EV fleet revolution?

It is clear, so far, that fleets have an important role to play in driving electrification. However, when using the term 'fleet' in its broadest sense, it somewhat belies the complexity of the fleet universe and the differing sub-segments. Figure 3 provides an overview of the fleet market segmentation with some indicators of the differing degrees of complexity vis-à-vis electrification.

Using this framework, our analysis highlights some fleet segments have a greater market attractiveness for electrification. This is not to discount the other segments of the market which will likely electrify in time.

However, we believe the following segments have certain characteristics, which, allied to general environmental benefits on offer, means they are the most compelling in the short-term:

- **Company car and leased grey fleet.** Company cars are used for work-related tasks and grey fleet is leased via employee schemes but not specifically for work.
- **Last mile delivery** logistics providers like parcel delivery.
- **Depot-based field services** such as vans driven by engineers for energy utilities.

Figure 3
Segmentation of the fleet market and attractiveness for electrification

Segment	Sub-segment	Charging type	Vehicle accessibility	Suitability of driving patterns	Charging simplicity
Logistics	Last mile delivery	Workplace (centralised depot)	Medium	High	High
	Long distance	Workplace (centralised depot) & home	Medium	Medium	High
Corporate	Company car	Workplace & en route	High	High	Medium
	Rental	Workplace & en route	High	Medium	Medium
	Grey fleet	Home	High	High	High
Field services	Depot-based	Workplace	Medium	Medium	High
	Home-based	Home	Medium	Medium	Medium
Taxis	Black cab	Home & en route top up	High	Low	Medium
	Ride hailing	En route (rapid)	High	Low	Low
Heavy fleets	Buses	Workplace (centralised depot)	Medium	High	Low
	HGVs	Workplace (centralised depot)	Low	Medium	Low

Source: Cornwall Insight, PwC Strategy& research

Low Medium High

Vehicle accessibility

We graded each segment across two dimensions: availability of EVs and cost to purchase. For availability we assessed how easy it was to procure an EV. As for cost, this reflected whether there was a significant premium or not to purchase the EV equivalent of the ICE vehicle.

Suitability of driving patterns

This considers the working day of the vehicle including mileage, downtime and predictability of the daily route or routine. It is considered a positive case for electrification if the mileage is low, downtime is available for charging and the routes and routines are predictable.

Charging simplicity

This addressed whether it is relatively easy or difficult to charge the fleet vehicle. A positive assessment is made if a vehicle's type and driving patterns are conducive to a low cost and simple method of electrification. For example, low powered overnight charging (relatively simple) compared to clustered rapid charging units with the latter requiring significant local network modifications (more complex).

We believe these particular fleet segments are ripe for electrification in the near-term for several important reasons:

- 1** The nature of their operations suggests charging will be the least problematic. Logistics and field service players are typically depot-based, making charging an overnight and fairly straightforward option. Alternatively, those drivers taking their vehicles back home can similarly charge overnight. Corporate fleets by their nature are more flexible and can use a portfolio of charging solutions from home, rapid, workplace and destination.
- 2** Driving patterns for all these segments are typically predictable and mostly over short and moderate distances.
- 3** Despite short-term disruption caused by COVID-19 automotive shutdowns, manufacturers are improving the availability of EVs for these fleets and the models are affordable against comparable ICE models.

In fact some fleet operators in these segments are already seizing the opportunity to electrify. For example, EV100 is the global campaign run by the Climate Group aiming to encourage large corporates to commit to full fleet electrification by 2030.

At the time of writing, 77 organisations had signed the pledge, committing to transition over 2 million vehicles to electric power globally.⁶

Closer to home, some of the largest fleet operators and leasing companies in the UK have started to transition, as illustrated in Figure 4.

It is worth noting there are a number of macro drivers underpinning this trend to electrification. Clearly there is a strong rationale for sustainability, as corporates increasingly focus on this topic. However, the other driver is economics.



The economics of EVs can be compelling. Following the benefit-in-kind (BIK) rates dropping to zero, company car drivers could save up £2,000 per year going electric.

The economics of going electric are compelling, especially for segments utilising light vehicles (cars or vans).

For example, company car fleets are ordering more electric cars following the UK government's announcement in July 2019 that company car tax benefits-in-kind (BIK) rates will be reduced to 0% for the financial year 2020/21. This is down from the current rate of 16%. Significant savings can be achieved for company car drivers by going electric, in some cases of nearly £2,000 per year.⁷ Simply put, going electric makes commercial sense.

Financial savings can be achieved for field services and logistics fleets by switching to electric power. A comparison from the Energy Savings Trust that compares a diesel and electric van travelling a distance of 20,000 miles per year shows fuel cost saving in excess of £1,961, or 63% for the electric-powered vehicle.⁸

However, despite the potential all these segments' promise, one important constraint for the uptake of EVs is the supply from automotive manufactures (OEMs). Despite an announcement in 2019 by automotive OEMs to invest £262bn into EV production and batteries over the next 10 years, material outputs from this are only slowly trickling down into new assembly plants and battery supply deals.⁹ This theme is consistent with our interview findings, where fleet managers found it difficult to procure enough EVs (cars and vans). In light of how vehicle manufacturers have had to suspend production during the COVID-19 crisis, we don't expect this situation to change during 2020. However, prior to the crisis there were indications that manufacturers were improving the supply of light electric vehicles and we assume that the situation will recover as we proceed into 2021. Therefore a light vehicle supply recovery will further underline why corporate, logistic and field service fleets are the segments which we believe will lead the EV revolution.

6. The Climate Group, 2020, EV 100

7. Pod Point, 2020, Company Electric Car Tax

8. Energy Savings Trust, 2019, Lowering Van Emissions and Costs

9. Reuters, 2019, EV Investment from Automotive OEMs

Figure 4

Selected fleets with UK operations and degree of electrification (ranked by size)

 Fleet	 Segment*	 Size**	 Electrification target	 Electrification progress to date
Lex Autolease***	Corporate	358,838	100%	0%
LeasePlan***	Corporate	174,663	100%	2%
Zenith***	Corporate	54,547	100%	0%
BT Group	Field service	33,000	100%	1%
Centrica	Field service	15,000	100%	4%
Deutsche Post DHL	Logistics	7,500	100%	26%
Mitie	Field service	5,300	20% by 2020	<10%
Royal Mail Group	Logistics	3,700	N/A	10%
SSE	Field service	3,500	100%	<5%
Wincanton Group	Logistics	3,404	N/A	<1%
XPO Logistics	Logistics	3,277	N/A	<1%
National Grid	Field service	2,856	60%	<5%
FedEx UK	Logistics	2,346	N/A	<1%
UPS	Logistics	2,163	N/A	3%

Note: As of March 2020 * This describes the typical type of vehicle in the fleet of the quoted company. **Players may have a range of vehicle types in the overall quoted fleet. ***LeasePlan, Lex Autolease and Zenith are FN50 leasing companies which have committed to transition their customer fleets by 2030.

Source: The Climate Group, Fleet Leasing and Motor Transport, Cornwall Insight, PwC Strategy& research



The financial benefits for fleets making the switch to EVs are well known. With lower overall running costs, an increasing number of tax benefits, and grants from the government, the savings compared to traditional ICE vehicles soon add up. With the increasing number of Clean Air Zones coming into force in cities across the UK, there has never been a better time for businesses large and small to consider making the switch to electric mobility.

Adam Hall, Electric Vehicle Lead, Drax Group

Although not offering the same scale as some sectors, bus electrification offers significant opportunities as a niche play

Several of our interviewees highlighted buses as one of the most interesting but also challenging opportunities.

Their high mileage and predictability of routes mean buses can guarantee robust charging utilisation and a defined time window in which to administer the charge. However, energy demand will be significant. A small fleet of 20 or so buses could require a megawatt or more of grid connection capacity for example, bringing significant energy network related costs. Furthermore, competing technologies, such as hydrogen, can potentially displace the electrification of buses, suggesting greater complexity in how this segment may evolve, bringing uncertainty to any investment case.

Buses are nonetheless leading the charge in their niche given the emission intensity of the vehicles and their likely routes through city or town centres (where low emission zones are increasingly proliferating). While this may not have the dramatic effect on the UK's decarbonisation targets as electrifying the circa 5 million vehicles in the wider fleet, it is a segment where developments are rapidly picking up pace.

In February 2020 the Department for Transport unveiled plans to create the UK's first 'all-electric bus town'. Under the scheme, local authorities are encouraged to apply to receive up to £50million to pay for a fleet of electric buses. This pilot, if successful, could be rolled out across the UK from 2025.

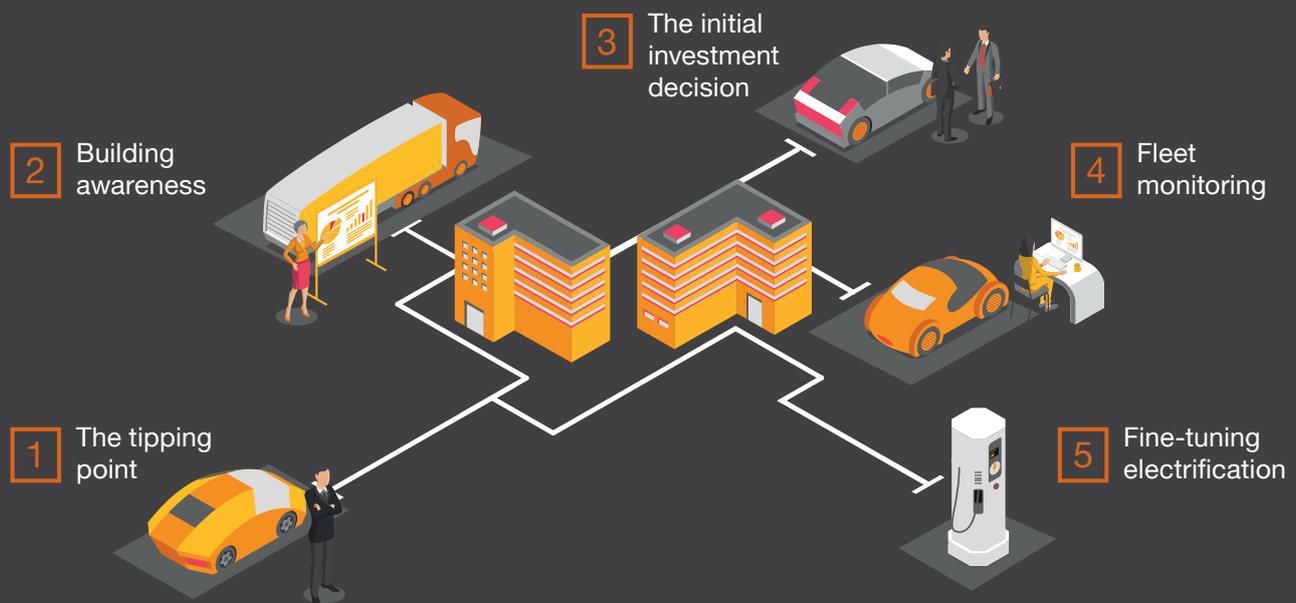


What is the road map to electrification?

As fleet electrification gathers momentum, it is likely we shall see a pathway emerge. Our research highlighted five key stages in a fleet's electrification journey, as illustrated in Figure 5.

Understanding this road map will have important implications for all stakeholders, whether they are the fleets themselves, CPOs or investors.

Figure 5
Key stages in fleet electrification



Source: Cornwall Insight, PwC Strategy & research

“

Fleets are already leading the transition to zero-emission road transport and decarbonisation remains a priority for our members. With the right fiscal incentives, infrastructure and supply of appropriate vehicles, the rental, leasing and fleet industry can help deliver the UK's zero-emission goals. Having a long-term picture on all these elements will help to drive the uptake of EVs, both in the new and the used markets.

Catherine Bowen, Senior Policy Advisor, British Vehicle Rental & Leasing Association (BVRLA)

Stage 1

The tipping point

This is where the fleet decides to 'go electric'. In many of our interviews we found that the tipping point is triggered by both downwards and upwards pressure from within businesses. Specifically, a desire of senior management (downwards) to move the business towards a more 'sustainable' footing, while drivers (upwards) discover they can have huge tax savings and apply pressure on fleet managers to change the company car policy to provide EVs. However, while the strategic direction may be set, the operational details of implementing this typically fall on the fleet managers.

Stage 2

Building awareness

Fleet managers begin learning about the often uncharted territory of what electrification actually means. This will involve managers understanding the implications of electrification from charging infrastructure to energy demand management. Employees will also require basic training such as how EVs work and how to charge them.

Fleet electrification will also have different capital requirements (compared to ICE), in that upfront costs will typically be higher if the business owns their fleet. This may require the business to become familiar with new funding pathways including different types of finance or finance providing partners (such as leasing companies) if they do not use them currently.

Stage 3

The initial investment decision

In our interviews we found it is very rare for fleets to transition all vehicles at once. Although this was sometimes dictated by vehicle availability, it was more driven by fleet managers wanting to test the water and capture learnings as they pursued electrification. So, in many cases, fleets adopted a phased approach to electrification.

Stage 4

Fleet monitoring

Fleet managers will be keen to understand how electrification has impacted the running of the business in terms of costs, vehicle utilisation, driver experience and many other company specific factors. Fleet managers will need educating in ways to interact and capture the additional value from having this digital resource available to them.

Stage 5

Fine-tuning electrification

Once EVs constitute the majority of a fleet's vehicles, businesses will place more emphasis on controlling and managing energy or network security and costs. At this point the fleet manager will look to fine-tune their relationship with energy infrastructure to maximise cost efficiency. This could include almost limitless options across additional infrastructure or energy assets (such as solar PV, carports, battery storage, reactive charging) and possibly bringing the charging infrastructure provider closer into the running of the business.



Fleet managers love to reduce inbound admin. This means some of the practical stuff is very attractive such as removing paper receipts and operating through a single digital platform.

**Tom Callow, Head of External Affairs,
BP Chargemaster**

The road map and ‘ways to play’

While many fleets are unique and not all will transition in the same manner, this road map is essential for stakeholders to build, measure and assess strategies when enabling electrification of fleets.

Fleets

In understanding the road map that lies ahead for the fleet itself, fleet managers will lay out all the components needed to achieve a successful electrification. This will then also provoke the question of how to procure the separate pieces of this jigsaw. For example, you can buy the charging infrastructure separately, get a company to do the installation, and own the vehicles separately, while engaging with a separate provider to access a data platform to monitor the fleet. Simply said, a highly involved approach.

Alternatively, the fleet manager can opt for a provider to partner with to access the full suite of capabilities needed. This would leave the fleet manager to worry about the ‘day job’ such as vehicle uptime or delivery volumes but may come at a higher overall cost due to the bundled nature of the service. This decision on how to play is unique to each fleet and shouldn’t be taken lightly.

In terms of early movers along this road map, our research has found that certain fleets have had to develop flexible plans to cope with the ‘law of unintended consequences’.



The fleet manager can opt for a provider to partner with to access the full suite of capabilities needed to electrify.

For example, in the depot-based segment (logistics & field services) electrification can bring some challenges:

- In the ICE world, when the vehicle returns to the depot it would be filled with fuel (typically diesel), given a clean and parked in a readily accessible location, to be used again when needed.
- However, when depots are partially electrified, as per the ‘initial investment’ phase, challenges can arise. These include where to park the vehicle so that it has access to charging facilities but does not block further access.
- It is important at this point to know the state of charge of all vehicles and where they are located, to ensure the optimal charging solutions (slow/fast/rapid) are available if needed.
- The fleet manager will also need to impose new processes to make sure, when the vehicle is returned, that it is plugged in straight away and not left ‘flat’, making it feasibly unusable for a portion of the next work cycle.

Exploring electrification through the framework of our pathway can minimise the instances of unintended consequences and make the process of electrification smoother to accomplish.

Charge point operators

This is particularly the case for charge point operators (CPOs) which can explore a number of opportunities to provide services to fleets, as shown in Figure 6. These opportunities range from being a consultancy/advisory partner to the fleet during the ‘building awareness’ stage, through to providing ‘charging as a service’ where all fine-tuning of electrification is carried out for the fleet.

CPOs are clearly not obliged to follow a strategy aligned to the fleet’s road map and may opt for a ‘pay as you go’ model. In this example, the CPO simply builds strategically placed charging hubs that will be used by fleets.

Figure 6
Ways to play for charge point operators



Source: Cornwall Insight, PwC Strategy& research

Investors

As for investors they should use the road map as a framework to assess where potential opportunities lie. The EV charging sector has seen a number of players invest in this segment. Legal & General's stake in Pod Point (now in joint venture with EDF after its acquisition of the latter) and Zouk Capital investing in Instavolt and EO Charging are two examples illustrating this theme.

Looking forward with the growth of fleet charging, several types of investors are well placed to exploit this emerging opportunity:

- Venture capital and private equity may look to invest in emerging CPOs with fleet charging capabilities. It is worth noting that fleet charging companies are broadly within the investment mandate of the Charging Infrastructure Investment Fund (CIIF). This was announced in the Autumn Budget 2017 and established by the Treasury, if charging depots are accessible to the public.
- Similarly, large utilities may consider acquiring specialist CPOs or developing their own in-house capabilities to provide fleet charging solutions.
- Investors in publicly listed fleet leasing companies may start questioning management as to whether they have developed a robust strategy to electrify their assets. Privately held leasing companies may require capital injections from potential investors to pursue a similar electrification strategy.
- And finally infrastructure funds with a large exposure to real estate may decide to invest in partnerships with fleets looking to electrify their vehicles. Think of car parks converting to charging hubs for fleets at night when demand for parking is low as an example.

Ultimately investors should use the road map to assess whether fleets or CPOs have the capabilities to operate along every stage of the journey to electrification.

The importance of partnerships and data management

Whatever ‘ways to play’ stakeholders pursue, partnerships will be critical. The value chain for fleet electrification is long and complex (see Figure 7), stretching from basic equipment manufacture through to optimising assets (such as smart or dynamic charging controls), on-going customer services (such as billing and subscriptions) as well as battery recycling (if needed).

Partnerships allow the delivery of fleet solutions in a less capital-intensive way as the market continues to mature. Examples of partnerships include:

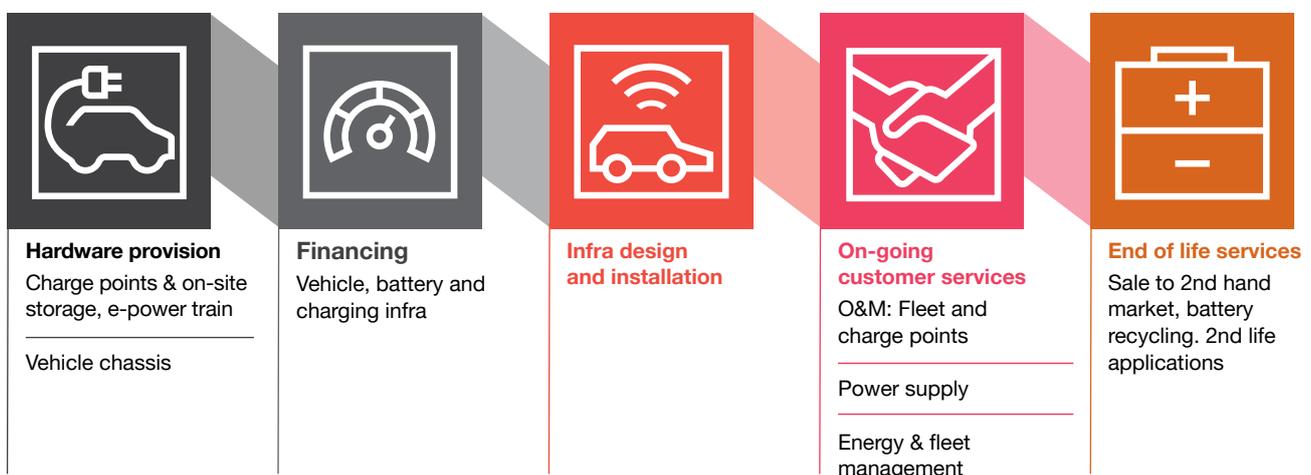
- The ‘Optimise Prime’ trial currently operating (including funding from Hitachi, Royal Mail Group, Centrica, Uber and Scottish and Southern Electricity Networks) aims to provide the template for how partnerships can develop the most cost-effective strategies to best integrate fleet EVs.
- Also as part of Optimise Prime, the recent alliance between EDF Energy in the UK and Royal Mail Group. In this three-year deal, EDF will provide EV infrastructure to Royal Mail Group, ranging from the installation of charge points, associated maintenance and ancillary items such as signs, bollards and wheel stops.
- Volkswagen Financial Services (the company car leasing arm of the automotive giant) partnered with Pod Point. As part of this, customers were able to consider an electric vehicle, a home charge point and installation service within the cost of their lease.

Aside from partnerships, data management is key. In this sense, data refers to driving habits, the types of vehicles, the local grid conditions of depots and many other variables.

Our interviews identified data management as that capability and it takes several forms:

- **Data on the business model of the fleet operator:** This will allow fleet managers to identify the key segments for the EV transition given vehicle capabilities and cost constraints.
- **Analysing the fleet and individual drivers’ characteristics and requirements:** Bringing together data classes such as geospatial (e.g. local network or driver’s parking/charging options) and infrastructure requirements.
- **Telematics data brings out the tangible benefits of EVs:** Data is also needed to provide the tangible evidence that EVs are improving the fleets’ operational and economic model.
- **Fleet managers’ assurance:** The fleet owner or operator needs access to, and is able to easily analyse and understand, all the charging events (energy consumption, and pricing).

Figure 7
The fleet charging value chain



Source: Cornwall Insight, PwC Strategy& research

What should you do next?

The EV fleet revolution will move quickly and it is imperative that stakeholders respond accordingly. Our research has found that although vehicle supply is an obvious constraint on the market, fleets and service providers are already priming themselves before the actual vehicles become available. There are a number of next steps key players would do well to consider:



Fleet managers

Be proactive in understanding what the EV transition means for the business

- An end goal of sustainability is usually in place but fleet managers need to understand some crucial questions: does it make economic sense to electrify? What are the additional infrastructure requirements? What software is required to manage the logistics of electrification?

Find or hire “heroes” in the company to drive electrification through the business

- If a person, who embraces the transition as a concept and is well informed, exists in the business, they can play a critical role as the ambassador championing electrification.

Identify the right partner to guide the fleet through electrification

- Most firms with a substantial fleet will have a fleet manager who runs the operation directly. However, there will also likely be someone who is a director responsible for strategy, and both operational and strategy needs will have to be met by any partner. Specifically, fleet managers will have to deal with new processes and operations that will be far removed from their conventional tasks (such as managing the requirements of the local distribution network).





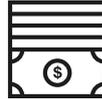
Charge point operators

Assess the road map to electrification any fleet operator target currently has

- CPOs will need to identify which fleets to target and where they are best placed to support using their capabilities.
- CPOs will need to be evangelists in the eyes of fleets, explaining the benefits of transitioning and how to do so, this will present the CPO as a trusted advisor to the fleet manager.
- Aside from traditional charging infrastructure, there may be opportunities for CPOs to pursue EV charging as a digital service. The latter could incorporate data capture and analytics to show how mileage, duty type, employee role, depot charging and local grid capacity can all seamlessly fit into a new mobility system for the fleet.
- Fleets will be worried about the cost of transitioning and CPOs should help deliver efficient capital deployment.



Fleet charging is about to take off. It has the scale to accelerate the adoption of electric vehicles, generate a much needed second-hand private market and stimulate the expansion of charging infrastructure across the UK.



Investors

Assess the road map to electrification any fleet operator target currently has

- Our research indicates that fleet operators that have not yet started their progress to electrification are at risk of being left behind. Having the right analytical capabilities to understand where an investment target is on its journey is critically important to grading investment risk.

If considering a CPO as an investment target, find the right combination of capabilities

- If a CPO entity is the target, then the investor needs to be confident that the operator has all the required capabilities to progress the fleet through their road map.
- These capabilities will translate, for example, into operating a business model with multiple revenue streams and perhaps boasting a number of market leading partnerships.

So coming back to the big picture. Fleet charging is about to take off. It has the scale to accelerate the adoption of electric vehicles, generate a much needed second-hand private market and stimulate the expansion of charging infrastructure across the UK. As a result, a myriad of opportunities are emerging for fleet managers, charge point operators and investors. While opportunities abound, knowing what to focus and when will essentially decide who are the leaders and laggards.

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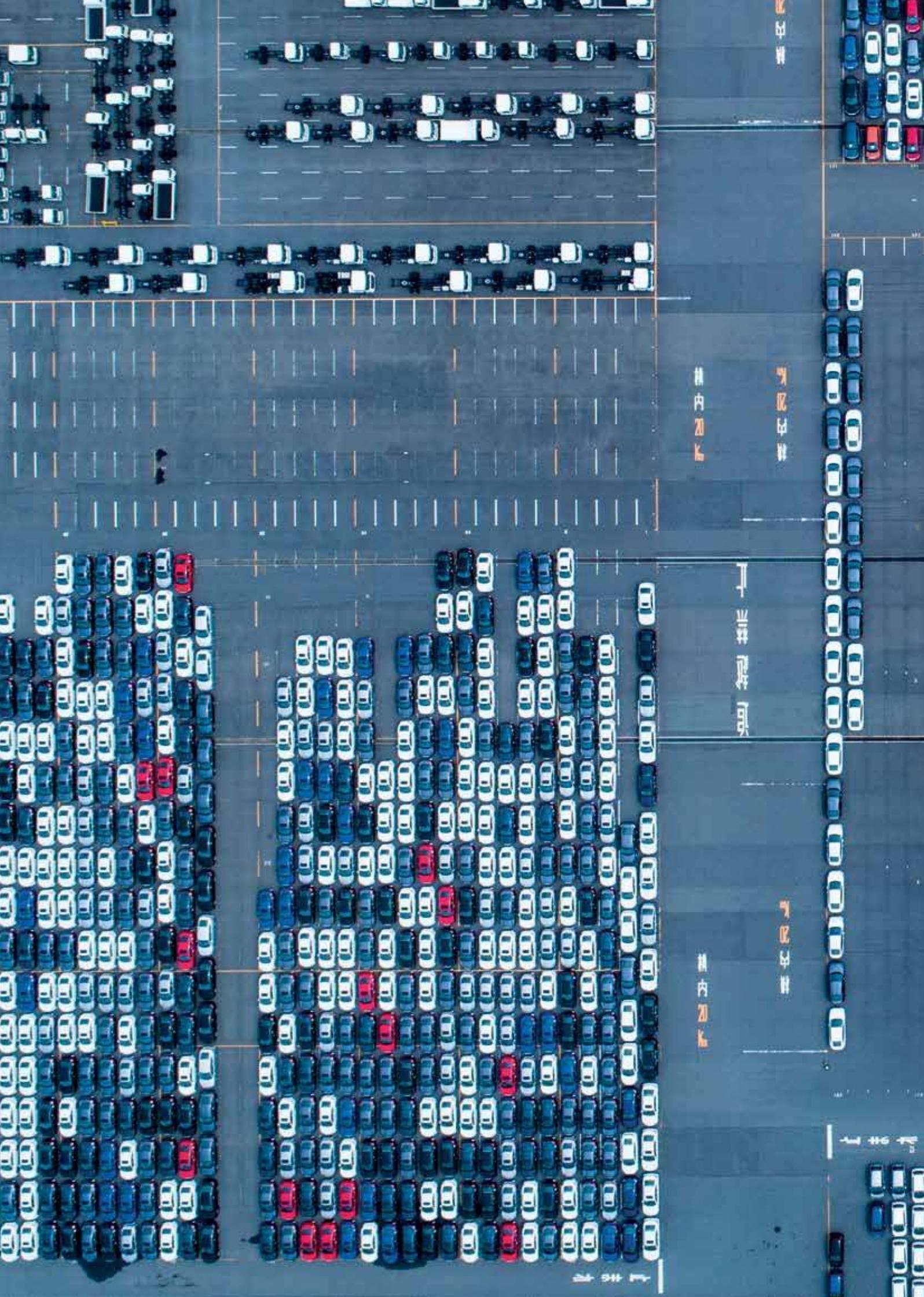
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