

# HOW TO THINK ABOUT... ELECTRIC VEHICLES

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Electrification is near the top of most fleets' agendas as the need to cut emissions and the Government's 2030 ban on the sale of new petrol and diesel vehicles edges closer. But operating the zero-emission technology brings with it many different benefits and challenges compared with traditional internal combustion engine vehicles.

Over the next 24 pages, we look at some of the sector's hottest issues, how they affect fleets and company vehicle drivers and how to tackle them

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# HOW TO THINK ABOUT...

## ELECTRIC VEHICLE TAX/INCENTIVES

By Sarah Pemberton\*

**A**s the tax cost of providing petrol and diesel company cars increases significantly year-on-year, employers are being encouraged to implement electric fleets through low benefit-in-kind (BIK) rates for plug-in vehicles.

BIK rates for a fully electric vehicle (EV) will remain at 2% until the end of the 2024/25 tax year, offering significant savings from an income tax and employer national insurance contributions (NICs) perspective when compared with petrol and diesel internal combustion engine (ICE) vehicles.

Now is the opportune time to take advantage of these rates to offer attractive benefits to your employees, to support them with the transition

to full electric motoring and to help employers work towards their own net zero targets.

Under current tax rules, employees can take advantage of a fully-maintained and insured car for an extremely competitive price, particularly when the qualifying car is offered to employees via a salary sacrifice arrangement (see tax tables).

### CLOCKING UP BUSINESS MILEAGE IN AN EV

Employer-provided electricity for private mileage completed in a company EV does not create an additional BIK (where provided directly by the employer rather than reimbursed via expenses), and, as such, can be offered as an attractive and tax-efficient benefit to employees.

Employers can make tax-free reimbursements of business mileage to company EV drivers at a rate of 5p per mile (ppm).

Where the actual cost to the employee is more than 5ppm, work can be done to review this rate and provide for an uplift where there is evidence to support the increased cost.

Care should be taken where employers reimburse electricity costs to employees for home and public charging when in a company EV.

Technically, this reimbursement is taxable via the payroll. So, other methods of provision should be considered in the first instance (see provision table).

Electric cars registered from April 6 2020		Tax year		
CO <sub>2</sub> (g/km)	Electric range (miles)	2022 /23	2023 /24	2024 /25
0	N/A	2%	2%	2%

Ultra-low emission hybrid cars registered from April 6 2020		Tax year		
CO <sub>2</sub> (g/km)	Electric range (miles)	2022 /23	2023/ 24	2024 /25
1-50	>130	2%	2%	2%
	70-129	5%	5%	5%
	40-69	8%	8%	8%
	30-39	12%	12%	12%
	<30	14%	14%	14%

### GRANTS AVAILABLE

Further Government support of low emission vehicles is evident in various grants. These include:

#### ■ Government plug-in car grants, extended to 2022/23

Grant is limited to £1,500 for each qualifying car. This is reflected in the list price of the car by the dealer, so reduces the BIK value for employees.

#### ■ Workplace charge points installations

Available to qualifying employers, who will receive a grant of up to £350 for each socket up to a maximum of 40 across all of their sites.

#### ■ The Electric Vehicle Homecharge Scheme, which provides a grant towards the cost of a charging unit installation at home

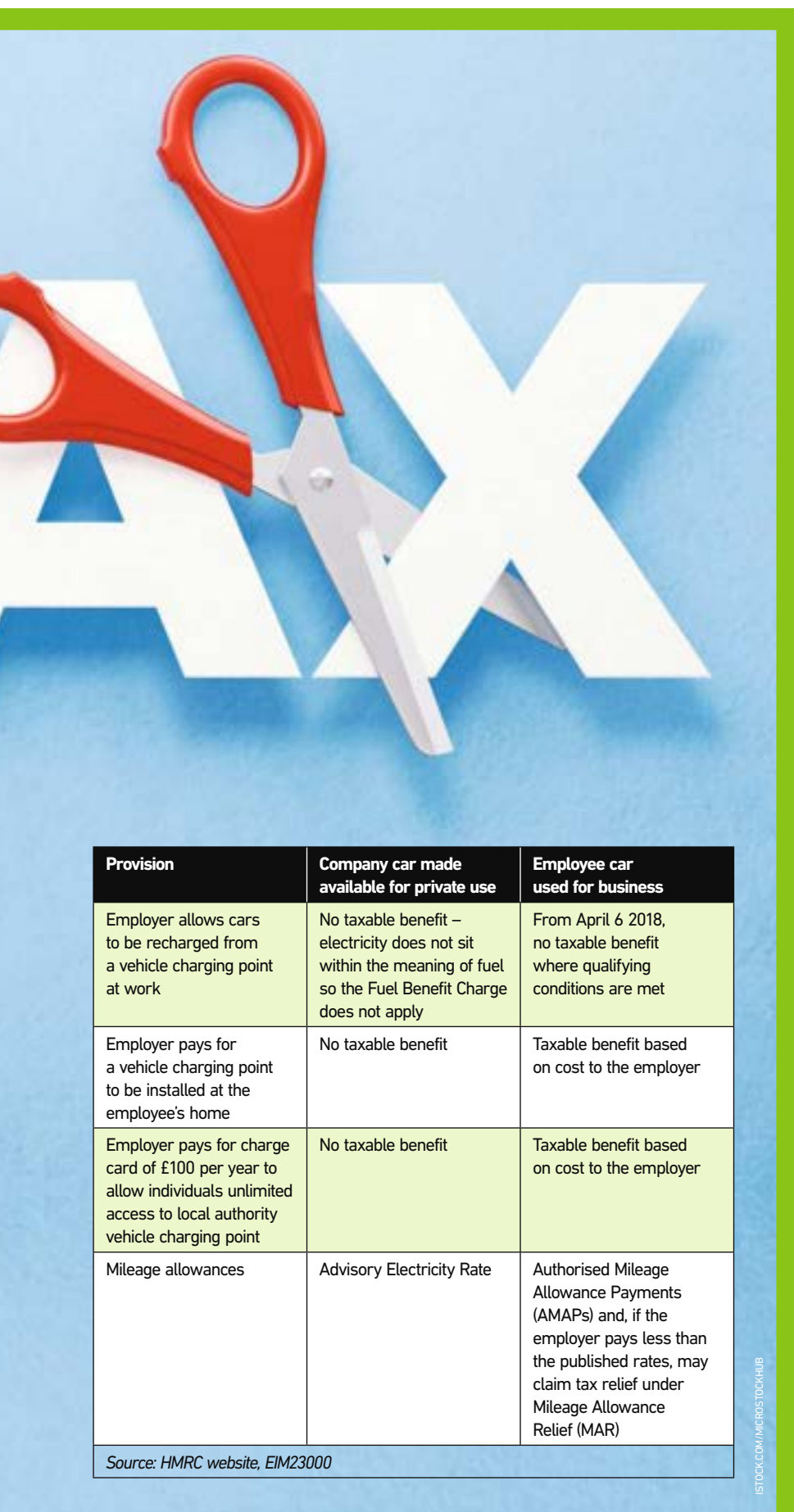
WITH SOME INCENTIVES DUE TO PHASE OUT IN A FEW YEARS' TIME, EMPLOYERS MUST ASK THEMSELVES, WHY DELAY?

Now only available for homeowners who live in flats and people in rental accommodation (flats and single-use properties).

The combination of available grants, tax-free business mileage reimbursements and BIK rates for EVs has created a favourable employment tax landscape.

Employers who take up today's unique opportunity are able to provide tax-efficient EVs for employees. With some incentives due to phase out in a few years' time, employers must ask themselves, why delay?

\* Sarah Pemberton is an employment tax advisor in Deloitte's Global Employer Services practice.



## SPONSOR'S COMMENT

By **Scott Hamilton-Cooper**, managing director of **AX Automotive, AX**



It's fair to say that fleet operators would prefer not to have to worry about accident management. While it's the hope that accidents aren't a common occurrence, it's an area that, inevitably, must be efficiently dealt with to avoid costly repercussions.

With electric vehicle (EV) adoption in focus across the fleet sector, questions have been raised regarding how electrification affects accident aftercare.

Based on our recent white paper research, many remain uncertain about the possible implications. There are new challenges that need to be tackled, but the transition to EVs does not need to be as daunting a prospect as it first appears.

Many pressures of the transition can be alleviated if businesses reach out for support. Fleet operators should seek a bespoke offering that caters for the nuances of an electrified fleet.

When it comes to accident management, this means being able to provide an appropriate replacement vehicle as well as an efficient repair process.

An accident management partner that can offer a full end-to-end solution inclusive of an EV-for-EV replacement guarantee for non-fault incidents – an offer that 70% of EV drivers now expect – provides continuity for fleet operators and their drivers.

Access to a repair network that can offer a suitably qualified repairer to carry out EV repairs to a high standard and in a timely manner is a must for reducing downtime.

And, as many fleet operators will agree, that's the key: reducing downtime.

Despite the challenges associated with electrification, operators must ensure it's as close to 'business as usual' as is possible. Choosing the right accident management partner will help with that.

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Provision	Company car made available for private use	Employee car used for business
Employer allows cars to be recharged from a vehicle charging point at work	No taxable benefit – electricity does not sit within the meaning of fuel so the Fuel Benefit Charge does not apply	From April 6 2018, no taxable benefit where qualifying conditions are met
Employer pays for a vehicle charging point to be installed at the employee's home	No taxable benefit	Taxable benefit based on cost to the employer
Employer pays for charge card of £100 per year to allow individuals unlimited access to local authority vehicle charging point	No taxable benefit	Taxable benefit based on cost to the employer
Mileage allowances	Advisory Electricity Rate	Authorised Mileage Allowance Payments (AMAPs) and, if the employer pays less than the published rates, may claim tax relief under Mileage Allowance Relief (MAR)

Source: HMRC website, EIM23000





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# HOW TO THINK ABOUT... TOTAL COST OF OWNERSHIP (TCO)

By David Branch\*

**O**ne of the biggest challenges for employers looking to switch their fleet to electric vehicles (EVs) is the perceived price premium EVs carry when compared with petrol and diesel alternatives.

If an employer takes a traditional 'list price' or 'lease rental' approach to measuring vehicle costs, then EVs will often appear more expensive.

But, by looking beyond the more visible, upfront costs of vehicle ownership, employers can make more informed decisions that will support a switch to an electrified fleet.

Taking a total cost of ownership (TCO) approach not only shows that EVs are often cheaper over their lifetime, but it also facilitates better financial management of a car scheme.

TCO, as one would expect, captures all direct and indirect costs associated with buying and using a car over its expected lifetime.

It includes the more visible and obvious costs, such as vehicle funding costs (including lease rentals, finance payments, depreciation etc.), maintenance costs (including tyres, servicing, MOTs etc.) and motor insurance.

However, TCO also takes into consideration the less visible costs.

These, typically, include the cost of 'filling up' – be that battery charge or traditional fuel – or mileage reimbursement provided, direct and indirect taxes including VAT, corporation tax, National Insurance Contributions (NICs), ad-hoc costs such as insurance, the impact of known future changes in tax rules and rates, plus other financial considerations.

Integrating these elements enables employers to make better informed judgements on the financial implications associated with switching to EVs.

## WHY TCO IS IMPORTANT FOR EVs

Measuring vehicle costs with a traditional approach does not take account of key differences between EVs and internal combustion engine (ICE) vehicles.

A large part of the financial support introduced to incentivise EV adoption is delivered through the tax system.

This might be through low benefit-in-kind (BIK) rates, salary sacrifice opportunities, or corporation tax reliefs (see example right).

As shown, the EV is more expensive if you only consider the list price or the obvious costs.

However, the ICE vehicle is much more expensive when incorporating the less visible costs; the greatest difference being the employer NICs.

Further, if business mileage costs are included, additional savings can be realised due to the lower

Example: Hatchback	ICE	EV	Difference (£s)	Difference (%)
List price	£31,275	£36,550	£5,275	17%
More visible/obvious costs				
Lease rentals	£18,348	£20,422	£2,074	11%
Maintenance	£2,076	£1,830	(£246)	-12%
Motor insurance	£2,100	£2,100	£0	0%
Sub-total	£22,524	£24,352	£1,828	8%
Less visible/obvious costs				
Employer Class 1A NICs	£3,954	£330	(£3,624)	-92%
VAT recovery	(£1,875)	(£2,007)	(£132)	-7%
Corporation tax relief	(£5,138)	(£5,221)	(£83)	-2%
Sub-total	(£3,059)	(£6,898)	(£3,839)	-125%
Total cost of ownership (TCO)	£19,465	£17,454	(£2,011)	-10%
<i>Calculation assumptions: The example is based on a company car acquired in April 2022 and leased on a 36-month term with a contract mileage of 60,000 miles. It is assumed the employer pays corporation tax at the main rate and can recover VAT.</i>				

cost of electricity compared with fuel. Prices for the latter have recently hit an all-time high, although, of course, the cost of electricity has also risen steeply since the start of the month.

\* David Branch is a tax consultant in Deloitte's automotive team.





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# HOW TO THINK ABOUT... WORKPLACE CHARGING

By Jonathan Manning

**R**arely has Kevin Costner's famously misquoted line from *Field of Dreams* proved so true... "if you build it, they will come".

Employers who install workplace charge points for electric vehicles (EVs) soon find utilisation rates exceeding expectations, according to James McKemey, head of policy and public affairs for Pod Point.

The company forecasts that workplace charging will eventually account for about 30% of all UK EV charging, serving both company cars and vans as well as EVs owned privately by the entire employee base (especially those without home chargers).

With commuting emissions counting towards businesses' Scope 3 greenhouse gas emissions, there are compelling corporate social responsibility reasons for companies to invest in workplace chargers as well as positive HR benefits.

This investment can be significant, however, so it pays to plan ahead in order to future-proof the infrastructure. Key questions to address include:

- **How many chargers will be required?**
- **What speed of charger should be installed?**
- **Who will have access to them – fleet drivers, all employees, visitors, general public?**
- **Will users have to pay for the electricity they use and, if so, how much?**
- **Who will be responsible for maintaining the chargers?**

One of the first steps is to ensure that any civil engineering work, such as digging trenches and laying cables, is only done once, even if its potential capacity far exceeds the initial number of chargers to be installed.

"With civils functions, maximise your provision from day one. You can install sub-surface ducting even if you don't use it the first time around. It's still much cheaper than retrenching your car park," says McKemey.

The other key factor is to understand the power capacity and constraints at the site, given that any upgrade to the local grid in order to increase power supply can be prohibitively expensive.

The available electricity dictates the number and speed of chargers that it's possible to install.

"For example, if a site has a 100 amp, three-phase supply, that would be enough to support one 50kW DC charger, three 22kW chargers, or 27 7kW chargers with load management (which manages the power available to each charger dependent on how many vehicles are plugged in at any one time)," says McKemey.

Selecting the speed of charger is governed by vehicle dwell time. Cars that are parked all day, or vans parked at a depot overnight, can have a meaningful charge from a 7kW charger, whereas a hard-working van fleet might want to invest in higher cost, fast chargers because of the productivity gains available through minimising charging downtime.

Employers must decide whether to charge staff for plugging in their cars at work and, while early adopters have tended to offer the facility for free, McKemey cautions businesses that HMRC has made it clear that the benefit is zero rated; in effect, acknowledging that it is a benefit, and therefore one for which employers are likely to need to account for or, perhaps, charge for in future.

Finally, charge points are not indestructible, meaning businesses need to consider a maintenance contract to keep chargers operational.

*\* The line is actually "he will come" and the James Earl Jones character says "people will come".*

## SPONSOR'S COMMENT

By Mike Potter,  
managing director, DriveElectric



DriveElectric believes the road to an all-electric fleet should be a smooth one. Inevitably though, there are always bumps in the road.

Challenges can often be industry-specific. But, even similar businesses often have differing needs and requirements from their fleet.

Whether your business is simply considering making the switch, or is phasing out the last few diesel vans, seeing another organisation's electrification journey can be hugely informative and reassuring.

Several businesses, at various stages of going electric, have shared their experience: from planning the switch, to their driver's being full converts of electric vehicles. All while keeping cost and viability in mind.

The best bit though, is flicking through new van brochures and researching upcoming models that may fit the bill.

There's already a whole host of brilliant battery-powered vans; from household names like Peugeot, down to brand disruptors like Maxus. All offer nippy SWB options, all the way up to LWB heavy lifters.

Manufacturers are constantly adding to their model line-ups, introducing numerous variants of their most popular diesel counterparts. So, even if there's not something currently on the market that meets your business's specific requirements, it's likely an all-electric version is currently in the works. *Fleet News* has picked out the most exciting offerings being launched over the next 12 months.

Because every organisation is different, DriveElectric offers bespoke fleet management services for organisations of any size. It's our aim that every business is enriched by switching to electric vehicles; making drivers happier, profits healthier and fleets greener.

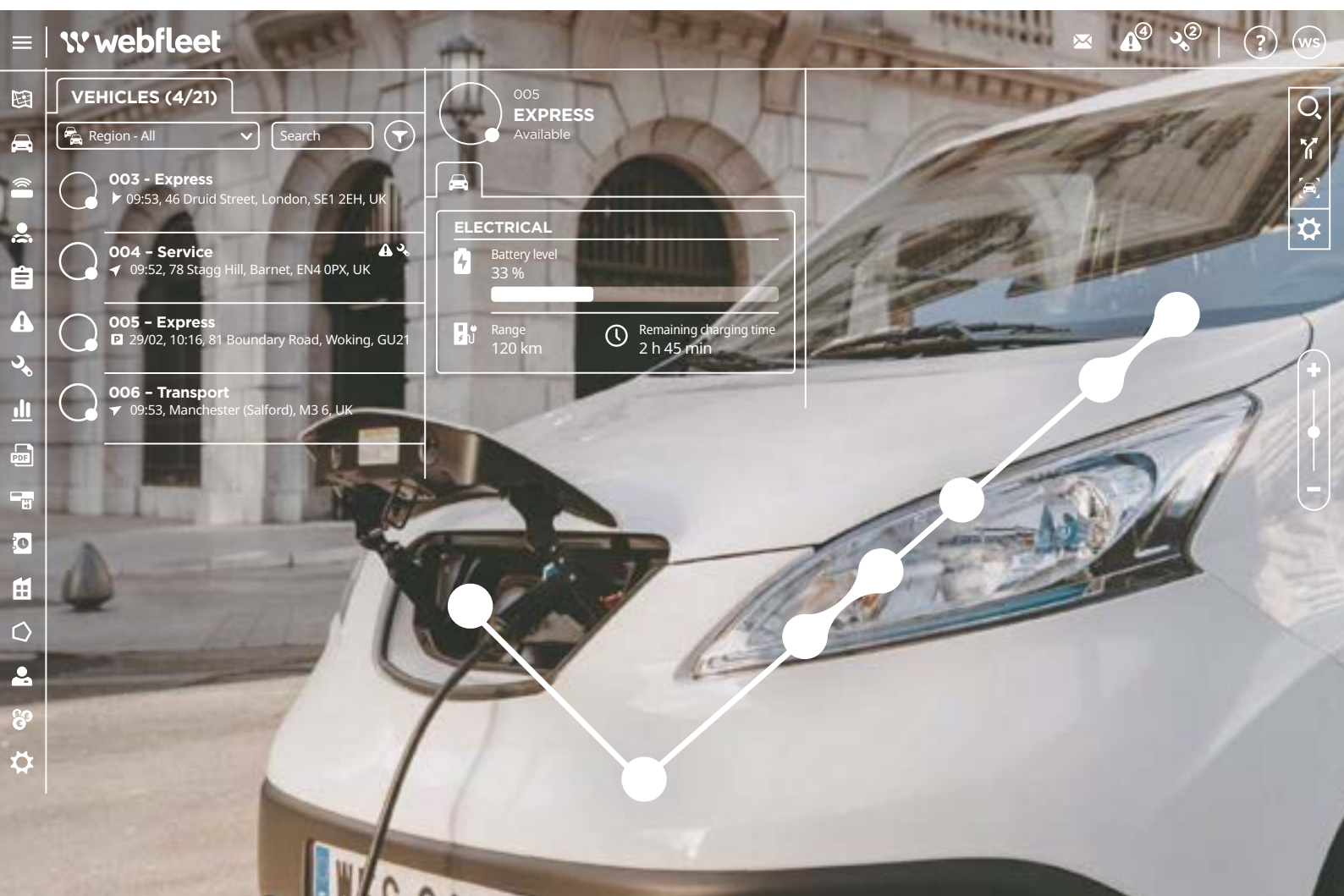
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# HOW TO THINK ABOUT... PUBLIC CHARGING

By Jonathan Manning

**T**he day-by-day tally of electric vehicle (EV) charging stations on Zap-Map's website spins forward like the drum of a fruit machine.

New charge points are being added daily – 678 in the 30 days prior to writing this article.

This growth is set to accelerate further as the Government last month announced it would spend £1.6 billion to build a network of 300,000 EV chargers by 2030 (see news, page six).

This swift expansion is good news for company car and van drivers. Public charge points may account only for a small percentage of UK charging, but they are an essential facilitator for the electrification of the nation's vehicle parc, the glue between home and workplace chargers.

Viewed nationally, the 16,855 fast chargers (7-22kW) dominate the public charging landscape, followed by 7,814 slow (3-5kW) chargers. The headline-grabbing 4,030 rapid (25-99kW) and 1,412 ultra-rapid (100kW+) chargers account for only one-in-six devices.

The fastest chargers come closest to mirroring the convenience of combustion engine vehicles, driving around and refuelling when required, but a smarter approach is to recharge when a vehicle is scheduled to be idle and not during the 10% of time when it's being driven, says James McKemey, head of policy and public affairs for Pod Point.

Slower charging also helps fleet budgets, with a clear correlation between speed of charger and energy tariff.

The average price per kWh for Connected Kerb's roadside chargers – typically 7kW-22kW – ranges from 23p-to-25p, whereas Instavolt costs twice as much, 50p/kWh, for its 50kW-plus DC chargers.

For fleets, the ideal scenario is to have employees charge EVs outside working hours, with the most convenient solution for drivers without a home charger (potentially as many as 70% of van drivers) being kerbside charging.

However, for charge point operators the return on investment (ROI) achieved with slow chargers is much longer than for rapid chargers

that can have multiple users per day.

Forecasts by Delta-EE see the vast majority of chargers being in the 7kW-to-22kW range in 2030, because these require cheaper hardware and are easier to install without encountering grid constraints.

"But, in order to service the increasing number of EVs on the road you will also need more high-power charging," says William Van Der Byl, EV charging service manager at Delta-EE.

"If you look at energy demand, 100kW-plus chargers will be utilised more often in a 24-hour period and will account for a large proportion of energy delivered to EVs in 2030."

He adds charge point operators are currently in a race to invest in the best locations – areas with a high uptake of EVs, the best visibility to traffic and grid connections with abundant power capacity.

Among the challenges for fleets that require nationwide coverage is the uneven distribution of charge points.

Last year, the Society of Motor Manufacturers and Traders (SMMT) reported that the ratio of electric cars to public chargers stood at 1:52 in the north, compared with 1:30 in the south.

The other complication is the interoperability of the different charging networks, although Van Der Byl is optimistic about the future, at least for rapid chargers.

"At the moment we have quite isolated networks where you need different charge cards to access the network, but it's only a matter of time before we have a really open network with one charge card that can access a number of different networks," he says.

# HOW TO THINK ABOUT... CHARGING TIMES

By Andrew Ryan

**O**ne of the critical differences between operating an internal combustion engine (ICE) petrol or diesel vehicle and a battery electric one is the length of time they take to 'refuel'.

As well as being much quicker, refuelling an ICE vehicle also takes a similar duration every time: however, there are many factors which affect how long it takes to charge a battery electric vehicle (BEV).

One of the major contributors is the speed of the charge point used. BP Pulse data shows that, in 10 minutes, a 3kW slow charger can add up to two miles of range, a 7kW fast charger up to five miles, a 50kW rapid charger up to 33 miles and a 150kW ultra-fast forecourt charger up to 100.

Even faster chargers are also being developed: 350kW chargers will deliver up to 217 miles in 10 minutes.

However, although it is safe to plug a BEV into any compatible charge point, the speed the energy can be transferred is limited by the vehicle's own on-board charger.

For example, if you plugged a car with a 50kW on-board charger into a 150kW charge point, it would still only charge at 50kW.

The length of time to charge a battery to full will

obviously also depend on the capacity and state of charge of the battery: the larger the battery and the less charge it has, the longer it will take.

The state-of-charge also makes a difference when using a rapid charger. A battery will charge much faster when it is below 80% capacity than it will above that figure: this is because a vehicle's battery controller will slow the charge down after

this point to protect the health of the battery, as well as for safety reasons.

A colder ambient temperature can also make it take slightly longer to charge, particularly when using a rapid charger.

Colder temperatures also mean BEVs are less efficient, so fewer miles are added per minute charging.

Top 10 fastest charging full electric cars

	Model	Max charge rate
1	Porsche Taycan Plus	650 miles/hour
2	Audi e-tron GT quattro	640 miles/hour
3	Kia EV6 Long Range	640 miles/hour
4	Tesla Model 3 Long Range	590 miles/hour
5	Hyundai Ioniq 5 Long Range	580 miles/hour
6	Mercedes-Benz EQS 450+	510 miles/hour
7	Tesla Model S Long Range	500 miles/hour
8	Tesla Model X Long Range	420 miles/hour
9	Mercedes-Benz EQE 350+	420 miles/hour
10	BMW i4 eDrive40	400 miles/hour

Source: EV-Database

# HOW TO THINK ABOUT... SALARY SACRIFICE

By Andrew Ryan

**T**he use of salary sacrifice as a way of increasing the uptake of battery electric vehicles (BEVs) is booming.

Boosted by currently favourable tax rules, employees and employers can make significant savings if a driver chooses an ultra-low emission vehicle.

"Tax on a BEV is so low that we are at a point where someone who doesn't have a company car might prefer to have one than be paid," says Harvey Perkins, director at HRUX.

Salary sacrifice allows employees to get a fully-insured and maintained car in exchange for a contractual reduction in their gross pay, which – for BEVs – currently works out to be less than if that vehicle was bought as a private consumer.

For instance, in an example given by HRUX, a 40% taxpayer acquiring a Mini Cooper S Electric through a personal lease would have a monthly net cost of £545.

The same car acquired through salary sacrifice would cost them £309 a month: a saving of £268.

The employer also saves the national insurance

contributions (NICs) on the salary that is sacrificed.

Traditionally, salary sacrifice schemes have been a way of giving employees who are not eligible for company cars access to new vehicles in a tax-efficient way, but this is changing.

"What we're seeing increasingly is businesses saying they'll put all company car drivers in cash and then allow them back into the car scheme, but only through the sacrifice route," says Perkins.

"The big advantage of that is that the amount of the salary sacrificed is genuinely what you think that car is going to cost you for the mileage and term that the employee wants to do, whereas with a company car on an attachment basis, there's always a degree of blank cheque.

"For example, you've got two employees: one



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lives just around the corner and the other lives 200 miles away. At the moment, you may give them the same entitlement and just pay for it.

"The one who lives 200 miles away will cost you twice as much as the one that lives around the corner: with salary sacrifice, the employee pays the full cost of the vehicle by way of the sacrifice.

"If the salary sacrifice rules stay with us for more than a couple of years, I think you'll see a lot of big fleets become sacrifice-only so the employee is picking up the true commercial cost of the car they're going into."

#### SCHEME WEAKNESSES

While the benefits of a car salary scheme are far-reaching, it does have weaknesses.

"There are two key areas that restrict this as a truly inclusive solution across all

employee bases," says Chris Caddick, head of business development at JCT600 Vehicle Leasing Solutions.

"There remains a lack of suitable family-sized vehicles at the lower end of the market.

"Furthermore, while the net cost to the employee is attractive, the gross deduction required, driven by increased insurance costs can be significant, which puts greater pressure on national minimum wage requirements and can affect the eligibility of the lower earners."

Employees would not be eligible to participate in a salary sacrifice scheme if the deduction causes their salary to fall below the national minimum wage.

Other implications include the possibility of affecting an employee's entitlement to tax credits, the sum they repay to the Student Loan Company, or their state pension entitlement.

## SPONSOR'S COMMENT

By **Beverley Wise**, regional director UK & Ireland, **Webfleet Solutions**



Technology – from digital connectivity and artificial intelligence to automation and data innovation – is essential to accelerate the pace of decarbonisation.

This message has been firmly reinforced by the Government in its Transport Decarbonisation Plan – its roadmap to a more sustainable future.

The plan, by its own admission, is ambitious, but it must be. The clock is ticking, not only on the UK's net zero commitments, but on the global climate crisis.

For fleet businesses, the technology ecosystem that will be relied upon to usher in a new green transport era stretches beyond the clean vehicles rolling off manufacturer production lines.

It includes supporting technologies that can act as vital enablers and facilitators.

Telematics innovations, for example, are now unlocking the door for businesses to make more informed decisions when electrifying their fleets.

Webfleet's award-winning EV solution offers a powerful case in point – providing managers, and their drivers, with a range of digital tools that signpost the most cost-effective routes to decarbonisation and that also help optimise operations.

Insights range from real-time battery levels and remaining driving ranges to energy consumption and charging intelligence.

In eight years, it will be impossible to buy a new petrol or diesel car or van. And, as the 2030 end-date approaches, companies will need to introduce data-driven strategies to cost-effectively adapt.

By doing so, their business futures will not only be environmentally sustainable, but financially robust.

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# HOW TO THINK ABOUT... MAXIMISING RANGE

By Andrew Ryan

**A**s with petrol and diesel vehicles and their fuel economy, it is rare that a battery electric vehicle (BEV) achieves its official range in real-world conditions.

This is down to a number of factors. The way a BEV is driven can reduce its range by more than 20%, according to Tim Anderson, group transport manager at Energy Saving Trust (EST).

Many of the eco driving techniques which apply to internal combustion engine (ICE) vehicles are also relevant to BEVs, but there are some key differences.

"With ICE vehicles, we advocate anticipation, reading the road ahead, shifting through the gears quickly, making sure you don't brake or accelerate unnecessarily and maximising engine braking," says Anderson. "BEVs don't have gears and, instead of the engine braking from an ICE vehicle, they have regenerative braking. It is key to maximise this."

As with ICE vehicles, driving BEVs at the right speed can have a big effect on efficiency. "For a petrol or diesel vehicle, the most efficient speed is between 40mph and 50mph, but it takes a lot of energy to get the vehicle going," says Anderson.

"Harsh acceleration has less effect on energy consumption in a BEV. With an electric vehicle there is a straight-line relationship between speed and energy

consumption: the faster you go, the more energy you're going to use.

"There is no getting away from it, that is purely the laws of physics."

Research by the EST has found that driving at 70mph instead of 50mph will reduce battery range by 36%.

Cold weather can also have a significant impact on the range of a BEV. Royal Mail and Centrica have each reported a loss of range of between 30% to 40% in winter temperatures compared with the warmer summer months.

This is due to both the effect the cold has on the battery chemistry and the energy needed to heat the cabin.

"When you think about a petrol or diesel vehicle, they produce a load of waste heat and that's a great thing to use to keep the cabin nice and warm," says Anderson.

"You don't have that with a BEV so you have to generate the heat, and if you are using the batteries to do that then it is using extra energy."

One way to minimise this impact is to use the pre-conditioning function available on many BEVs, which allows the cabin temperature to be set in advance so it is already at the required heat when the driver wants to use the vehicle.

"This way you're not using the power that's contained within the BEV's battery, you're using it from the mains power that's coming through the EV charger," says Anderson.

## SPONSOR'S COMMENT

By Neil McCrossan, sales & marketing director – Northgate Vehicle Hire



The volume of news and interest in electric vehicles (EVs) for fleets is growing enormously. From the race to improve range in new light commercial vehicle (LCV) models to best fit the

needs of businesses through to new battery plants being planned and built in the UK, seemingly every week, there is more to learn and new things to consider.

Electric vehicles should form part of a wider mobility solution; which means looking at all aspects such as initial outlay, running costs versus internal combustion engine (ICE) and charging needs at home/work/on the go.

Then fleets need to investigate tax implications for your employees for the vehicles as well as how the electricity used both at the employees' home and work can be paid for within current and future tax rules.

How might your business be able to sell energy back into the grid?

The UK has always been a global leader in transport innovation, and we see a period of transition ahead where ICE and EV vehicles will be needed and with each having its part to play dependent on the solutions required by modern fleets.

At Northgate, we're here to help customers cut through the 'noise' and guide them on their Drive to Zero journey by analysing current fleets, explaining what is needed and providing turnkey solutions in areas such as charging infrastructure (commercial, domestic and on-the-go), energy, billing and how these elements can work with our flexible rental packages.

Everything, in fact, that you need to help switch to EV when you're ready.

Our aim is to deliver maximum flexibility, maximum service experience and maximum control over costs for our customers.

[www.northgatevehiclehire.co.uk](http://www.northgatevehiclehire.co.uk)

**NORTHGATE**  
Vehicle Hire



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# HOW TO THINK ABOUT... RANGE VS EFFICIENCY

By Andrew Ryan

**M**anufacturer advertising is always a good reflection of what is important to potential customers, and with battery electric vehicles (BEVs), the focus is overwhelmingly on range, not efficiency.

This is in contrast to internal combustion engine (ICE) vehicles, where the spotlight is consistently on efficiency and rarely on how far they can travel on a tank of fuel.

But why is this? The lower range of BEVs compared with that of a petrol or diesel vehicle is the key, believes Fraser Crichton, corporate fleet manager at Dundee City Council.

"Until BEV range becomes comparable with that of an ICE vehicle, people will always regard this as a limitation because they are used to and expect a 300-mile range from their vehicle," he says.

The lower range of a BEV means it needs to be 'refuelled' more often than a petrol or diesel vehicle and, as it takes longer to charge a BEV than fill up an ICE as well as there being a less comprehensive fuelling network, this increases the risk of vehicle off-time at potentially inconvenient moments.

"Battery technology advancements will increase BEV range over the next few years to make them more comparable with ICE vehicles," says Crichton.

"At this point, efficiency will return to being a major factor and more understanding of what BEV vehicles require to deliver them.

"Energy distribution knowledge for your BEV will become the norm."

For fleets, the efficiency of vehicles is ultimately more important than range when considering total cost of operation (TCO) models, as it allows them to accurately compare BEV running costs.

# HOW TO THINK ABOUT... VEHICLE-TO-GRID (V2G)

By Greg Payne\*

**V**ehicle-to-grid (V2G) is a technology in ascendance as the transition towards zero emission vehicles accelerates.

V2G is a system whereby plug-in electric vehicles, when connected to a V2G charger, can provide bi-directional flows of energy and data so the battery can charge, store and discharge electricity when necessary.

By controlling the power and timing of charging and discharging of the vehicle battery, customers can optimise the electric resources available.

A number of demonstration projects in the UK have shown that, while V2G charging hardware exists and a few EVs support bi-directional charging, they aren't ready for commercial deployment yet.

The E-Flex project (assessing the commercial potential for V2G in fleets) says very few fleets have EVs suitable for V2G.

It also concludes that the hardware needs more

time to prove itself, deployment is a slow process and currently the commercial case is thin.

But the technology is still developing, so these challenges are to be expected.

Changes to the policy and regulation of the energy system are happening at pace and this will facilitate both the installation process for V2G and the revenue streams it can access.

There will also need to be more compatible vehicles, and OEMs such as the VW Group are already starting to talk more openly about their plans for incorporating V2G compatibility into vehicles.

Standards and interoperability issues will also need to be ironed out which is expected to happen by around 2025.

When more vehicles are V2G compatible, fleets and organisations will benefit in a number of ways.

The recent explosion in energy prices here in the UK and in Europe has shown that being in control of how and when you use your energy is more important than originally thought.

V2G gives more opportunities for energy

optimisation, so you can charge the vehicles at the cheapest point of the day, and potentially move any other on-site electricity demands to cheaper periods too, turning your EV fleet into an energy storage asset. V2G can, potentially, optimise on-site solar generation as well.

The icing on the cake is that V2G can offer flexibility services (simply defined as the ability to change planned energy consumption at short notice) to both the Distribution Network Operator and National Grid.

The trend is that both the accessibility and value of these markets is increasing so developments are well worth keeping an eye on.

While you wait for V2G to be viable for fleets, an informative free course from Cenex ([www.cenex.co.uk](http://www.cenex.co.uk)) will give you the confidence to evaluate the benefits, impacts and limitations of the technology.

It may not be a technology for fleets today, but well worth building into plans for the future.

\* Greg Payne is a Cenex senior technical specialist.



## Most efficient BEVs

	Model	Efficiency (mi/kWh)	Range (miles)
1	Fiat 500e 24kWh	4.26	100
2	Tesla Model 3 Standard Range Plus	4.26	215
3	Hyundai Ioniq	4.17	115
4	Škoda Citigoe iV	4.08	130
5	Seat Mii Electric	4.08	130
6	Hyundai Kona Electric	4	155
7	Mini Electric	4	160
8	Renault Zoe R240	3.92	90
9	Volkswagen e-Up	3.92	125
10	Volkswagen ID 3 Pure Performance	3.85	170



## Least efficient BEVs

	Model	Efficiency (mi/kWh)	Range (miles)
1	Tesla Model X Performance	2.8	265
2	Tesla Model S P90DL	2.82	240
3	Volvo XC40 Recharge	2.82	210
4	Volvo C40 Recharge	2.82	210
5	Audi e-tron Sportback 50 quattro	2.82	180
6	Porsche Taycan Turbo S Cross Turismo	2.82	235
7	Nissan e-NV200 Combi	2.86	105
8	Tesla Model X Long Range	2.86	270
9	Mercedes-Benz EQC 400 4Matic	2.9	230
10	Ford Mustang Mach-e GT	2.9	255



Source: EV-Database

# HOW TO THINK ABOUT... MILEAGE REIMBURSEMENT

By Jonathan Manning

**R**eimbursing company car and van drivers for business miles travelled in an electric vehicle (EV) is fiendishly complicated compared with the simplicity of using fuel cards for drivers of internal combustion engine (ICE) vehicles.

The easiest EV solution has been to use HMRC's 5p per mile (ppm) advisory electricity rate (AER).

However, this fails to recognise the wide differences in true costs paid by drivers.

The most cost-effective arrangement for fleets is for drivers with off-road parking to install a home charger and take advantage of domestic energy tariffs (about 17p per kWh prior to April 1).

Colleagues who have to use public chargers face tariffs ranging from 28p-to-69p per kWh.

However, since Ofgem raised the price cap on domestic energy tariffs by 54% on April 1, pushing the average unit rate per kWh to 28p-30p, almost every EV driver will find themselves out of pocket if reimbursed at the AER of 5ppm.

The unavoidable conclusion is that the only fair way to reimburse business miles is to calculate the actual cost of the electricity used, consolidating home and public charging expenditure on an individual basis, dependent on where drivers plug-in their EVs.

The first step is to work out how much energy a vehicle consumes, which gives a kWh/mile figure, and then to multiply this by a blended rate that reflects the ratio of a driver's home, public and workplace charging costs.

[As an aside, employers who provide free workplace charging need to be sure they are not double-paying by reimbursing drivers for business miles having already paid for the energy.]

Data for public charging expenditure is available via fuel card-type accounts, provided by companies such as Allstar, Shell and BP, as well as new networks such as Pod Point, Instavolt, Tesla and Ionity.

Fleets and drivers have to accept they may need multiple charge cards for the foreseeable

future, until one card (or RFID or app) offers complete interoperability.

The Government has also legislated that all rapid chargers should accept contactless payments, although drivers using credit and debit cards to pay make it more difficult for fleet managers to obtain the management information necessary to keep a tight control on expenditure.

For home charging spend, employers need to know both a driver's domestic energy tariff and be able to track the electricity used to recharge an EV.

Neat solutions to this administrative headache do exist. Mina Homecharge, for example, sits between each driver's home charger and energy supplier to calculate the precise cost of charging a company car or van at home.

It then pays for a driver's business mileage directly to the energy supplier each month, minimising drivers' expense claims and eliminating any household cashflow issues while drivers would otherwise be waiting to be reimbursed.

# NORTHGATE, HELPING BUSINESSES DRIVE TO ZERO.

As a specialist mobility solutions provider, Northgate is launching its emission reduction programme, Drive to Zero, providing customers with a full suite of solutions to evolving the transition to electric LCVs.



Decades of meeting customers' fleet mobility needs has shown that when it comes to the process of transitioning to an electric future, supportive solutions are needed across the whole spectrum of fleet management to ensure that business needs are understood and met.

Throughout the past two years, Northgate has continued its transformation into a specialist B2B customer-centric LCV mobility provider, and as part of this it has been building the foundations for its own electrification journey, alongside those of its customers.

## FLEET ANALYSIS

From the very beginning of the journey, Northgate has worked with EV industry experts to ensure that it can support businesses in the right way, which begins with a thorough assessment of a company fleet and its suitability for electrification. The evolution in technology means it's important that whole life costs are considered, from the outset. From initial capital outlay, through to EV running costs versus ICE and residual values for both. Northgate can provide clear visibility to its customers on the total cost of ownership for electric LCVs, including regional ULEZ charge calculations.

Through the interrogation of telematics data, Northgate can build a complete understanding of vehicles, their movements, distances travelled and journey times, which allows customers to understand which vehicles can be immediately switched to electric without any other considerations and which ones are more suited once the availability of higher range electric LCVs are launched over the coming years by OEMs.



## Advertisement Feature

### A WIDE CHOICE OF E-LCVS FOR ALL NEEDS

Vehicle choice plays a major part in fleet electrification, and Northgate, works closely with existing and emerging OEMs to continually add to our industry leading range of electric LCVs. From final mile solutions such as the Renault Zoe commercial hatchback, through to mid-sized panel vans such as the latest Mercedes Benz e-Vito or even the larger Mercedes Benz e-Sprinter. Northgate is already offering the leading proposition within its 12months+ and flexible rental options.

Technology is evolving rapidly, so being able to change over to the latest models as technology improves is an important consideration for fleets. Northgate's flexible hire packages provide the opportunity to change vehicles as technology evolves without being stuck in long-term, inflexible contracts, as well as encouraging fleets to run EVs as part of structured test programmes over multiple months.

Servicing and maintenance remain key considerations when running EVs, so Northgate has invested heavily in its fully equipped workshops and 67-strong branch network, ensuring that trained EV technicians are employed across the country.

### CHARGING INFRASTRUCTURE PROVISION

The provision of suitable charging infrastructure is a crucial step to ensuring a smooth transition for any business. Northgate works with leading EV charging installation experts, ChargedEV, which is part of the Redde Northgate Group to ensure that whether a customer needs to consider workplace charging, home charging or even public charging facilities, the best possible solution can be found. It can also help and support with major infrastructure planning which involves working with local energy suppliers to install and futureproof a company's charging needs.

With more than 23,000 charge points installed to date, ChargedEV's specialist engineers will advise customers on every step of the electrification journey. No matter the size of fleet, Northgate's extensive range of charging solutions are both hardware and energy agnostic, to fit bespoke needs.

Even better, once up and running, Northgate has teamed up with the fuel card provider Allstar Business Solutions to provide customers with a combined fuel and electric chargecard that is accepted at over 1,000 rapid chargers and 3,000 fast chargers.

### DRIVER TRAINING

From Northgate's extensive research and live on-road testing, the change to an electric power train can seem a daunting one, and so it has a full suite of EV training modules available to help address this challenge and help drivers adopt new driving techniques to optimise EV range.

Free to all its EV customers, the broad suite of learning modules can help drivers up-skill with ease on all manner of subjects from EV driving best practice to charging, and a host of other 'how to' topics in between. Northgate's aim is to help companies allay any potential anxieties for drivers, while improving driver safety and overall fleet efficiency.

### DEVELOPING A ROBUST TRANSITION PLAN THAT WORKS FOR YOUR BUSINESS

Our proposition is designed to let fleets focus on their business, whilst Northgate focuses on running their vehicles. With rental services and a flexible approach not available to those who choose traditional contract hire finance.

Northgate's focus is very much on a customers' transition to EVs, working with the support of a team of proven experts to assess every customer's needs including infrastructure, energy and billing and combining these with the most suitable flexible rental package available. With these plans in place, Northgate customers know they can rely on its dependability and flexibility to ensure that while the technology is constantly improving, it can support more companies deliver their own Drive to Zero emissions.



**Neil McCrossan,**  
Sales & Marketing  
Director, Northgate

Find out more at  
[northgatevehiclehire.co.uk/drive-to-zero](https://northgatevehiclehire.co.uk/drive-to-zero)  
or call us on 0330 042 0903

**NORTHGATE**  
Vehicle Hire



# Key considerations on the road to e-mobility

Beverley Wise, regional director UK & Ireland for WEBFLEET Solutions, explores three essential areas businesses must get right when making the electric transition



## Why TCO optimisation matters

Although the upfront purchase or lease costs of electric vehicles (EVs) are typically higher than their petrol or diesel counterparts,

considerable savings can usually be made in everyday running costs.

Not only can the electric powertrain enable fleets to benefit from a lower cost per mile, with fewer moving parts, it can also result in lower maintenance costs.

By calculating this total cost of ownership (TCO) – taking all areas of spend into account – a persuasive business case for electrification can be made. Furthermore, car choice lists, based on TCO, will see electric models categorised more accurately, making them more accessible to a bigger proportion of the workforce.

This TCO calculation can be simplified by using telematics data insights. The cost per mile of an EV can be more easily compared with a fossil-fuelled equivalent, for example.

Tools such as WEBFLEET's Fleet Electrification Report, meanwhile, will help provide clear visibility over the typical mileage and type of journeys undertaken by drivers, signalling which vehicles can be cost-effectively to switch to EV alternatives.

## Charging ahead: planning your EV infrastructure

When making the switch, it is also vital that fleets use the most appropriate charging infrastructure; that they understand the options available; that EVs are fully charged when they need to be, and that drivers plug in to the most cost-effective tariffs.

Telematics insights can, once again, help here, enabling businesses to



determine where their cars spend most time and revealing their typical mileage and dwell time. This will help indicate whether vehicles need to use home, office or public charging infrastructure.

When charging stations are needed at business premises, telematics reports will help signal how many are required and whether standard, or more expensive rapid chargers, are more appropriate.

Having made the EV switch, functionality such as the WEBFLEET Charger Connection Report will then offer complete visibility over vehicles' charging statuses and remaining charging times to ensure drivers operate the most cost-effective charging practices.

Electricity grid demands will tend to peak in the early evening, for instance, when drivers are most likely to plug in

their vehicle on their return from work. Charging overnight, when electricity prices are lower, can, consequently, reduce this cost burden.

The report will also help ensure that charge levels are maintained between the optimal 20% and 80% to minimise battery degradation.

## Maximise your fleet's electric miles

The WEBFLEET Energy Consumption Report raises the EV insights bar even higher, providing fleet managers with energy usage information, in kWh per vehicle, per day.

With this intelligence they can compare vehicles' energy performance and identify and address inefficiencies at the touch of a button.

Robust route planning, navigation that takes account of traffic information and workflow management optimisation also remain vital considerations if fleets are to make the most out their electric miles, boosting productivity and cutting costs by reducing expensive en route charging.

For more information please visit  
[www.webfleet.com](http://www.webfleet.com)  
or call 0208 822 3605



# HOW TO THINK ABOUT...

## DRIVER BUY-IN

By Andrew Ryan

**W**hile the number of company car and van drivers switching to electric vehicles (EVs) is increasing rapidly, many remain reluctant to make the switch.

This could be because of unfamiliarity with the technology or long-held concerns over range or the public charging network.

While some of these concerns may still be relevant, others are long-held beliefs based on negative media coverage from several years ago which, thanks to the development of the technology, no longer ring true.

So, how can a fleet decision-maker overcome these obstacles and encourage their drivers to make the switch?

The answer, according to George Beard, head of new mobility at transport consultancy and research service TRL, is to make the transition a simple one.

"A good general lesson from behavioural science is, if you want people to make a shift on to something new, then make it as easy and attractive as possible," he says.

"There are a lot of features of EVs and charging which go against that, and one of those is around the knowledge and understanding of this new world and all the jargon that comes with that.

"If a fleet manager can put in place mechanisms for improving awareness and knowledge then that will definitely help: kind of myth-busting, for example, around what people hear about EVs and what's actually true.

"A simple guide could be produced to explain how to charge and where, what the different charging speeds mean and what all the connector types mean.

"It can be quite daunting if you've not really engaged with that area."

A fleet manager could also address any anxiety about range by looking at the routes a driver does, as well as the charging infrastructure available in that area.

Vinci Construction UK has adopted a similar approach as part of its parent company's ambition to reduce CO<sub>2</sub> emissions 40% by 2030.

It has produced guides to help drivers make the right choice for their working life and driving

behaviours, says Andrew Thomsett, plant and vehicle director at Vinci Fleet Services.

The fleet team has also launched an EV forum on the company's intranet, where drivers can discuss the technology.

"We'll talk to drivers and guide them through the choices and the different battery sizes, high speed charging, and how to get a wall-mounted charging point at home," says Thomsett.

"We have a step-by-step guide taking them through all the forms, how to decide where you want it, and the measurements they need.

A further effective way to win buy-in from drivers is for them to experience the technology for themselves.

Some leasing companies or manufacturers may be able to host roadshows, allowing employees to drive an EV, as well as be able to question experts.

"Getting first-hand experience of an EV tends to make people more positive," says Beard.

"They can see the benefits, like the smoothness, the quietness and the ease in which you can drive one.

"For someone who's on the fence or is tempted but a bit nervous about the technology, actually giving them experience driving one could tip the balance."



“IF YOU WANT PEOPLE TO MAKE A SHIFT TO SOMETHING NEW, THEN MAKE IT AS EASY AND ATTRACTIVE AS POSSIBLE”

GEORGE BEARD, TRL





## Your partner on the road to zero emissions

Car & Van Leasing | Personal & Business | Charging & Energy

We know the transition from an internal combustion powered fleet to a battery powered fleet isn't smooth. There is a myriad of challenges to overcome, but the rewards are well and truly worth it.

Just some of the benefits of working with DriveElectric and moving to zero tailpipe emissions vehicles are:

- Happy drivers
- Reduced operational costs and whole life costs
- EV transition planning
- Organisational reduction in emissions
- Part of the UK effort to achieve net zero, offsetting the impacts of climate change

DriveElectric has been at the forefront of the move to electric vehicles since 2008.

We've built up unrivalled knowledge and expertise by helping a wide variety of organisations; from fleets with a handful of vehicles, up to large-scale, complex fleets with a spectrum of driver profiles and vehicle types.



Our tried and tested approach to operating successful EV fleets includes:

- Driver attitude surveys & analysis
- Telematics analysis
- Whole life costs analysis
- Charging strategy
- Energy management
- Flexible EV leasing & financial solutions

Helping UK business succeed in transitioning to electric vehicles since 2008.

For more information visit [www.drive-electric.co.uk/business](http://www.drive-electric.co.uk/business) or call our EV fleet consultants on 01628 899 727



# HOW TO THINK ABOUT... BATTERY DEGRADATION

By Andrew Ryan

**A**nyone who has used the same smartphone for a long period has experienced the issue of battery degradation.

When new, the lithium-ion battery seems to last forever, but, over time and use, they need to be charged more often as their capacity reduces.

This is also true of electric vehicle (EV) batteries, which share a similar chemistry.

That means the vehicle will suffer a decrease in its range over time, while there are also concerns that the battery health will affect an EV's residual value (RV) when it is sold.

It may also affect a battery's potential to be used in 'second-life' applications such as battery storage after it is no longer used to power a vehicle.

However, there should be no reason for a fleet decision-maker or driver of a new battery electric vehicle (BEV) to panic over this.

All OEMs offer lengthy warranties on their BEV batteries – typically eight years/100,000 miles – with most manufacturers guaranteeing batteries will retain at least 70% of their original capacity after this time.

Two years ago, telematics supplier Geotab

analysed data from 6,300 fleet and consumer EVs in America, representing 1.8 million days of data and 21 vehicle models.

It found batteries were exhibiting high levels of sustained health and, if the observed degradation rates were maintained, the vast majority of batteries would outlast the usable life of the vehicles.

One of the causes of accelerated battery degradation is frequent rapid charging.

"There haven't been that many EVs around for long enough to be collecting huge amounts of data," says Faraday Institution CEO Pam Thomas.

"What I would say is that the more rapidly a battery is charged, the more stress you're putting on the complex electrochemical system that lies at the heart of the power generation.

"It's always going to be the case that as we move to more and more rapid charging, it will be of real significance to how the battery degrades and how long a lifetime it has."

Geotab's analysis found that after 48 months, EVs operating in a hot climate which had been rapid charged more than three times a month would have an average battery state-of-health (SOH) of around 80%. When new, a battery has

a 100% SOH. After the same period, an EV which had never been fast charged had an SOH of around 90%, while one which was fast charged up to three times a month was at 85%.

James Nicholson, partner in advanced manufacturing and mobility at accountancy firm EY, says there is anecdotal evidence that vehicle makers are looking back at slightly older technologies to address degradation.

"The industry has been largely focused on things like power density and the speed of charging, so we've transitioned towards high nickel battery materials," he says.

"They're great for certain attributes, but you do suffer from the length of lifetime and the number of cycles these batteries can be recharged.

"We've seen over the past few months that OEMs are picking up interest in an older technology called LFP (lithium iron phosphate), which has a lower energy density and potentially lower range, but actually has a better lifetime.

"This may be suited to something like a fleet of delivery vans, which is probably more concerned with total cost of ownership over the lifetime of that fleet."



# Electrifying your fleet: the value of specialist EV support services

Every fleet operator knows that managing downtime, optimising vehicle efficiency and monitoring driver safety are fundamental to ensuring the smooth running of their organisation's fleet.

Yet, maximising performance requires constant evolution of fleet policies and processes. Throw in a transformative programme like adopting electric vehicles (EVs) and we are looking at significant change to the ecosystem of support services, processes and fleet performance management.

External forces such as Government targets, subsidies and increasing public charging infrastructure are enabling the move to electric vehicles.

Alongside this, the powerful shift in corporate attitudes towards the inclusion of environmental and social goals is driving fleet managers to consider how they will decarbonise their fleet.

For many, going electric is the answer.

AX has listened to its partners, including some of the top 20 FN50 leasing companies, and produced a study of businesses with fleets to harness their views on the transition to electric vehicles.

The results suggest that more than a third of businesses are yet to introduce EVs into their fleets. And, regardless of where businesses are in the process of migrating to electric powertrains, invariably, they realise that they need help from partners, especially in the complex area of accident and incident management.

A specialist electric vehicle accident management programme is vital for delivering a high-performance electric fleet. And, as the EV new car market share grows beyond 16%, AX is proud to be a market leader in the provision of electric vehicle-focussed accident management services.

The company was the first to offer an



EV-for-EV replacement guarantee via AX Electric and last year launched AX Motor Assist, a technology-driven end-to-end incident management service.

Providing the right vehicle following an accident is vital. AX learnt this long ago and its approach is magnified with the emergence of EVs.

Nearly a quarter of AX's 3,000-strong fleet is either plug-in hybrid or battery electric, with the intention to always mirror the market share in terms of new car sales of the various powertrains.

But, responding to an incident isn't just about providing a replacement vehicle. It is also about having the right first response service which operates 365/24/7 and the right repair network with suitably experienced repairers for the job.

AX has been focussed for many years on forging strong relationships with specialist EV repairers.

The company's close association with these providers is key; it enables effective communication between customer and repairer and often means these repairs are prioritised, reducing downtime.

The OEM-approved bodyshops AX works with are qualified to work on EVs – this is vitally important due to the additional repair requirements (predominantly safety procedures) of EVs.

AX Electric guarantees vehicle deployment to an EV authorised repairer who they then support by providing a continuous flow of EV repairs.

This, in turn, ensures investment in EV training, tooling, and safety measures remains a top priority and access to this network means that repair times and downtime can be minimised for AX customers.

As well as these operational touchpoints, AX's specialist telematics arm is investing heavily in its ability to capture and act on the new EV telematics data that is increasingly available from retrofitted or factory telematics devices.

The data now available can help support AX's partners in identifying new patterns of behaviour and risks to drivers in EVs.

As businesses with fleets accelerate the adoption of electric vehicles, the turbulence the transition may cause can be alleviated with the support of the right services partners.

The shift to electric requires a laser focus on developing the specialist skills in your support network, but investment in this will yield improved results and a high performing electric fleet.



Keeping drivers driving

For more information please call: 0121 412 1055, or email: [fleetenquiries@ax-uk.com](mailto:fleetenquiries@ax-uk.com)

# HOW TO THINK ABOUT... VEHICLE SUPPLY

By Andrew Ryan

**T**raditionally, issues such as range anxiety and a lack of suitable electric vehicle models have been seen as among the biggest obstacles to widespread adoption of the technology.

However, as more battery electric vehicles (BEVs) offering greater driving ranges have been launched and the choice of vehicles has blossomed, fleets have encountered another challenge: vehicle supply.

The Covid-19 pandemic was instrumental in a global shortage of semiconductors as the factories making them shut, leaving OEMs grappling with production stoppages.

This has not quelled the appetite for zero emission vehicles in the UK. In 2022, up to the end of February, 24,850 had been registered, an increase of 154% compared with the same period last year.

However, as demand has outstripped supply, fleets are facing long lead times for new vehicles, with some models, such as the Kia EV6, selling out its entire 2022 UK allocation well before the end of 2021.

"We are in a position where many company car drivers are placing huge pressure on their employees to move them into EVs because of the current benefit-in-kind advantages, but the supply to satisfy that demand is frequently

unavailable," says Paul Hollick, chair of the Association of Fleet Professionals (AFP).

"Some manufacturers are even asking fleets to take certain EVs off choice lists because they simply do not know when any orders might be able to be fulfilled and, to fill the gaps, some employers are considering readopting internal combustion engine (ICE) vehicles, which seems like a deeply retrograde step, but might be the only practical solution."

The supply issues mask the progress made by manufacturers in launching new models.

"We have seen the number of electric cars absolutely explode in terms of launches," says Octopus Electric Vehicles CEO Fiona Howarth.

"When I started doing this about five years ago, there were five vehicles that could do more than

150 miles: a couple of very expensive Teslas, a BMW i3, the Nissan Leaf and the Renault Zoe.

"Since, the number of models has skyrocketed. We've got a range of different vehicles to suit different situations, from city cars and family cars, all the way through to luxury cars.

"The lead times are challenging, though. Some of the Teslas we can get within, say, a couple of months, whereas some of the more luxury vehicles are even out at 18-month lead times."

Prominent industry experts such as Mike Hawes, chief executive of the Society of Motor Manufacturers and Traders (SMMT), expect the shortages to ease towards the end of the year.

"There is the expectation supply will improve as the year goes on, particularly in the second half of the year, but there will still be ripples into 2023," says Hawes.

It is a similar situation for electric vans, says Howarth, with typical lead times of at least 12 months. "If a fleet is thinking it wants to get started on electrification, it should really get thinking about what it might want and get its orders in," she adds.

While the long lead times for BEVs will be a source of frustration for companies keen to accelerate their transition, they can also give fleets who are not as far advanced in their plans the time to focus and refine their strategies for when vehicles become more readily available.

“THE SUPPLY  
TO SATISFY THAT  
DEMAND (FOR EVs)  
IS FREQUENTLY  
UNAVAILABLE”

PAUL HOLLICK, AFP







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# HOW TO THINK ABOUT... HYDROGEN

By Andrew Ryan

**W**hile battery electric is very much the dominant zero-emission vehicle technology, a number of experts feel hydrogen fuel cell vehicles will still have a major role to play in the decarbonisation of road transport.

Its appeal is clear: it's a zero-tailpipe emission technology which can be refuelled in a time similar to that of a petrol or diesel vehicle. Also, there is no need to carry a large battery, meaning vehicles are not comprised on payload or cargo capacity.

However, it also has major drawbacks: according to UK H2 Mobility, there are currently only 14 hydrogen refuelling stations in the UK, while the fuel has to either be generated on site or transported.

This year will bring much greater clarity on the role of hydrogen in road vehicles, says Pedro Pacheco, senior research director at mobility and technology analysts Gartner.

"As the main hydrogen advocates among automakers are now making major investments in battery electric vehicles (BEVs), they don't have enough resources to make similar bets on hydrogen which will lead to a lack of competitive hydrogen-powered passenger cars on the market in comparison with BEVs," he adds.

Two of the biggest advocates of BEVs have been Hyundai and Toyota. Hyundai has said it will introduce 17 new BEVs by 2030, while Toyota's strategy will see it offer 30 BEVs in the same timescale.

On the flipside, the Stellantis group will offer three hydrogen vans based on the existing

Citroën Dispatch, Peugeot Expert and Vauxhall Vivaro later this year, showing that manufacturers are still investing in the technology.

The UK Government, too, has high hopes for the fuel. In its Decarbonising Transport plan, it describes hydrogen as "fundamental to achieving net zero in heavy transport applications".

As part of this, it has invested £3 million to establish the UK's first multi-modal hydrogen transport hub in Tees Valley.

The hub brings together government, industry and academia to focus on future hydrogen research and development,

real-world testing and demonstrations.

Conventional wisdom has been that BEV will be the dominant technology for cars and light commercial vehicles, while heavy good vehicles (HGVs) would use hydrogen as it would be impractical for them to carry the size of the battery which they would need to perform their duties, as well as take too long to charge.

However, Pacheco says the situation is not this black and white.

"As the hydrogen refuelling infrastructure struggles to build scale, partnerships between truck makers like Volvo, Daimler and Scania to boost charging infrastructure are a key sign that BEV may also top hydrogen in trucks," he says.

"The roll-out of the new MCS charging standard for heavy-duty vehicles also promises to heavily slash charging times, something that is crucial for the operational efficiency of fleets operating electric trucks.

"However, 2022 is not the end of hydrogen for road vehicles – not at all.

"This year it will become clear that its chances of building a visible market penetration in relation to BEVs are minimal."

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