Pod Point

Workplace Whitepaper

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1. Introduction

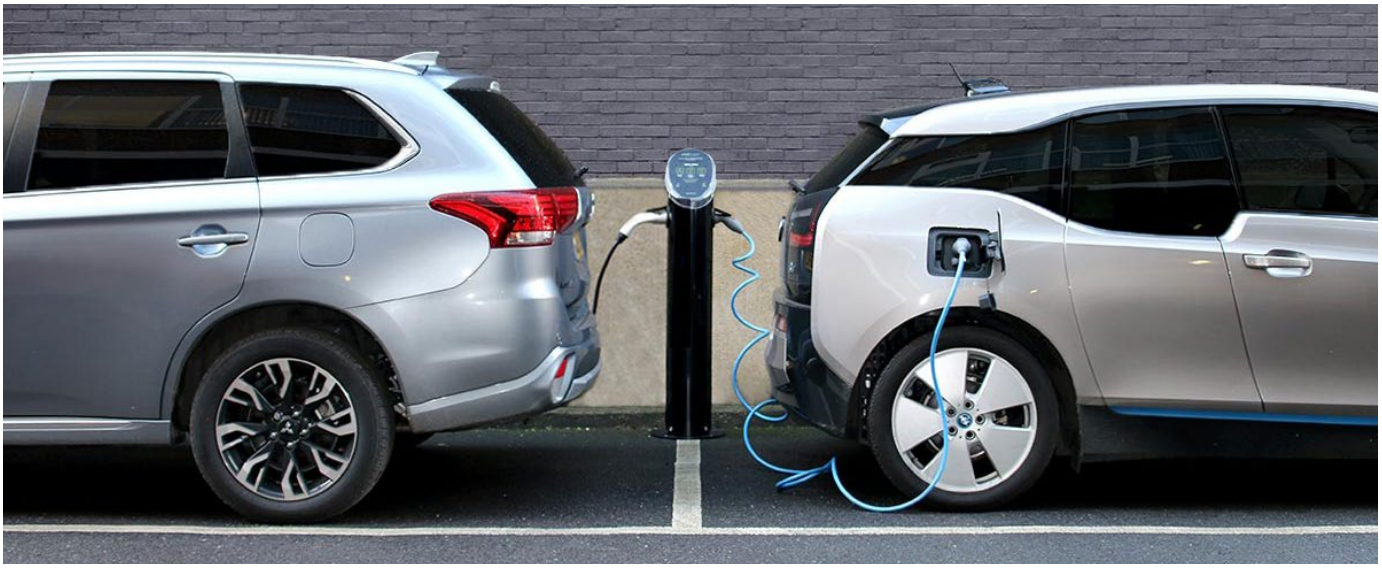
The world is undergoing a transport revolution, with environmental concerns, government policy and advances in technology all playing a role in the switch to electric vehicles (EVs). As of the end of December 2018, there were around 202,000 plug-in vehicles on UK roads[1], but uptake is increasing rapidly. These EVs all need places to charge.

Employers have a huge role to play in encouraging the uptake of electric vehicles, and US research shows that access to workplace charging makes drivers six times more likely to drive electric[2].

There are a number of reasons why workplace charging is so important. The workplace is second only to drivers' homes when it comes to locations where vehicles tend to be parked for long periods (up to eight hours a day). Having access to workplace charging makes EV ownership feasible for those without off street parking, which includes around 22 per cent of UK homeowners and upwards of 50 per cent in London and other major cities[3].

In addition to the environmental benefits of helping boost EV uptake, there are a number of direct benefits for employers, including the potential for good CSR and progress towards sustainability targets. Also, as more drivers switch over to EVs, access to workplace charging will become increasingly important for attracting and retaining staff.

This document explores the benefits of offering EV charging at the workplace and provides a guide for employers planning to invest in this technology. It also includes a summary of available grants and other financial incentives.



1. https://www.nextgreencar.com/electric-cars/statistics/
2. https://www.energy.gov/sites/prod/files/2017/01/f34/WPCC_2016%20Annual%20Progress%20Report.pdf3. Zap Map EV charging survey 2018
3. https://www.pwc.co.uk/power-utilities/assets/electric-vehicle-charging-infrastructure.pdf

2. Workplace charging

Several members of your team may already drive an EV. Perhaps none of them do - yet - however, we can confidently say that they will, within the near future. Recent research by Go Ultra Low found nearly a fifth (18 per cent) of Brits would like to make the switch to EV in 2019 and industry analysts expect to see 7.7m EVs on UK roads by 2030[4].

The reasons for this exponential growth are broad ranging. Arguably, the biggest influence is the falling cost of batteries and the knock-on impact on retail prices. Total cost of ownership is already lower for pure battery electric vehicles (BEVs), thanks to cheaper running costs and easier maintenance, and purchase price parity is expected to arrive in 2022[5]. At the same time, EVs are becoming more advanced, with several mid-market models due to launch in 2019 that can travel in excess of 200 miles on a single charge.

Added to this mix are some very powerful incentives set to kick in for company car drivers. Come the 2020/2021 tax year, benefit in kind (BiK) rates will fall to 0 per cent for zero emission vehicles, followed by 1% in 2021/22 and 2% in 2022/23. Meanwhile, BIK rates for petrol and diesel cars will jump up, even for relatively efficient cars. The BIK rate for a Ford Focus 1.0 Eco boost, for example, will be set at a wallet busting 20 per cent.

Taking into account falling purchase prices, advances in technology, environmental considerations and tax incentives, EVs will soon become the logical choice for anyone buying a car.

So, taking into account all of these developments, let's take a look at why employers should invest in workplace charging.

Workplace charging benefits

Cost savings

More than two thirds of plug-in hybrid cars (PHEVs) sold so far in the UK were bought by company fleets[6]. However, many PHEVs drivers are believed to run their cars purely on petrol or diesel, instead of plugging in[7].

As EVs are around 10p per mile cheaper to run than equivalent petrol or diesel vehicles, these PHEV drivers are effectively pouring money down the drain.

4. Mobility 2030: Investment in EV Infrastructure, KPMG https://assets.kpmg/content/dam/kpmg/uk/pdf/2018/08/mobility-2030-investment-in-ev-infrastructure.PDF

5. New Markets, New Vehicles, New Challenges. Battery Electric Vehicles, Deloitte https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/manufacturing/deloitte-uk-battery-electric-vehicles.pdf

6&7. https://www.bbc.co.uk/news/business-46152853

The below calculations are based on an employee commuting 25 miles to work each way. They assume an average daily mileage throughout the year of 50 miles, totalling 18,250 miles per year.

Annual petrol cost for 40 mpg petrol internal combustion engine car	**£2,634.18**
Annual electricity cost for Mitsubishi Outlander PHEV (2019)	£773.76
Annual petrol cost for Mitsubishi Outlander PHEV (2019)	£1,264.58
Annual fuel saving for Mitsubishi Outlander PHEV (2019)	**£634.15**

Calculated with petrol @ £1.27 per litre electricity @ 14p per kWh, wh/mile figures as per Pod Point EV Guides.

Note: we've assumed the Outlander charges at home and work, averages 24 miles electric range, does 32mpg on petrol and 50% of non-commute miles are electric.

Those employers interested in adding full battery electric vehicles (BEVs) to their fleets, could find the savings even more substantial, with some of the latest BEVs able to travel over 200 miles on a single charge.

The below calculations make the same assumptions as above, i.e, an average daily mileage of 50 miles, totalling 18,250 miles per year.

Annual petrol cost for 40 mpg petrol internal combustion engine car	**£2,634.18**
Annual electricity cost for a Hyundai KONA Electric	£648.97
Annual fuel saving for KONA Electric	**£1,957.10**

Calculated with petrol @ £1.27 per litre electricity @ 14p per kWh, wh/mile figures as per Pod Point EV Guides.

But the potential savings aren't limited to fuel costs alone. As EVs have less moving parts than internal combustion engines (ICE), they are also cheaper to maintain. Across a whole fleet of vehicles, these savings can be significant.

Other financial considerations include the Clean Air Zones (CAZs) and Ultra-Low Emissions Zones (ULEZs) planned for a number of cities throughout the UK. Under these initiatives it will become increasingly expensive for polluting vehicles to enter city centres.

> **Note:** at the end of this document, we've included an appendix with more detail on potential cost savings.

Sustainability

The implications of climate change are become increasingly clear. Currently, transport is the UK's most polluting sector, and represents over a third (34%) of its CO2 emissions[8]. Transport is also the main cause of air pollution in cities, which has been described as a public health crisis costing the UK in the region of £6bn per year[9].

Installing EV chargepoints at the workplace is a powerful carbon reduction initiative. Using backend software, a number of metrics can be monitored and tracked, including

8. https://www.google.com/url?q=https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695930/2017_Provisional_Emissions_statistics_2.pdf&sa=D&ust=1550850745284000&usg=AFQjCNGEvKOR7GvtFmZOHa9pXyz8t2DLpw

9. https://www.eci.ox.ac.uk/news/2018/0606.html

the number of electric miles powered and carbon dioxide savings. This means progress can be measured against any carbon reduction targets, and the provision of EV charging can become an important part of a corporate sustainability strategy.

Corporate Social Responsibility

Installing workplace chargepoints shows leadership in sustainability and demonstrates commitment to curbing emissions. With research showing that environmental concerns are becoming increasingly important to consumers[10], charging infrastructure is a visible way for organisations to demonstrate their commitment to sustainability. Taking steps to encourage EV charging can also help reduce air pollution in local communities.

Employee recruitment and retention

Having access to workplace charging is an additional benefit for employees and can become an affordable part of a wider benefits package, if the charging is provided at no cost. It can also help to attract employees that are particularly motivated by environmental issues.

Government subsidies

Businesses can benefit from government grants, including the Workplace Charging Scheme (WCS). The WCS reduces the purchase and installation cost of a new workplace charging station by up to 75% (capped at £350 per socket). Businesses can claim for up to a maximum of 40 charging stations (40 single socket or 20 double socket) under the scheme, which is managed by the Office for Low Emission Vehicles (OLEV).

"EV charging fits perfectly with our environmental initiatives and it's a win for staff too as they get to charge at no cost. It's sure to prove popular with our existing EV drivers and will hopefully give more staff an incentive to make the transition to EVs."

Paul Thomas, Energy and Environment Manager at Superdry

10. https://www.unilever.com/news/press-releases/2017/report-shows-a-third-of-consumers-prefer-sustainable-brands.

3. Getting the right kit

Charger types and speeds

There are a range of charger types and speeds available. The right charging mix for your business will depend on how long your employees and visitors are likely to stay parked.

It's important to understand that with EV charging, faster isn't always better. Rapid chargers are expensive to install and may not be feasible for your car park without expensive infrastructure upgrades. This means it's highly advisable to model the likely behaviour of chargepoint users before making any decisions.

The table below summarises the main charging options for workplaces:

Trickle charger (<3kW)	**Fast charger (7kW-22kW)**	**Rapid charger (43kW+)**
Typically adds around 10-20 miles range per hour	7kW adds 20-30 miles of range per hour 22kW adds 60-90 miles of range per hour	A 50kW rapid charger adds around 125-180 miles of range per hour
Can work in car parks with long dwell times, but higher power is recommended, where possible	Ideal for company car parks where dwell times are several hours. 7kW becomes valuable for dwell times from c.45 minutes	Ideal for high-utilisation, return to base fleets, where dwell times between trips <45 mins

Generally speaking, chargepoints that deliver between 3.7kW and 22kW tend to be the best fit for workplaces. In the UK, 7kW single phase charging is the most prevalent.

4. Practical stuff

Finding the money

Grant funding

As covered earlier, the Workplace Charging Scheme (WCS) provides a grant of £350 per charging socket installed up to a total of 40 sockets per business.

Visit the Pod Point WCS Guide for further information on this scheme.

Purchase vs leasing

Some solution providers offer the ability to lease your charge points over a 3-5 year term. Leasing lets your business spread the cost of infrastructure over the term of the strategic rollout, rather than suffering a large upfront cost. This eliminates the capital expenditure required and keeps cash within your business. Chargepoints can often be upgraded on renewal, avoiding the need to invest in new equipment.

Pricing strategies

There is no one size fits all pricing strategy for workplace charging. Chargepoint hosts can provide free charging as a CSR initiative and added perk for employees. Alternatively, they can look to monetise the chargepoints by setting a tariff for usage.

There are three common usage models typically applied for workplace charging:

1. Free charging: this model maximises the incentive for employees to drive EVs.

2. Energy cost recovery: this model charges employees based on energy consumed with the aim of recovering energy costs to the business, but not the capital cost.

3. Energy and unit cost recovery: this model charges employees based on energy consumed as well as an additional margin to cover either the up front capital cost, or the monthly lease price of your charge points, allowing your business to recover the cost of energy and capex.

Employers should be aware that setting a tariff that's prohibitive will undermine many of the benefits described in section 2.

Effective bay marking and signage

To ensure your chargepoints are well utilised, it's important EV drivers are able to find them, and that non-EV drivers know they should park elsewhere. A pet hate of many EV drivers is to see charging bays obstructed by non-charging drivers.

Here's a few things to keep in mind when deciding where to install your workplace chargepoints:

Installing chargepoints at the front of your car park means they are much more likely to be blocked by non-charging drivers. Unless it's feasible to implement and enforce policies to discourage non-charging drivers from blocking the bays, it's advisable for chargepoints to be located elsewhere.

Creating clearly signed EV Zones with appropriate bay markings and signage makes the chargepoints visible for drivers, while making it clear to other drivers that they should park elsewhere.

Clearly signpost the chargepoints/EV Zone from the entrance of your business, to ensure EV drivers are able to easily locate them.

Scalability

A good chargepoint provider will work with you to create a plan that's fit for the future, not just the present. While it's important to install sufficient chargepoints to meet current demand, it's also advisable to fit the correct passive provision to allow your chargepoints to be scaled up in line with the growing number of EV drivers. This approach will save on future costs and upheaval.

Power supply

Whichever chargepoint solution you choose likely needs to work with your available electrical supply. It is possible to upgrade the site supply, but this is typically very expensive, time consuming and worth avoiding wherever possible. Some chargepoint providers, including Pod Point, offer load balancing systems that can optimise a site's existing power supply by distributing the available power proportionally across all the charging stations. In this way, more chargepoints can be installed without the need for costly infrastructure upgrades.

Staying connected

Perhaps you'd like to control who accesses the chargepoints, and have the option to set a tariff. Or you'd like to monitor their usage and track carbon dioxide savings. Or all of the above.

All these smart features require a charging system with internet connectivity, which typically will be linked with backend software. This software can provide a wealth of data on chargepoint usage.

Other benefits of internet connected chargepoints include the capability to perform remote diagnostics and send over the air software updates. Simple fixes can be performed remotely, which reduces the need for on-site maintenance and minimises inconvenience.

Access methods

Businesses require a simple and widely available method for drivers to access company charge points on a daily basis.

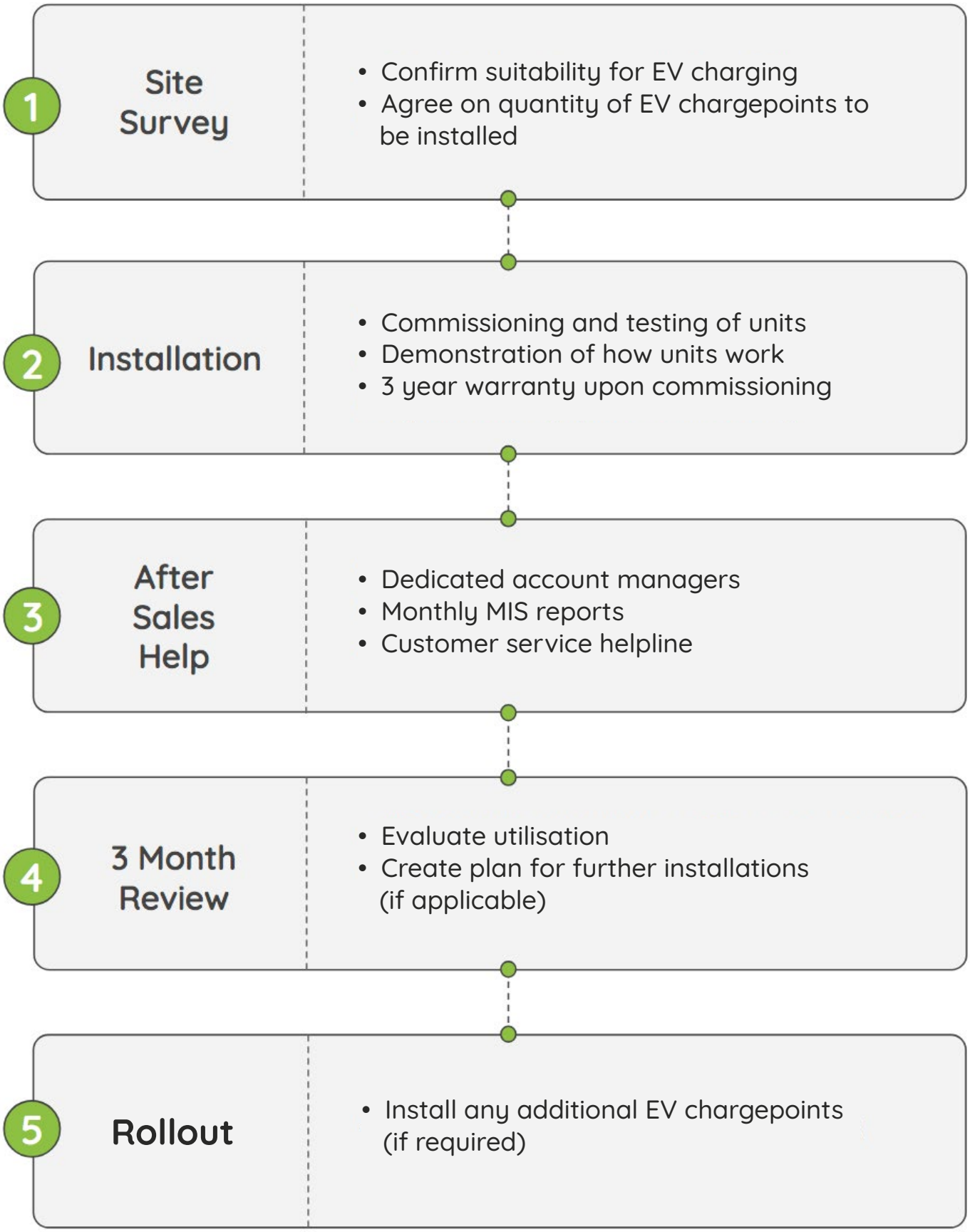
Popular methods include:

- **Smartphone apps** these can be used to authenticate the chargepoint user and allow access.

- **Tags, physical keys and RFID cards** these can be useful to keep in shared fleet vehicles, or on secure sites where mobile phones are restricted. However, they must be issued and replaced when lost, while the "whitelist" of permitted users must be maintained, which means they come with an administrative burden.

Installation process

While exact processes may vary depending on the chargepoint provider, below is a breakdown of what the installation process is likely to involve:



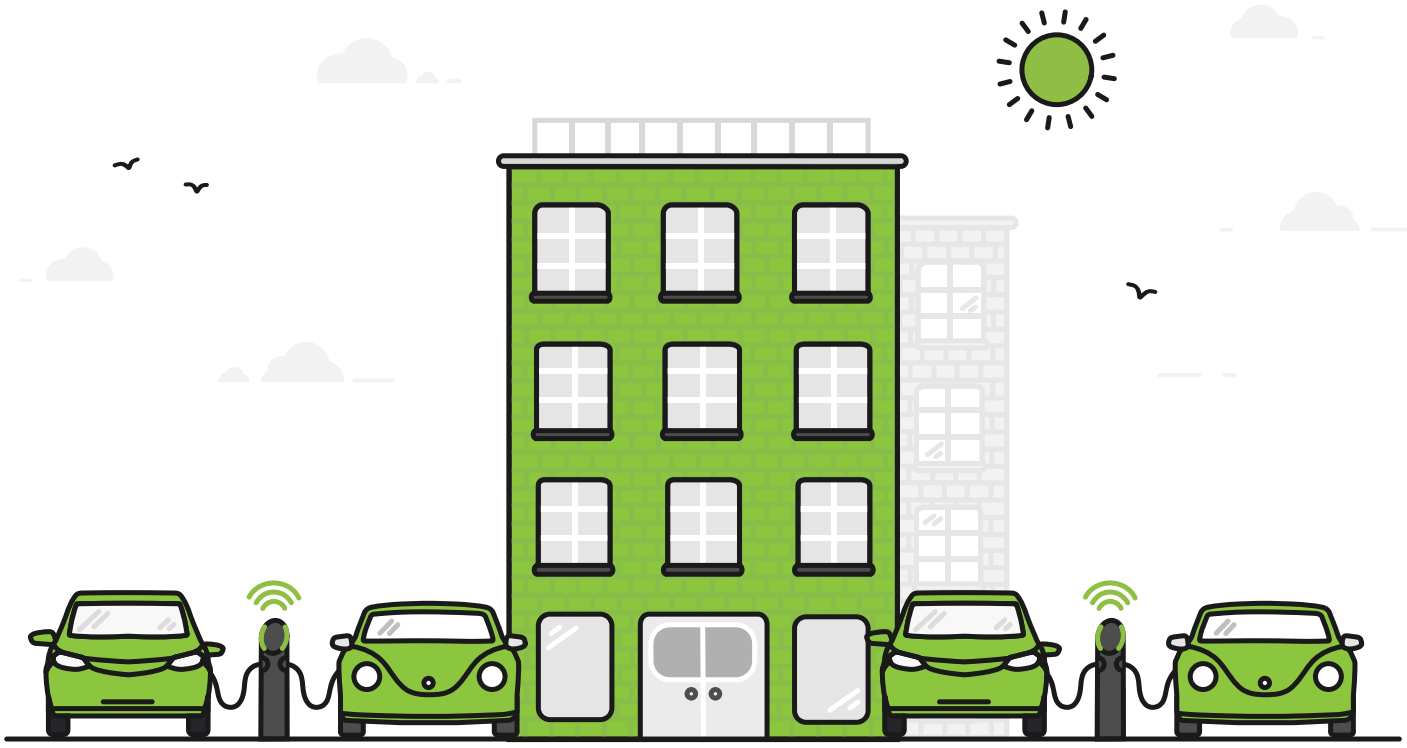
6. What happens now

We hope this document is a useful overview of EV charging for employers. However, there's a lot to take on board, and it's nigh on impossible to cover everything in one document (believe us, we've tried).

Please do browse the Pod Point website, which has a wealth of information and advice on all aspects of EV charging. And, if Pod Point can be of any further assistance, don't hesitate to get in touch with our specialist team.

"The installation of the EV chargepoints was a credit to all concerned. All site work was done efficiently, on time and to budget with minimal impact on a busy, occupied site."

Skanska's Senior Project Manager Paul Jarvis



6. Appendix

Tax benefits for EVs

From the start of the 2020/21 tax year, the BiK rates for zero emissions vehicles fall to 0%, followed by 1% in 2021/22 and 2% in 2022/23. In addition to these changes, all cars registered after 6th April 2020 will use WLTP rather than NEDC CO_2 figures to calculate tax rates. On average, WLTP results are expected to be about 20-25% higher than NEDC figures, therefore increasing the amount of tax PHEV or ICE drivers will be required to pay.

Full BiK rates for low emission vehicles are included in Pod Point's Company Electric Car Tax Guide, available online, however, the table below gives some examples of what's to come:

Tax year	BiK rate: cars registered before 6 April 2020	
	Zero emissions vehicle	Plug-in hybrid with NEDC emissions <50g/km and 30-39 mile electric range
2019/20	16%	16%
2020/21	0%	12%
2021/22	1%	12%
2022/23	2%	12%

Tax year	BiK rate: cars first registered after 6 April 2020	
	Zero emissions vehicle	Plug-in hybrid with WLTP emissions <50g/km and 30-39 mile electric range
2020/21	0%	10%
2021/22	1%	11%
2022/23	2%	12%

To illustrate how significant these changes are, on the next page are two examples that show the difference in BiK rates for a full battery electric car compared to an equivalent petrol or diesel vehicle from April 2020 (based on NEDC figures for cars registered prior to 6 April 2020).

Executive Car Comparison (assumes driver is a higher rate tax payer)

Vehicle	Tesla Model S 100D	Mercedes S 450 L AMG Line
P11D Value (based on list prices on car configurators)	£95,050	£88,685
0-60 mph	4.1 seconds	5.1 seconds
Emissions	0 gCO2/km	169 gCO2/km
2020-21 BiK Rate	0%	37%
2020-21 Monthly BiK cost @40% tax rate	£95,050 x 0% x 40%/12 **£0 per month**	£88,685 x 37% x 40%/12 **£1,093.78 per month**
2021-22 BiK Rate	1%	37%
2021-22 Monthly BiK cost @40% tax rate	£95,050 x 1% x 40% /12 **£31.68 per month**	£88,685 x 37% x 40%/12 **£1,093.78 per month**
2022-23 BiK Rate	2%	37%
2022-23 Monthly BiK cost @40% tax rate	£95,050 x 2% x 40% /12 **£63.37 per month**	£88,685 x 37% x 40%/12 **£1,093.78 per month**

*The driver is a higher rate tax payer

Inexpensive, Small Car Comparison (assumes driver is a basic rate taxpayer)

Vehicle	Renault Zoe Dynamique Nav	Renault Clio Play TCe 75
P11D Value (based on list prices on car configurators)	£22,000	£14,000
0-60 mph	11.5 seconds	11.9 seconds
Emissions	0 gCO2/km	114 gCO2/km
2020-21 BiK Rate	0%	27%
2020-21 Monthly BiK cost @20% tax rate	£22,000 x 0% x 20%/12 **£0 per month**	£14,000 x 27% x 20%/12 **£63.00 per month**
2021-22 BiK Rate	1%	27%
2021-22 Monthly BiK cost @20% tax rate	£22,000 x 1% x 20% / 12 **£3.67 per month**	£14,000 x 27% x 20%/12 **£63.00 per month**
2022-23 BiK Rate	2%	27%
2022-23 Monthly BiK cost @20% tax rate	£22,000 x 2% x 20% / 12 **£7.33 per month**	£14,000 x 27% x 20%/12 **£63.00 per month**

Benefit-in-Kind rates for EV charging

Even when a company chooses to provide electricity for employees with private cars, it is still classed as a “Benefit-in-Kind” (i.e. a benefit which employees receive from their employer which are not part of their salary or wage). These benefits are taxed by HMRC as income and are reported annually using the P11D form.

At present charging at work is tax exempt, however this could change in the future as EV adoption continues to grow.

If or when this happens, businesses will need a system such as an MIS to monitor and report on chargepoint usage by individual employees.

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