

# Electric Vehicle Charging in the Workplace

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Whitepaper

# Table of Contents

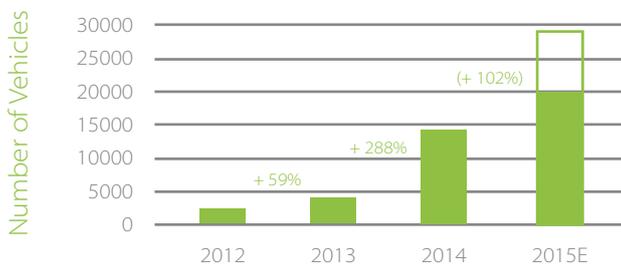
- 1 **Industry Background**
- 2 **Workplace Charging**
  - Top up model
  - EV Charging Ecosystem
- 3 **EVs in your Business**
  - Private EV sales
  - Your business
  - Fleet EV sales
- 4 **Benefits of Workplace Charging**
  - Employee Retention
  - Tax Advantages
  - Environmental Targets
  - Positive Brand Image
- 5 **Key Considerations**
  - Rollout Plan
  - Scalability
  - Managing Accessibility
  - Investment Required
  - Revenue and Expenditure
  - Employee Benefit-in-Kind
- 7 **About POD Point**

## Part 1 - Industry Background

*What's all the fuss with electric cars?*

In 1902, the automobile industry in its infancy grew by 142%, the largest recorded growth in history to this day. This year the plug-in hybrid and electric vehicle (PHEV) market topped that record when sales in the UK grew by 288%. Sales went from 4,000 cars in 2013 to 14,000 the following year. EVs now make up about 1.5% of all new car sales.

### Exponential Growth in UK Plug-in Vehicle Sales



The industry is expected to double in size this year as EVs become more mainstream. There are already over 20 plug-in models for sale in the UK from nearly every major manufacturer such as VW, BMW, Nissan and Mitsubishi to name a few.

With the increasing demand for EVs comes increasing demand for charging infrastructure and an expectation from EV drivers to be able to charge everywhere they park for an hour or more. This includes their home, workplace and various destinations they visit regularly. While charging at the supermarket or gym can be beneficial, having access to charge points at home and at work is absolutely key.

## Part 2 – Electric Vehicle Charging

*Where do EV drivers charge?*

### Top Up Model

To understand the importance of EV charging in the workplace, one must first understand the top up model and how it defines the charging behaviour of EV drivers. Charging an electric car is nothing like filling up your petrol or diesel car – at least not in the conceptual sense.

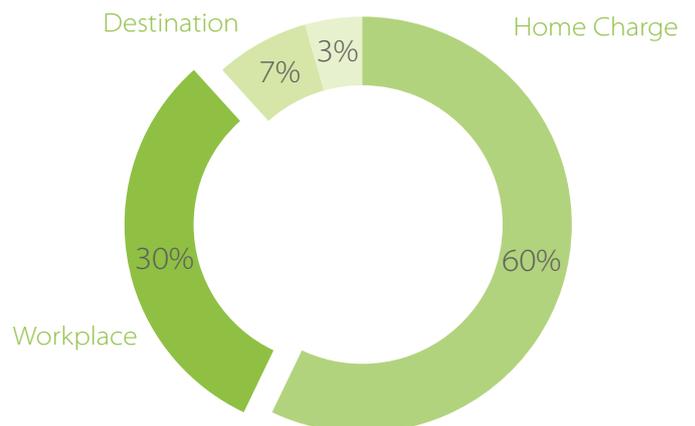
In a car with a combustion engine, we are used to driving around until near empty before taking a last-minute detour to the petrol station and spending 10 minutes waiting, filling and paying for our fuel.

On the other hand, charging an electric car is seamless and hassle-free. Electric car charging operates on a top up model, which means topping up your battery everywhere you stop for an hour or more. Be that your home, workplace or regular destinations, drivers often top up multiple times throughout the day.

The top up model requires a shift in mindset from all stakeholders involved, including consumers, businesses, car manufacturers and government. While we think of cars as mobile objects, in reality our cars spend 95% of their time parked. That's 22 hours of the day on average spent idle. With electric cars, drivers can utilise parking time to charge their battery, knowing it's full every time they return to their car.

### EV Charging Ecosystem

Backed by years of usage data, the ecosystem below shows how EV drivers apply the top up model in their charging behaviour. As expected, about 2/3 of charging is done at home, while 1/3 of the opportunity involves topping-up at work. EV drivers rely on and expect the opportunity charge their EV while at work.



## Part 3 – EVs in your Business

How many EV drivers does your business have?

### Private EV Sales

By end of 2015 there will be over 50,000 plug-in cars on UK roads, representing about 0.25% of the total 30 million registered passenger cars in the UK. Based on sales targets from the DfT and the Alternative Fuel Directive from the EU, the UK is projected to add 2 million plug-in cars by 2020. By then, EVs will make up nearly 7% of all registered cars; that is equivalent to 1 in every 15 cars on the road. This means 1 in every 15 employees driving to work will expect the necessary charging infrastructure.

The exponential growth is attributed to several factors ranging from attractive purchase grants, tax incentives, investment in public charging and car manufacturers continually adding plug-in models to their portfolios.

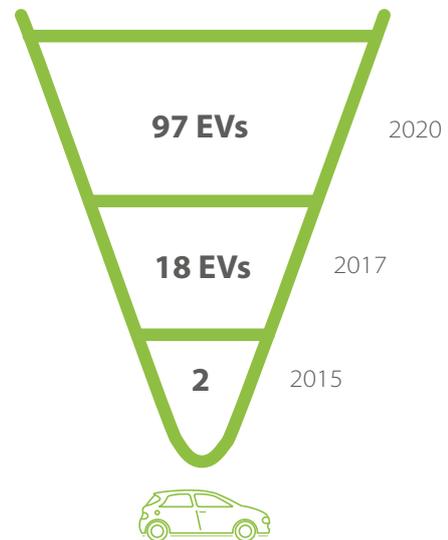
### In your business

Using this target market share, we can use the date to calculate the amount of plug-in drivers a business is expected to have this year and in the years leading to 2020.

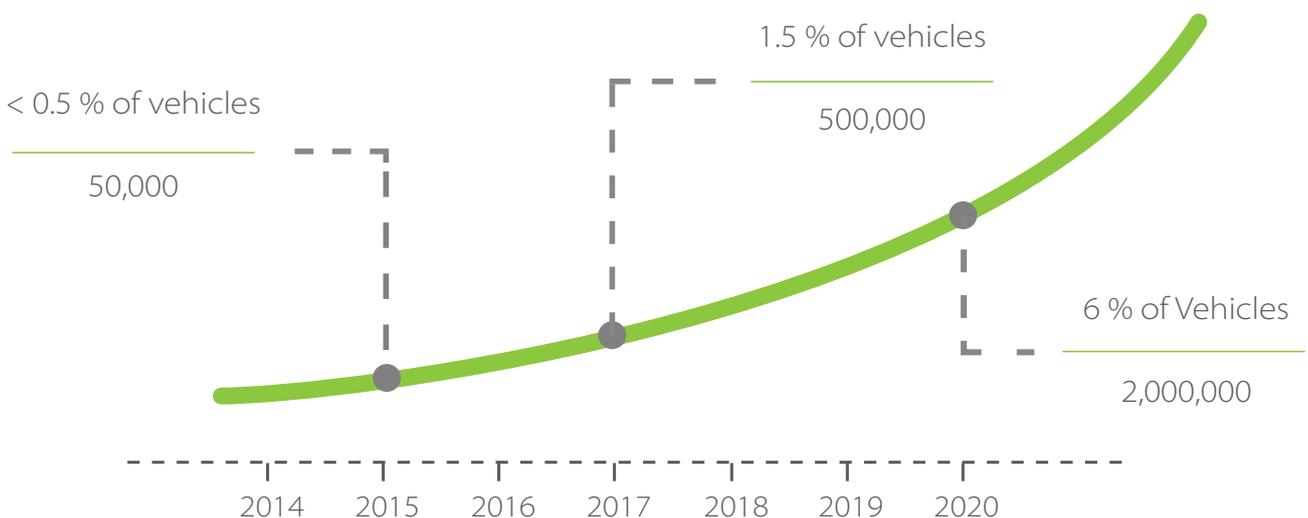
Based on the example above, a business with 1,000 staff is likely to have about 2 employees driving EVs this year, with that number increasing to 8 drivers by next year, 18 in 2017 and all the way up to 97 drivers by 2020.

These employees will be expecting charging facilities at work. To avoid falling behind this curve, businesses need to think about implementing workplace charging soon.

For a business with 1,000 Staff



### Projected Private EV Sales



## Fleet EV Sales

The 30 million registered vehicles in the UK are made of 51% private cars and 49% company-owned fleet cars. Fleets are typically leased and have a significantly shorter lifecycle than privately-owned cars. While the average private car is 7.5 years old, 85% of leased company cars are under 3 years old. This means that fleet cars drive the private market (as leased cars are resold to the private second-hand market).

A report from Lex Autolease, the UK's biggest leasing company, released in July 2015 revealed that plug-in cars already make up a staggering 7% of all fleet sales in the UK.

Plug-ins are becoming increasingly popular with businesses due to their superior fuel efficiency and associated financial incentives

### EV sales as % of total - Q3 2015



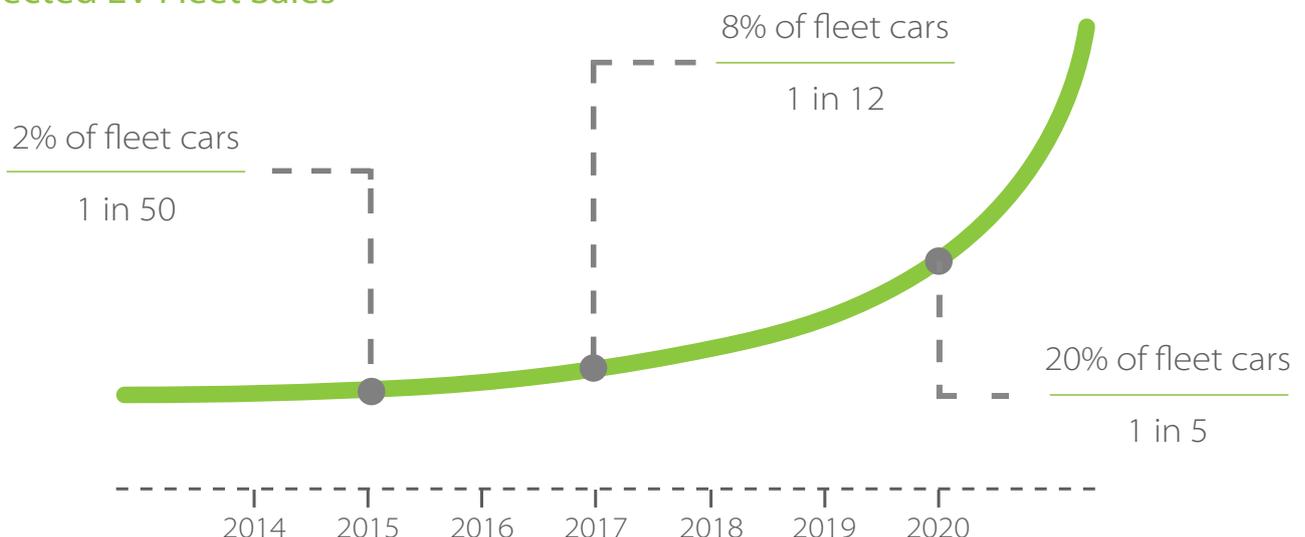
(discussed in Part 4). This is compared to 1.2% of new car sales in the private market for the same period.

The rapid adoption in fleet is a strong indication of where the private market is heading in 2-3 years time. More importantly however, this unforeseen increase is not factored into the DfT and EU sales targets mentioned above. Based on current growth in fleet sales reported by Lex Autolease, we can project EV company car sales through the next five years.

Using this projection, by 2020 nearly 20% of all Lex Autolease fleet sales will be plug-in EV or hybrid. This means that 1 in every 5 company cars sold in the UK will be electric. To manage this shift, businesses will have to invest in charging infrastructure as they convert their fleet.

This will result in a 10% total market share for plug-in vehicles. In the context of workplace charging, 10% market of cars means that in less than 5 years, 1 in every 10 employees driving to work will own an EV and expect the necessary infrastructure to charge.

### Projected EV Fleet Sales



## Part 4 – Benefits of Workplace Charging

*Why is EV charging good for business?*

### Employee Retention

Providing EV charging in the workplace is a cost effective way to retain and actively support employees. In terms of fuel costs, employees can save up to £2,000 a year in petrol/diesel costs simply by switching to electric and charging at work. This saving opportunity is equivalent to an 8.5% pay rise each year. Should the business decide to offer EV charging at work for free, the cost of providing that electricity is only about £150 a year per employee.

When purchasing a company car, employees also benefit from a reduced 5% benefit-in-kind tax when using an fleet EV (8% for plug-in hybrids) as opposed to 20% for a typical petrol/diesel car. Considering an average car with value of £30,000, this potentially saves up to £4,500 in tax payments over the full life of the vehicle.

### Cost Savings



#### Electric Vehicle

#### Petrol Vehicle

- |                          |                           |
|--------------------------|---------------------------|
| - Fuel £150/year         | - Fuel £2,250/year        |
| - Road tax £0            | - Road tax £300           |
| - Maintenance £150       | - Maintenance £300        |
| - BIK £1,500             | - BIK £6,000              |
| - 100% capital allowance | - 8-18% capital allowance |
| - Purchase grant £5,000  |                           |

### Tax Advantages

Purchasing EVs in your fleet makes your business eligible for 'Enhanced Capital Allowances', which significantly increase the amount of allowance you can write down against taxable profits each year. Standard allowances for conventional petrol/diesel cars allow your business to write down between 8-18% depending on the fleet's emission levels. With plug-in hybrids and electric cars, a business qualifies for a 100% capital allowance write down in the year of acquisition.

### Environmental Targets

Implementing EV charging also helps businesses reach their environmental targets by dramatically reducing their CO<sub>2</sub> emissions, and as a result the amount of carbon tax paid on those emissions. Electricity used to charge EVs, and the associated CO<sub>2</sub> generated, can be discounted from the total energy consumption when reporting carbon emissions. With the average UK electricity mix (coal, gas & renewables), an EV saves almost 90% of CO<sub>2</sub> emissions compared to petrol/diesel alternatives.



**90% ↓**

CO<sub>2</sub> emissions from your electric vehicle

### Positive Brand Image

Providing workplace EV charging also improves your business image with employees and customers. A recent report on brand perception by agency Wavelengths Consulting asked drivers whether they thought certain businesses cared about more than just making money. Drivers agreed significantly more (26% more) after knowing the company actively supported and invested in EV charging for their staff and customers.

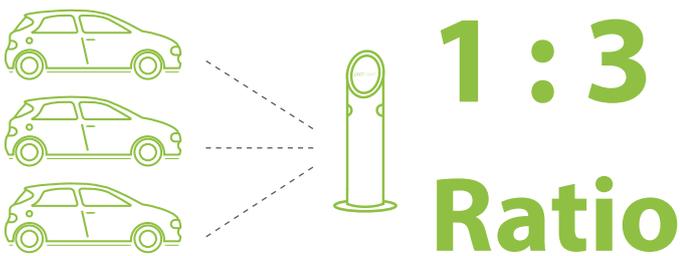
## Part 5 – Key Considerations

*What to consider when choosing a workplace solution?*

### Rollout Plan

Since the EV market is still in its early stages, adopting EV charging in the workplace is not a one-off investment. It first involves an initial trial site that already has EV drivers in order to validate its effectiveness. It's then followed by a strategic rollout across the business that's incorporated into the annual budget cycle over the next 3-5 years as demand grows.

With a strategic rollout in mind, a business needs to think about the ratio of charge points to EV drivers in each site, as well as their varying needs (ie are drivers parked in the office all day? Do they top up for an hour at each business site?). It's recommended to maintain a 1:1 ratio of charge points to drivers for the first 10 EV drivers in each site. Beyond that, the recommended ratio may reduce to 1:3 but must not fall below that. Falling below 1 charge point for every 3 EVs will cause drivers to compete for charge time and potentially lead to unpleasant behaviour from co-workers.



Failing to provide charging infrastructure for EV drivers has a negative effect on employee satisfaction and creates unnecessary friction at work. Most notably, tech giants Google and SAP report in 2014 that lack of sufficient charge points at their Palo Alto offices has caused conflict between EV drivers. Employees were reported to be deliberately unplugging EVs of fellow co-workers due to lack of charging availability. The behaviour has created unnecessary friction at work and can be easily avoided with the right strategic rollout plan.

### Scalability

Another aspect to consider is whether a workplace charging solution can scale with the growth of EVs in your business. Considering the exponential increase projected in EV sales, a business is expected to find up to 6% of its workforce owning a plug-in vehicle by 2020. This means a workplace solution may need to scale from 1 charge point up to 500 charge points in the next 5 years.

A business needs to favour a solution that seamlessly scales with demand and integrates across multiple sites nationwide, while still managed as a single centralised network. This ensures that even while the number of charge points increases exponentially, the solution requires minimum admin and support from the business.

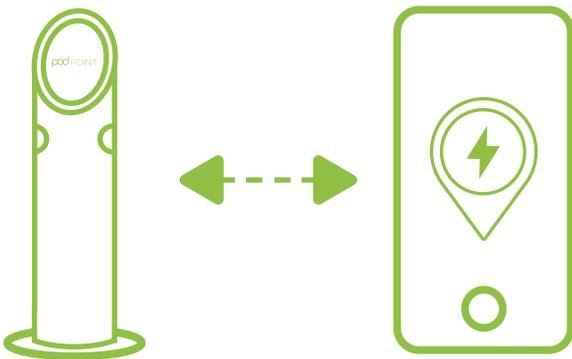
**As a warning**, businesses should also be wary when installing charge points solutions from multiple providers throughout their strategic rollout. This is to make sure your business avoids using multiple systems that fail to integrate with each other down the line.



## Managing Accessibility

Businesses also require a simple and widely available method for drivers to access company charge points on a daily basis. For example a smartphone can be used to communicate with your charge points and authenticate whether an EV driver has access to the charge point. This ensures the day-to-day charging experience at work is as smooth as can be and refrains from taking up extra resource and time from the business.

**Look out** for charging solutions that require tags or physical keys to gain access to your network. Physical access keys come with a large support overhead as these need to be issued, maintained and replaced.



Another thing to consider is the process of onboarding new drivers to the network. While some workplace charge points will only be used by employees, other charge points may occasionally require temporary access for EV drivers visiting your premises (ie when a potential client visits your office). Similarly in this case, a smartphone can be used to provide immediate access to your network, as opposed to using a physical key that needs to be issued and causes unnecessary delay.

## Investment Required

A workplace charging solution requires an initial upfront investment to set up a site trial. Beyond that, the strategic rollout in following years can be built into the business budget.

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. Leasing also provides the opportunity to upgrade your charge points on renewal rather than having to reinvest in new technology every 3-5 years.

## Revenue and Expenditure

Prefer a workplace solution that lets your business manage revenue generated from your network. Superior solutions offer functionality to create custom revenue models based on user type, access time and location. This helps the business recover its energy costs as a result of charging.

**There are 4 common usage models typically applied for workplace charging:**

- **Free Charging:** this model offers employees free unlimited EV charging
- **Energy Cost Recovery:** this model charges employees based on energy consumed with the aim of recovering energy costs to the business
- **Energy and Unit Cost Recovery:** this model charges employees based on energy consumed as well as the monthly lease price of your charge points to make sure your business recovers the cost of energy and unit investment
- **Profit Generating:** this model charges employees an arbitrary amount with the aim of generating profit from the charging network above cost recovery

As an example, a business may wish to incentivise employees to work later by setting their charge points to free every weekday after 5pm.

Another option would be to let employees top up for free, but charge customers £2/hour for the first 4 hours with the fee rising to £5/hour after that to encourage them to vacate the spot.

Superior workplace solutions offer a back-end management system that helps your business set various revenue models and track energy costs as your charging infrastructure grows and your requirements become more complex.



This with system in mind, EV drivers are charged on a pay-as-you-go basis, much like an Oyster card. With a smartphone app, drivers are able to top up their account at any time.

### Employee Benefit-in-Kind

Providing EV charging at work for employees with private cars gives rise to a benefit-in-kind to EV drivers. Benefit-in-kinds are benefits which employees receive from their employer which are not part of their salary or wage.

These benefits are appropriately taxed by HMRC as income and are reported annually on form P11D. HMRC notes that while providing free charging at work gives rise to a benefit-in-kind, the business can exclude this benefit from reporting grounds by declaring EV charging as a 'trivial benefit'. Trivial benefits are benefits that are deemed too small to be taxed. As the adoption of EVs continues to grow, the industry agrees that HMRC will shortly remove the 'trivial benefit' exclusion for benefit-in-kind.

When this happens, businesses will need to consider a workplace solution that monitors and reports on individual employee benefit from charging their EV at work. Adopting a solution that automatically tracks employee benefit for P11D makes it significantly easier to adhere to the new tax rules once they take effect.

### About POD Point

POD Point @Work is the UK's leading solution for workplace EV charging. POD Point provides EV charging for some of the UK's largest businesses including Sainsbury's, O2, Lloyds and Britvic.

The workplace solution includes POD Point's next generation smartphone-enabled charge points with three year on-site extended warranty.

The solution seamlessly scales across multiple business sites according to your EV charging needs and can be leased over a 3-5 year term.

It is all easily connected via the POD Point Management Information System (MIS), the industry's most advanced backend platform for managing your charging infrastructure. Using the POD Point MIS, your business can manage access in real-time, monitor usage and expenditure, set pay-as-you-go pricing, and much more.



Get in touch today at:

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020 7247 4114

This information does not constitute as professional advice. For further information on tax implications for plug-in EVs, consult the Office for Low Emission Vehicles [Factsheet](#).

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