Haringey LONDON

Planning Advice Note

Installing electric vehicle charging points

For Businesses

Transport for London

LONDON COUNCILS

SUPPORTED BY

MAYOR OF LONDON

Contents

Introduction

This planning advisory note is a simple guide to aid businesses installing electric vehicle charging points in their car parks for:

- Employee use
- Customer use
- Fleet/depot use

Step 1. Assess what your charging needs are

There are various charging technologies that suit different user needs and locations. The charging points you need will depend on your business, what journeys your employees or visitors use, and what time you have available to charge. There are three main types of charging points: standard, fast and rapid. The speed that vehicles can charge at is determined by how much electrical power (kW) the charging point delivers.

Depending on your business needs, different charging technologies will be best suited. A summary of charging technologies and their specification can be found below.

Table 1. Charging technology specification

Charge term	Standard	Fast		Rapid	
Power transfer (approx.)	< 3.6 kW	< 7 kW	< 11 or 22 kW	< 43 kW	< 50 kW
	Single phase	Single phase	Three phase	Three phase	DC
Current	16A	32A	63A	120A	
Typical charging time (full)	8 – 12 hour	3 – 4 hour	1 – 2 hour	80% in 20 – 30 min	
User group	Residential or where car is parked for a long period of time	Workplace or customer carparks		For fleets on the go: Delivery services, freight, passenger transport, support vehicles, buses	
Capital costs (approx.)[1]	> £500 (wall mounted)	> £6000		> £45000	
Operational costs to consider[2]	Electricity, infrastructure upgrades to electricity connection, back office, maintenance, enforcement and lost parking revenue				

Standard, fast and rapid chargers are shown in Figures 1, 2 and 3.

[1]CAPEX costs change based on the location and electricity capacity in that area. Upgrading the local electricity infrastructure, or the need for a longer cable from the electricity supply to the charging point, would increase costs. The local electricity supplier would be able to provide an accurate cost with more detail. Multiple charging points installed in one phase will reduce the total cost of installation.

[2]Not all of these costs will be applicable to your business but it is worth being aware of these aspects.

Figure 1. Standard (3 kW) wall mounted charging point (standard)

Figure 2. Fast (7 kW) charging points

Figure 3. Rapid (43 kW) charging point

The costs for supply, installation and maintenance of charging points varies based on the type of charging points and services required from suppliers.

The table below shows an indicative cost for equipment and installation of EVCPs.

	Costs	
	Standard (7 kWh/22 kWh)	**Rapids (AC 43 kWh and DC 50 kWh)**
Charging point equipment	£1600 - £5000	£20,000- £50,000
Feeder pillar	£600 – £1,200	£600 – £1,200
Charging point installation	£2500 – £12,000	£25,000 - £30,00
Operating and maintenance	£1,900 - £6,500*	£1500 - £2000*
* Cost per year per unit based on 60 months service contract		

Recommendations on charging technology

Charging for employees

Installing charging points in your employee car park can serve both personal use of electric cars, and pool cars (vehicles shared by employees for work purposes).

If you are providing workplace charging, a fast charger is recommended (7-22 kW), which will allow multiple users to charge daily. If you only have a single-phase connection at the charging site, you will be restricted to a slow charger (providing power of 3.6kW). This will allow one or two users to charge daily due to longer recharging times.

Charging for customers

When installing charging points for customers, consider the average amount of time a customer typically spends at your business. Fast chargers are best suited to retail; this will allow customers to charge their cars for a significant time while they are at your business.

It is up to your business to decide whether the customer will pay for charging or not. For example, IKEA partnered with Ecotricity to offer free electric vehicle charging.

Charging for fleets

Businesses can install a charging point in their car parks, including rapid charging points, without planning permission.

If you are a fleet manager, consider your daily mileage, battery size of vehicles and journey patterns when deciding on which charging point speed is most appropriate. Charging times may need to be factored into the working day. However, vehicles may regularly or routinely spend time stationary during their working day. This represents an opportunity to charge an EV with little or no change to driver behaviour.

For fleets it may be worth discussing with the vehicle manufacturer or the Energy Saving Trust to get advice on charging strategies.

Step 2. Check you have the capacity for electric vehicle charging

You may already have enough capacity in your connection to the local electricity network to accommodate EV charging. However, you can test and survey the power supply of your site to determine the available capacity i.e. the number and type of charging points it could support. A site survey should be conducted to determine any spare capacity available (the difference between actual load used and the maximum available) before vehicles or infrastructure are acquired.

Liaise with your distribution network operator (DNO) on any upgrades needed to support the charging capacity that has been identified.

Where installing charge points may not be possible, you should seek to arrange the electricity supply for future charging points to futureproof developments. Futureproofing is important because significant charging point uptake may require grid upgrades. It is cost-effective to do this at the time of installing rather than retrofitting later.

To connect to electricity supply, find out if your supply is adequate or if you need to upgrade your supply, contact UK Power Networks.

What are active and passive charging points?

Active spaces are fully wired and connected, ready to use, charging points at parking spaces. Passive provision requires the necessary underlying infrastructure (e.g. capacity in the connection to the local electricity distribution network and electricity distribution board, as well as a conduit and electrical wiring from the building's power source to parking spaces) is in place to ensure simple installation and activation of a charging point at a future date.

Considering active and passive charging is important when looking at the scalability of the technology and their costs. You may start with one or two chargers but as electric vehicle demand grows, there will be a need to install more. Installing some active and some passive charging spaces allows you to future-proof your company for upcoming electric vehicle demand.

What is smart charging?

A smart charging point can receive, process and react to information or signals, such as adjusting the rate of charge or discharge; transmit, monitor and record information such as energy consumption data; comply with requirements around security; and be accessed remotely. Smart features and automated software updates future-proofs your investment. The Automated and Electric Vehicles Act 2018[3] mandates out that all new charging points should be smart-capable.

Some developments will not have the electrical capacity to charge all electric vehicles at once. Power management through smart charging units means you can install more units than rated capacity and eliminate or significantly delay costly upgrades.

An increase in electric vehicle demand could increase peak demand on power distribution networks. This could require reinforcement of the local electricity grid which can be costly and time consuming. Smart charging allows you to control demand for electricity during a charging session and allows you to manage the network.

Step 3. Check if there are grants and funding available

Look out for potential grants and funding opportunities to take advantage of. The Office for Low Emission Vehicles (OLEV) has a Workplace Charging Scheme, which is a voucher-based scheme designed to provide eligible applicants with support towards the upfront costs of the purchase and installation of electric vehicle charging points. The contribution is limited to the 75% of purchase and installation costs, up to a maximum of £500 for each socket – up to a maximum of 20 across all sites for each applicant – to be installed on dedicated off-street parking for staff, visitor, or fleet use.

More information on who can apply, how much funding is available, and the application process and timetable can be found here.

Step 4. Charging point installation

There are many charging point installers you can choose from. Contact different installers to decide on which technology and contract is best for you. Installers may also recommend which bays to install charging points in and the positioning of infrastructure.

Bay layout and design

Consider the car park layout when planning where charging points will go. An internal car park may differ slightly to an external one. For example, although charging points in internal car parks can be floor or wall mounted, wall mounted are most common as often the ground surface cannot be disturbed or there is limited depth to install foundations for surface mounted points.

[3]The Automated and Electric Vehicles Act 2018

The bay layout and design is shown in Figure 4. Having charging points close to the entrance of the car park ensures high visibility and accessibility of charging points. Disabled bays are also recommended to have charging points.

Your preferred charging point installer may be able to assist and over advice as to the best way to install charging points, whilst maintaining a low cost.

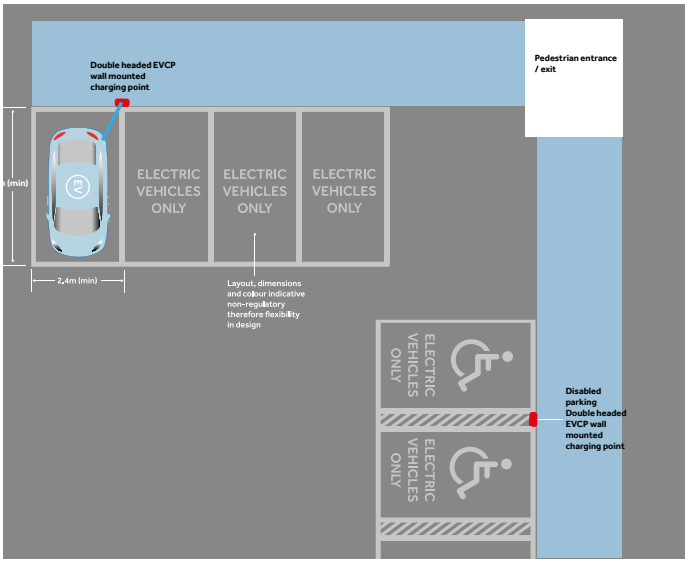

Figure 4. Bay layout and design for an internal car park.

Suggested bay layout and design for external car parks is shown in Figure 5.

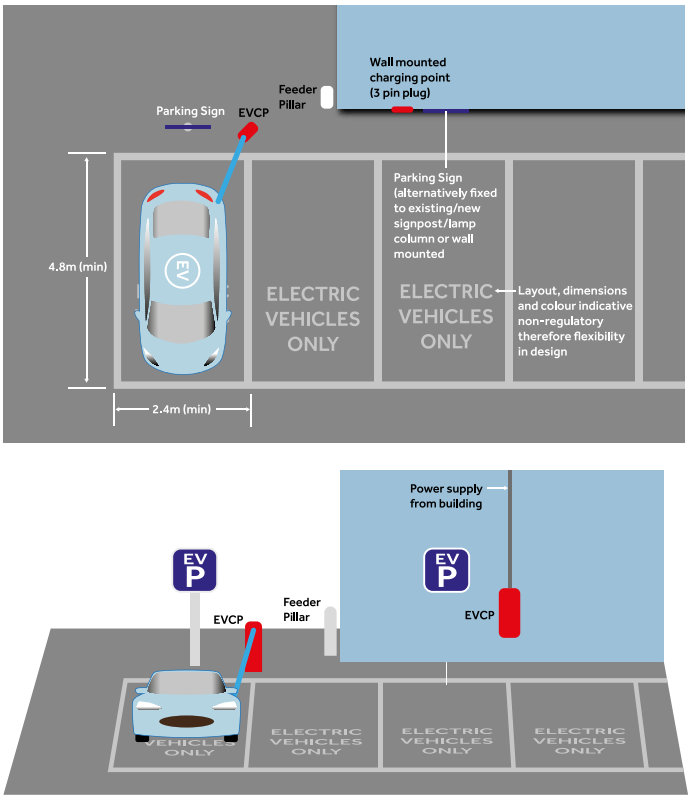

Figure 5. Bay layout and design for an external car park.

Designing for depot use

It is first good to understand the daily mileage done by your fleet so you can determine both the vehicle choice and charging point infrastructure necessary.

The most important part of planning charging infrastructure for your depot is to identify your charging needs. If your vehicles will be stationary for part of the day e.g. overnight, then standard chargers may suffice. If your vehicle is stationary for shorter periods of time e.g. 30 min to 4 hours, then rapid and fast chargers, respectively, will be necessary.

Furthermore, depending on the size of your vehicles, which will determine the size of the battery needed, this will also determine the level of charging you will need.

If you have a comprehensive view of your charging requirements, this can help you to avoid costly electricity infrastructure upgrades.

The Energy Saving Trust can provide advice on the best way to electrify your depot.

Standard conditions

Under the Town and Country Planning Act 2015, there are permitted development rights for charging points under 1.6 m installed. This means you do not need to obtain planning permission for standard and fast charging points.

Rapid charging units are larger than standard or fast chargers, and therefore have a greater impact on the local environment. Some rapid chargers require planning permission due to height, and in some cases, installations will require power supply upgrades. Under the Town and Country Planning Act (General Permitted Development) (England) Order 2015, planning permission is not required for charging points under 1.6 metres installed more than 2 metres from a highway. However, rapid chargers are typically taller than 1.6 metres and therefore planning permission is generally required for their installation.

Useful links

Energy Saving Trust - Electric vehicles explained
https://www.energysavingtrust.org.uk/transport/electric-vehicles

Energy Saving Trust - Guide to chargepoint infrastructure for business users:

https://www.energysavingtrust.org.uk/sites/default/files/reports/6390%20EST%20A4%20Chargepoints%20guide_v10b.pdf

Office for Low Emission Vehicles – Workplace Charging Scheme:

https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#workplace-charging-scheme