energy saving trust

Positioning chargepoints and adapting parking policies for electric vehicles

A report by the Energy Saving Trust

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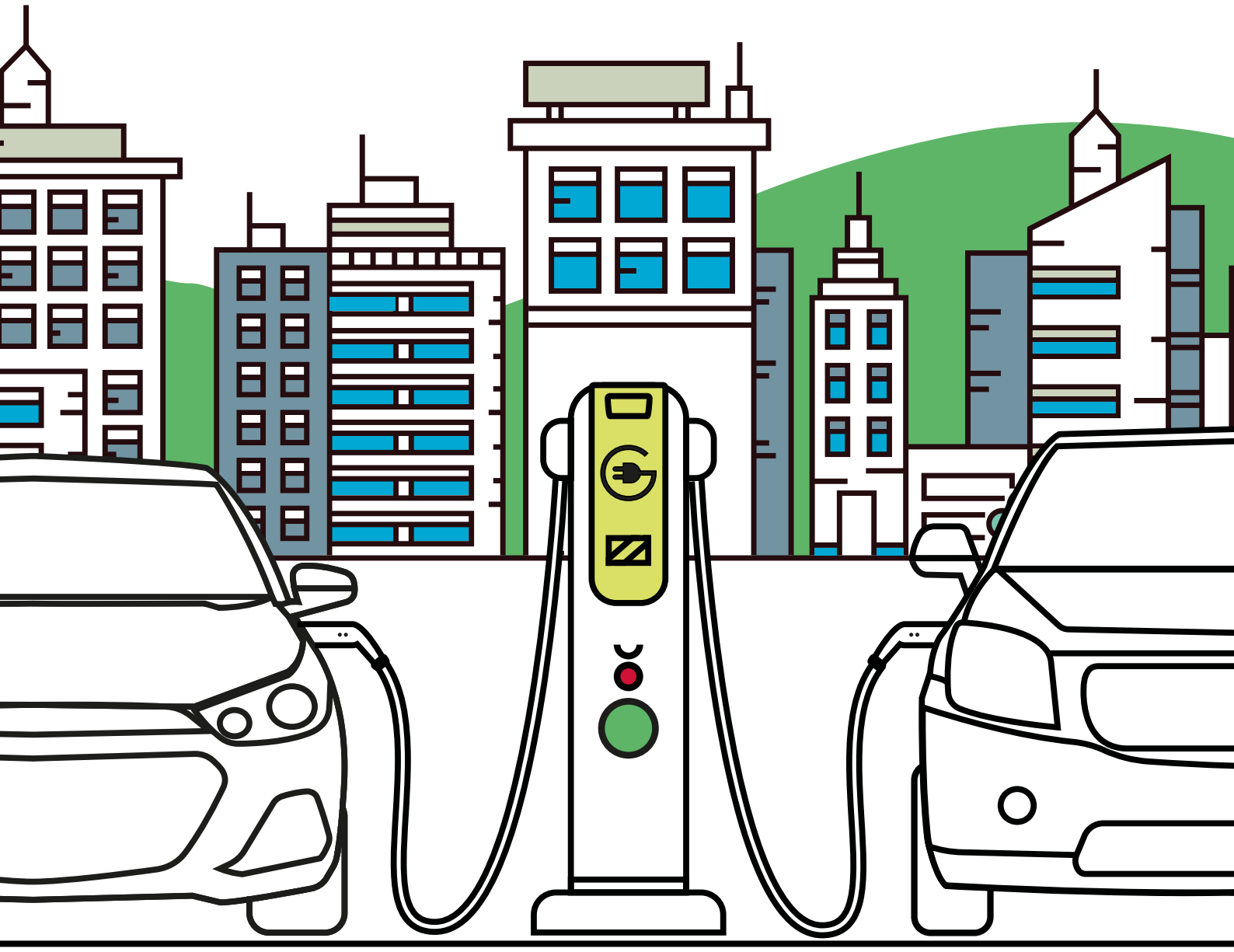

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This guide is part of a series for local authorities on delivering an electric vehicle charging infrastructure network.

Abstract

Electric vehicle (EV) chargepoints need to be positioned carefully, whether on-street or off-street, to ensure ease of use and minimise the impact on pedestrians and street character. It is also important that appropriate parking restrictions are set and enforced. In addition, local authorities can use parking policies to incentivise a switch to EVs.

This guide covers:

- off-street EV parking bay layouts which maximise flexibility and potential revenue
- considerations when placing on-street chargepoints
- signage and setting Traffic Orders for EV bays
- parking incentives for EV owners
- case studies.

Acknowledgments

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About the Energy Saving Trust

The Energy Saving Trust is the UK's leading impartial organisation helping people save energy, reduce carbon emissions and use water more sustainably. We do this by directly supporting consumers to take action, helping local authorities and communities to save energy, using our expert insight and knowledge, providing quality assurance for goods and services and by working in collaboration with national and international governments and organisations.

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1. Introduction

Access to public charging infrastructure is a major consideration for many people when switching to electric vehicles (EVs) and is vital where drivers do not have off-street parking.

The location of chargepoints has a strong influence on how often and how easily they are used by residents, businesses and visitors and therefore how much revenue – or negative feedback – they generate. As new street furniture, on-street chargepoints need to be positioned carefully to avoid negatively impacting pedestrians and to be accepted by communities, especially where there are already parking and pavement pressures.

This guide offers advice for local authorities and others installing public chargepoints on how to overcome these challenges when positioning chargepoints, illustrated by case studies.

Furthermore, the availability, cost and convenience of parking significantly influences driver behaviour. Changes, such as introducing free or discounted EV parking, can therefore be proactively used by local authorities to directly encourage or reward a switch to electric vehicles. Such measures can effectively influence choices and are relatively low cost.

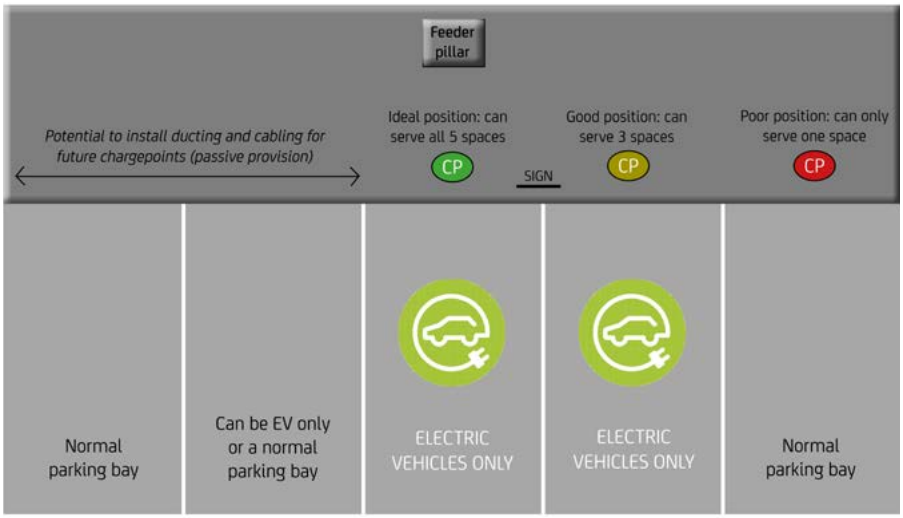
2. Off-street EV parking bay layouts

The layout of the parking bays in a car park should maximise the ease of the use of the chargepoint. Firstly, chargepoints should never be placed in such a way that forces drivers to park on the pavement or across spaces for cables to reach the chargepoint from the vehicle. The EV Association Scotland and OREF's 'A Design Guide'[1] has numerous photos of badly sited chargepoints.

Secondly, chargepoints should be placed so they can serve as many vehicles as possible. While vehicles should leave once they are charged, user experience and access to the chargepoint will be improved if the layout is designed to be as flexible as possible. This helps to overcome issues associated with charged vehicles or petrol or diesel vehicles blocking dedicated EV spaces. This can make the chargepoint unusable for others if the charging cables cannot reach other spaces. In general, EVs can use chargepoints within five meters as most charging cables are roughly 4-8 metres long.

Figure 1 illustrates the impact of different layouts. Where vehicles park in bays perpendicular to a pavement or wall, and the chargepoints is installed at the end of the row (to the right in this diagram), this would enable a maximum of two cars to charge, depending on the number of sockets. However, Figure 1 illustrates how up to five cars could access a chargepoint, in sequence, if it was placed in the centre of a row of spaces. This is inherently more flexible for drivers even if only two spaces are dedicated for EVs only.

Figure 1 – How the placing of chargepoints and dedicated EV bays can restrict or maximise access. Not to scale.[2]



1 Orkney Renewable Energy Association and Electric Vehicle Association of Scotland, 2016, Electric Vehicle Charging Infrastructure, A Design Guide, p8-13 http://www.oref.co.uk/wp-content/uploads/2016/07/20160726-Charging-Infrastructure-Design-Guide-V1.3.3.pdf

2 Adapted from the UK EVSE Procurement Guide (p21) and Orkney Renewable Energy Association and EV Association of Scotland, A Design Guide (p9).

In car parks where vehicles park nose-to-nose, chargepoints can be placed so they can serve any two of up to eight bays, as shown in Figure 2. Again, placing the chargepoint in the centre of a row maximises its accessibility and practicality. The chargepoints should be protected from damage by a crash barrier.

Figure 2 – How the placing of chargepoints and EV bays can restrict or maximise access in an car park island bay layout. Not to scale.[3]

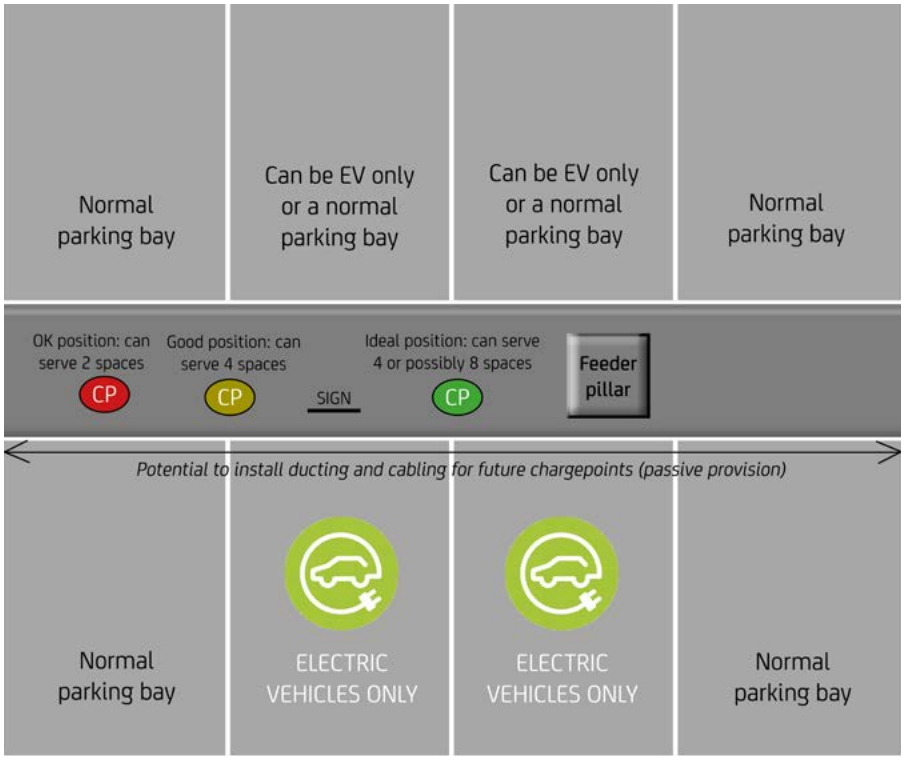
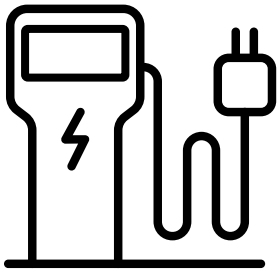


Figure 3 – A rapid chargepoint well-positioned within a car park

Photo credit: Nottingham City Council.

3 Adapted from the UK EVSE Procurement Guide (p21) and Orkney Renewable Energy Association and EV Association of Scotland, A Design Guide (p9).

3. Street furniture pressures for on-street chargepoints



Installing a chargepoint on a pavement takes up valuable space so it is important to assess potential locations carefully. If a chargepoint excessively narrows the pavement, it will cause an obstruction impacting pedestrians, wheelchair users, people with pushchairs or those with a visual impairment.

Poorly-sited charging infrastructure is likely to lead to negative feedback from residents and campaign groups[4] and once in the ground, chargepoints are very difficult and expensive to move.

Some local authorities are starting to develop guidance to specifically manage chargepoints on pavements. For example, the draft revised New London Plan[5] (p282, paragraph 10.6.8) states that: physical infrastructure should ideally be located off the footpath. Where charging points are located on the footpath, the pavement must remain accessible to all users, including disabled people. Further guidance for local authorities is expected to be published in 2019 by Transport for London.

3.1 Major considerations

For a wheelchair user and a pedestrian to pass side-by-side, a clear footway width of 1.5m is required[6], although recommendations vary.

To avoid creating a tripping hazard, chargepoints should not be placed at the back of a pavement or wall-mounted where this requires cables to stretch across a pavement.

Avoid installing chargepoints in locations where the available pavement space has already been restricted by other street furniture, such as road signs, feeder pillars, and bike racks.

3.2 Alternatives: kerb build out and lamppost chargepoints

Where chargepoints are installed on-street, one solution to avoid reducing space for pedestrians is to place the charging infrastructure on a 'kerb build out' (or 'plinth') between the vehicles in the roadway, protected by barriers. This approach reduces the number of parking spaces available but some feel this approach is more compatible with wider initiatives to reduce car use and encourage active travel.

Another increasingly popular solution among local authorities are lamppost chargepoints in residential areas. These integrate a chargepoint socket into the lamppost, removing the need for additional street furniture, a new DNO connection or upgrade, planning permission or street works. They are faster and cheaper to install than free-standing column chargers and visually less obtrusive.

Early issues around unmetered electricity supply now resolved with Ofgem[7] but these chargepoints are only suitable for slow charging. Some designs are very minimalist, such as Ubitricity's Simple Sockets, but these require EV users to have a special SmartCable in order to meter the electricity supplied and complete payment[8]. In contrast, CityEV's products integrates these functions within the charging unit[9] and more solutions are becoming available on the UK market (see Figure 4).

It should be noted that some local authorities have initiatives to move lampposts to the back of pavements to improve accessibility, but this makes them less suitable for retrofitting with chargepoints (unless a 'satellite post' is used, which would add extra street furniture).

Figure 4 – Lamppost chargepoints of different designs

Photo credit: CityEV

4 For example, Living Streets, Pavements for People, accessed 2019 https://www.livingstreets.org.uk/what-you-can-do/campaigns/pavements-for-people

5 Greater London Authority, 2018, The Draft London Plan https://www.london.gov.uk/sites/default/files/draft_london_plan_-showing_minor_suggested_changes_july_2018.pdf

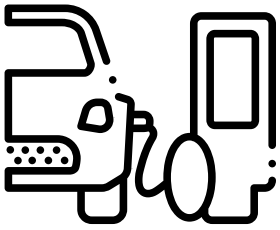
6 HM Government, Inclusive Mobility Guidelines https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3695/inclusive-mobility.pdf

7 Elexon, 2017, SVG201/03 – Electric Vehicle Charging Where the Apparatus Contains a Meter https://www.elexon.co.uk/wp-content/uploads/2016/10/06_SVG201_03_EV_charging_v1.0.pdf

8 Ubitricity, The MobileCharging system, A new perspective on electric mobility, accessed 2019 https://www.ubitricity.com/en/mobilecharging-system-2/

9 CityEV, Public Authority Charge Points, accessed 2019 https://cityev.net/product/public-charge-points/

4. Implementing changes to parking and enforcing EV bays



To make a new chargepoint accessible and functional, changes to parking restrictions are likely to be required. There are several practicalities and choices to consider when implementing dedicated EV bays including signage, setting appropriate Traffic Regulation Orders (TROs) and assessing the implications for parking revenue generation.

4.1 Correct signage for EV bays

Clear signage and painted bays help EV drivers find chargepoints, understand any restrictions and should prevent them from being blocked by petrol or diesel vehicles. Signage in council-owned locations or locations managed by the Highways Agency must comply with Department for Transport (DfT) Guidelines shown in Figure 5. For links to the DfT working drawing, see Further Resources.

4.2 Traffic Orders

Traffic Regulation Orders (TROs), or Traffic Management Orders (TMOs) in London, are the main mechanism for implementing changes to parking measures, whether on-street or in public car parks. TROs allow local authorities to regulate, restrict or prohibit the use of a road, or any part of a road, by vehicular traffic or pedestrians[10]. TROs are enforced through Penalty Charge Notices (PCNs).

In the context of EVs, TROs can be used to restrict access for petrol or diesel vehicles to charging bays and limit the length of stay of an EV, ensuring customer turn-over at a chargepoint.

Challenges can be encountered when deciding which type of TRO is best, experimental or permanent, and in setting the limit on length of stay.

4.2.1 Permanent and Experimental TROs

To establish a permanent TRO, a public notice must be placed and publicised adequately (e.g. in a local newspaper or online) and notices may be displayed in the relevant area. Anyone may object in writing (within 21 days of the notice being given) and it is then discussed by an internal committee and approved by senior management and elected members[11].

In contrast, experimental TROs only stay in force for up to 18 months while the impacts are monitored but changes can be made to any restrictions (except charging) within the first six months. It is not possible to lodge a formal complaint to an experimental TROs until it is in force, and then only to it being made permanent[12]. Experimental TROs can therefore offer a more flexible approach than permanent TROs by allowing minor changes without the need for another public consultation.

Local authority officers consulted by EST had mixed opinions on the best approach with regard to EV parking bays. The advantages, disadvantages and key characteristics are summarised in tables on the next page.

4.2.2 Setting a length of stay limit for an EV bay

TROs can be used to control the length of time a vehicle stays in a location, and therefore how long an EV can spend plugged into a chargepoint. Setting an appropriate limit is a balance between allowing sufficient time for recharging while also encouraging customer turn-over.

In most cases, a fully-charged car cannot be unplugged by another user and represents a major inconvenience for other EV drivers wishing to use the chargepoint. Limits are especially important on rapid chargers, such as for taxi drivers or at EV charging hubs. Chargepoints in locations such as train stations or park & rides are exceptions as cars are likely to be left for much longer.

A common approach adopted by several local authorities is to restrict the length of stay during the day in popular locations (e.g. town centres) and assume that most people, likely visitors or commuters, will just be 'topping-up' their car at a public chargepoint during the day. They are likely to fully recharge at home as it is often more convenient and cheaper if they have access to off-street parking. Residential areas without off-street parking may need longer limits to allow full recharging during the day, and then unrestricted overnight.

Typical charging times for different types of chargepoints are shown in the table on the next page, and can be used as a guide for setting TROs. The case studies later in the guide also offer examples of TROs.

Figure 5 – DfT approved P660x9 standard signage for EV charging bays

10 LowCVP, 2015, Local Measures to encourage the uptake of low emission vehicles, p46 https://www.lowcvp.org.uk/assets/reports/LEVs.pdf

11 Full details at https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06013

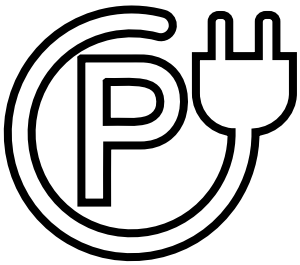
12 Gloucestershire County Council, accessed 2019, Explanation of Experimental Traffic Orders https://www.gloucestershire.gov.uk/media/6687/explaination_of_experimental_traffic_orders-36785.pdf

Table 1: Comparison of regulation orders

	Permanent Traffic Regulation Order	Experimental Traffic Regulation Order
Duration	Permanent	Maximum 18 months
Minimum public notice required	21 days	7 days
Objections	Objections can be made before the TRO is approved	Once the ETRO is in place, objections must be made within six months after the it came into effect, or if changes to ETRO are made
Public inquiry	Required if certain objections. 42 days' notice required.	Not required
Ability to make changes	New TRO needs to be issued, following the same, lengthy process	Within first six months of ETRO coming into effect
After expiry	N/A	Converted to permanent TRO, or removed
Advantages	▪ Permanent ▪ Opportunity for public to express views ▪ Familiar statutory process	▪ Quicker and cheaper to implement ▪ Public objections can be based on the actual effects of the order, rather than preconceptions ▪ Can be altered while in force ▪ Can be made permanent easily, providing certain conditions are met
Disadvantages	▪ Time consuming and costly to gain approval ▪ Potentially subject to public inquiry ▪ Potential to fail	▪ Temporary – up to 18 months ▪ May need to be revisited to be made permanent ▪ If certain conditions are not met, the process for permanent TROs may apply on expiry

Table 2: Guide to chargepoint infrastructure

	Slow	Fast	Rapid
Power rating	3-7kW	7-22kW	Over 43kW
Electrical supply type	AC	Usually AC, DC available at higher rates	AC and/or DC
Typical charge time (N.B. will depend on the vehicle's battery size)	4 to 8 hours	2 to 4 hours	25-40 minutes to reach 80% charge
EV compatibility	All	Most	Most



4.3 Enforcing EV parking measures

Currently, local authorities are taking different approaches in how actively they enforce EV-related TROs through Penalty Charge Notices (PCNs). As demand for chargepoints grows, and in response to EV drivers' frustration at blocked chargepoints, it is likely that greater enforcement will be required.

For on-street bays, PCNS can be issued against conventionally-fuelled vehicles parked in an EV charging bay under PCN contravention code 231, under code 14 if it is parked but not recharging, or code 301 if is parked for longer than permitted by the TRO[13]. For off-street parking, London boroughs and other councils have amended their enforcement protocols so they can use PCN contravention code 71[14].

Where there is a time-limit and an EV owner pays for charging but not for parking, there needs to be a mechanism to monitor the length of stay. This could be through regular inspections by civil enforcement officers. Usefully, some chargepoints displays indicate how long a car has been charging.

It is also useful to consider implementing a mechanism to penalise 'overstaying', the situation where an EV is fully charged but remains plugged in, blocking access for others. This may involve higher fees after a set period, especially on rapid chargepoints, enforced via the chargepoint operator. For example, Geniepoint network has an overstay fee of £10 for vehicles which remain connected to their rapid chargepoints for over an hour, and a further £10 is applied for each subsequent hour[15].

To help deter internal combustion engine (ICE) vehicle drivers parking in EV bays, consider making the bays look different through different colouring and an EV logo or suitable text. EV bays can be made to look similar to disabled spaces, for example including hashed areas, but with a different line colour and clear signage to indicate that they are for EVs only[16].

4.4 Impact of EV bays on parking revenue

Parking revenues can be seen as a stable income source for some local authorities and therefore changes to introduce chargepoints which result in lower revenues may be resisted. It is common for EV drivers to only pay for using the chargepoint and not for parking, although this varies between locations.

Options to reduce the impact on parking revenues include: installing chargepoints in under-used car parks or streets; relocating ICE bays wherever possible; creating new parking spaces for EV bays or; making car club bays dual-purpose[17]. In Coventry, revenue generated from charging by the council is ring-fenced and a share is reinvested in parking services.

Depending on the contract with the chargepoint operator, the local authority may be able to set a tariff rate and connection fee to generate revenue from charging, offsetting the ICE parking revenue that has been lost. However, tariffs should be affordable for drivers and the cost of the charging equipment (if not 100% grant funded), operation, maintenance and electricity used may need to be recouped first. Where chargepoints are in high demand, the income from charging could be higher than from parking.

13 For example, see City of Westminster Kerbside Management and Enforcement Code of Practice, p46. https://www.westminster.gov.uk/sites/default/files/kerbside_management_and_enforcement_code_practice.pdf

14 UK EVSE, 2015, Making the right connections, p22 http://ukevse.org.uk/resources/procurement-guidance/

15 ChargePoint Services Geniepoint FAQs, accessed 2019 https://www.chargepointservices.co.uk/drivers/faqs/#toggle-id-11

16 UK EVSE, 2015, Making the right connections, p22 http://ukevse.org.uk/resources/procurement-guidance/

17 See UK EVSE, 2015, p22, for more information about enforcing car club bays that are also EV charging bays.

5. Case study – Go Ultra Low Oxford & OxPops

Go Ultra Low Oxford is a project run by Oxford City Council and Oxfordshire County Council to trial different on-street charging technologies in residential areas for a year. The project was awarded £816,000 by the Office for Low Emission Vehicles (OLEV) in 2016 and, depending on the results of the trial, there will be a city-wide roll-out of up to 100 chargepoints by April 2021.

While a proportion of Oxford's population fit the profile of early adopters, approximately 28% of households live in terraced housing and lack off-street parking, presenting a barrier to EV uptake.

Five types of chargepoints at 30 locations are being assessed in the trial for both their technological and practical suitability[18]:

- domestic wallbox chargepoint with a pavement cable channel to allow residents to use their own electricity supply without causing a trip hazard by stretching a cable across the pavement[19]
- lamppost chargepoints
- column (free-standing) chargepoint with different features, including a 'slim-line' version.

As well as collecting data on usage and reliability, residents (both EV and non-EV drivers) are participating in interviews and surveys conducted by the University of Oxford to better understand users' experiences and the impact on streets.

Each type of chargepoint technology has different implications for on-street parking:

- **wallbox and pavement cable channel:** No reserved parking bay as the chargepoint is used exclusively by one household so a dedicated bay is not acceptable
- **lamppost chargepoint:** no reserved EV bays but plan to install the equivalent of 3 sockets per EV driver, so there should be some flexibility to access a socket. Partly made possible by the lower unit cost of a lamppost chargepoint, compared to a column chargepoint
- **column chargepoint:** Dedicated EV bays, enforced through a TRO. During the day, the EV bays will be available to residents and visitors for a maximum of 3 hours which encourages customer turnover and is in line with nearby non-EV bays. After 6pm, the bays will only be for resident permit holders wanting to charge.

Figure 6 – Oxford residents, councillors and council officers at the launch of the chargepoint technology trial

Lessons learnt though the trial will be shared initially via a report available exclusively to APSE members. In late 2019 or early 2020, a final report written by Oxford University Transport Studies Unit will be made widely available.

Additionally, Oxford City Council initiated a separate trial, Oxpops[20], in 2018, funded by an Innovate UK grant and private investment. The project involves installing numerous chargepoints on a street nominated by residents[21] while minimising street clutter (a 'whole-street approach'). Innovatively, the six UEone on-street chargepoints are 'retractable', housed in a column that disappears underground when not in use, although there is a small above-ground feed pillar. There will be no changes to parking bays or restrictions, similar to lamppost chargepoints.

Through these trials, Oxford is making significant strides to ensure all its residents can take advantage of the benefits of electric vehicles in coming years, regardless of where they park. With more technologies being introduced, the lessons of these trials will be invaluable in ensuring the best infrastructure is chosen for each situation.

18 Go Ultra Low Oxford Chargepoint types, accessed 2019 https://www.goultralowoxford.org/info/5/chargers

19 Go Ultra Low Oxford Pavement cable channel, accessed 2019 – https://www.goultralowoxford.org/info/5/chargers/13/chargers/3

20 Oxford City Council, accessed 2019, Oxpops - whole street electric vehicle charging trial https://www.oxford.gov.uk/info/20185/electric_vehicles/1288/oxpops_-_whole_street_electric_vehicle_charging_trial

21 Oxford City Council, 2018, Nominate your street for the world's first 'pop-up' electric vehicle charging points https://www.oxford.gov.uk/news/article/768/nominate_your_street_for_the_world_s_first_pop-up_electric_vehicle_charging_points

20 Oxford City Council, accessed 2019, Oxpops - whole street electric vehicle charging trial https://www.oxford.gov.uk/info/20185/electric_vehicles/1288/oxpops_-_whole_street_electric_vehicle_charging_trial

21 Oxford City Council, 2018, Nominate your street for the world's first 'pop-up' electric vehicle charging points https://www.oxford.gov.uk/news/article/768/nominate_your_street_for_the_world_s_first_pop-up_electric_vehicle_charging_points

6. Case study – Cambridge City Council

Cambridge City Council is encouraging the uptake of electric vehicles, particularly by taxi and private hire drivers, as part of continuing efforts to reduce air pollution and carbon emissions in the city[22]. Different approaches have been taken to managing EV chargepoints bays, reflecting user needs and expectations.

Four chargepoints, two 3kW and two 7kW, have been installed in two council-operated multi-story car parks. A TRO is in force to restrict the bays to EVs and a maximum two hour stay. There is no fee for the electricity but car parking charges still apply. Four 7kW chargepoints have also been installed at two park and ride sites. No TRO is required, there is no maximum stay and connection and electricity fees apply.

Following a successful bid, the council was awarded £426,000 from the OLEV Taxi Scheme to install 18 rapid and three fast chargepoints in and around Cambridge by 2020. Match-funding of £100,000 is being provided by both the Greater Cambridge Partnership and the City Council, and the transition is supported by stringent taxi licensing requirements and other incentives to encourage EV uptake[23] [24].

As of May 2019, six rapid chargepoints have been installed at three locations, including council car parks and on-street. In December 2018, the four taxi-only rapid chargepoints delivered 4.5MWh of 100% renewable energy, enabling 15,571 emission-free miles to be driven and resulting in a carbon saving of 3.75t CO_2.

For the car park locations, the dedicated charging bays are painted green and have clearly signed TROs in place restricting charging to EV taxis-only for one hour. For the on-street location, the markings avoid green paint as this was deemed to be an on-going expense for maintenance by the transport authority. The TRO is subtly different: it is for EV permit holders only, to allow future flexibility for residents. The time restriction is again a one hour stay. This time limit was felt to be reasonable as the rapid chargepoints can provide an 80% charge in 30 minutes and taxi drivers are unlikely to want to stay longer.

In the car parks, the chargepoints have been located so that two rapid chargers can serve four bays and there is room for expansion. Initially, only the two central bays are marked, but the outer bays will be marked up as demand grows, a practical compromise between facilitating EV charging while preserving parking revenue.

Where possible, car parks were chosen over on-street locations for the chargepoints. The City Council has previously received negative feedback about installations from residents and campaign groups due to the reduced pavement space, even though the necessary permissions and assessments had been sought.

In the future, Cambridge City Council is planning a major re-development of one of their multi-story car parks. The intention is for all spaces to be pre-wired, and some 'active' chargepoints will also be installed, depending on demand.

22 Cambridge City Council, 2018, New action plan set to tackle air quality and pollution https://www.cambridge.gov.uk/news/2018/03/12/new-action-plan-set-to-tackle-air-quality-and-pollution

23 Significant taxi licencing policy has been introduced to ensure this transition. More information: https://www.cambridge.gov.uk/taxi-licensing-policy-and-handbook

24 Cambridge City Council, 2018, Taxi drivers urged to consider switching vehicles as rapid electric charging points are launched https://www.cambridge.gov.uk/news/2018/10/03/taxi-drivers-urged-to-consider-switching-vehicles-as-rapid-electric-charging-points-are-launched

Figure 7 – Rapid chargepoints in Cambridge for taxis

Photo credit: Cambridge City Council

7. Parking incentives for electric vehicles

Making parking cheaper or easier for EV drivers locally can be highly effective at encouraging people to switch to EVs. Such incentives do not necessarily need to be directly linked to installing chargepoints and can include:

- free or discounted parking for EVs
- dedicated EV parking (without chargepoints), often closer to amenities
- discounted residents parking permits for EV drivers
- emission-based parking, where the parking costs are linked to tailpipe emissions
- dedicated parking for electric car club vehicles[25].

Parking measures are likely to be highly visible and benefit all local EV drivers, whether they recharge at predominantly home or at public chargepoints. Parking policy is usually under the control of a local authority, making the implementation of high-impact, low-cost changes feasible in a relatively short space of time, and measures can be adapted to suit local requirements. Examples of local authorities who have taken varied approaches are detailed in the case studies below.

As with EV bays with chargepoints, TROs are the main mechanism when implementing new parking measures. Where there are chargepoints, enforcing EV-only or discounted parking can be simple: if a parked vehicle is plugged in, it is clearly permitted to park. However, where TROs allow for free or discounted parking for EVs in spaces without chargepoints, there needs to be mechanism for a civil enforcement officer to confirm how the vehicle is fuelled if they are unsure. Some private parking operators use the vehicle's number plate (also known as the Vehicle Registration Mark) to determine this using the DVLA database.

7.1 Case study – Isle of Wight

In April 2019, as part of its Environmental Action Plan, the Isle of Wight Council introduced All Island Electric Vehicle Permits – free 12-month parking permits for owners of EVs worth £324.50[26]. To be eligible, the vehicle must be 100% electric (i.e. not a plug-in hybrid), privately owned and new (first-time registered to an Island address between 1 April 2019 and 31 March 2020).

Chargepoints have been installed in five council car parks (four fast, one rapid) and there are plans to further expand the network, including providing on-street chargepoints.

Isle of Wight is following in the footsteps of Milton Keynes Council which has offered free EV parking since 2016[27], following its successful Go Ultra Low Cities funding bid. Similarly, owners of 100% electric vehicles can apply for a £10 permit from Stockport Metropolitan Borough Council[28] which allows free parking in any council pay and display bays or car parks.

7.2 Case study – Hackney Council

To improve poor air quality and encourage reductions in CO_2 emissions, the London Borough of Hackney introduced an emission-based parking system, phased in since 2015. Previously, the price of permits was based on engine size. Permits for residents, businesses and other user groups were affected.

Vehicles are categorised into five bands according to their CO_2 emissions and there is a £50 a year supplement for all diesel vehicles, reflecting their higher NO_x and particulate matter emissions[29].

When introducing the new prices, the borough devised the system so that most vehicle owners would pay less for their permits but there was strong incentive for those driving the oldest and most polluting to switch their vehicles. The changes were phased in over two years. In 2016, drivers could renew their permits for one year at a 50% of the difference between the old and the new price. The diesel supplement was £25 in the first year[30].

The parking surplus generated through the scheme is spent on concessionary fares for over-60s and residents with disabilities, known as the Freedom Pass.

73 Case study – Southampton City Council

Parking season tickets were introduced by Southampton City Council to reduce costs for drivers who regularly park in the city centre pay and display zone. To improve air quality, the council offers a 90% discount on all its season tickets for EVs, a significant incentive to switch. For example, an anytime season ticket costs £1,200 a year but an EV driver would pay £120, saving £1,080[31].

In August 2018, the council introduced a second incentive: drivers of pure electric vehicles can cross the Itchen Bridge for free. Typically, the toll for residents is 40p per crossing and 60p for non-residents at peak times[32]. EV drivers need to be the registered keeper and apply for a SmartCities card, but drivers across nine local district and borough councils are eligible.

25 LowCVP, 2015, Local Measures to encourage the uptake of low emission vehicles, p46 https://www.lowcvp.org.uk/assets/reports/LEVs.pdf

26 Isle of Wight Council, 2019. New parking permit for electric vehicles https://www.iow.gov.uk/news/New-parking-permit-for-electric-vehicles

27 Get Smarter Travel Milton Keynes, Free EV parking https://www.getsmartertravelmk.org/smart/free-ev-parking

28 Stockport Metropolitan Borough Council, 2018. Band A and zero emission vehicles https://www.stockport.gov.uk/band-a-and-zero-emission-vehicles/zero-emission-vehicles

29 London Borough of Hackney Council, 2018, Resident parking permits https://hackney.gov.uk/article/3448/Resident-parking-permits

30 London Borough of Hackney Council, 2016, Parking permit review FAQs https://hackney.gov.uk/article/3461/Parking-permit-review-FAQs

31 Southampton City Council, accessed 2019, City Centre season tickets https://www.southampton.gov.uk/roads-parking/parking/season-tickets/

32 Southampton City Council, accessed 2019, Itchen Bridge electric vehicle and business cards https://www.southampton.gov.uk/roads-parking/travel/smartcities-card/itchen-electric-vehicle-business-cards.aspx

8. Further resources

Low Carbon Vehicle Partnership (LowCVP), 2015. Local Measures to encourage the uptake of low emission vehicles: good practice guide https://www.lowcvp.org.uk/assets/reports/LEVs.pdf

For further information and photographs of different EV charging bays layouts and thoughts on publicising and enforcing EV-only bays, see the Orkney Renewable Energy Association and Electric Vehicle Association of Scotland 2016. Electric Vehicle Charging Infrastructure, A Design Guide. http://www.oref.co.uk/resources/ev-charging-design-guide/

The Department for Transport guidelines for on-street EV parking bays, the P1032 DfT working drawings, can be found at http://assets.dft.gov.uk/publications/traffic-signs-working-drawings/roadmarkingsp1000series/2parkingbaywithindividua4419.pdf

For the full DfT working drawings for electric vehicle parking bay signage, see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/542803/traffic-sign-drawing-schedule-04-part-05-item-07-p660x9.pdf

UK EVSE, 2015. Making the right connections, general procurement guidance for EV charge-points. Download from http://ukevse.org.uk/resources/procurement-guidance/

Transport for London is also planning to publish updated street design guidance for charging infrastructure in 2019/20.

Figure 8 – Chargepoint in the Greater Manchester Electric Vehicle (GMEV) network

Photo credit: Monty Rakusen

9. Support from the Energy Saving Trust for local authorities

Through our Local Government Support Programme, Energy Saving Trust provides fully-funded tailored support to help local authorities improve local air quality and reduce CO_2 emissions through sustainable transport initiatives.

We offer impartial advice on chargepoint procurement, planning policies, and more. For example, we can facilitate a team workshop or impartially review your draft charging infrastructure plans.

Local authorities based in Scotland can seek support through Switched On Towns and Cities.

EST also manages the On-Street Residential Chargepoint Fund and the eCargo Bike Grant Fund, on behalf of the Office for Low Emission Vehicles and Department for Transport.

We're here to help people across the UK save energy and reduce fuel bills. It's a big task that we won't solve alone. But by working with partners who share our goals, we believe we can make a real difference.

Underpinned by our independent status and impartial perspective, we offer a depth of energy expertise, but we're not content to stand still. Our goal is to find new and better ways to drive change and reduce UK energy consumption.

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