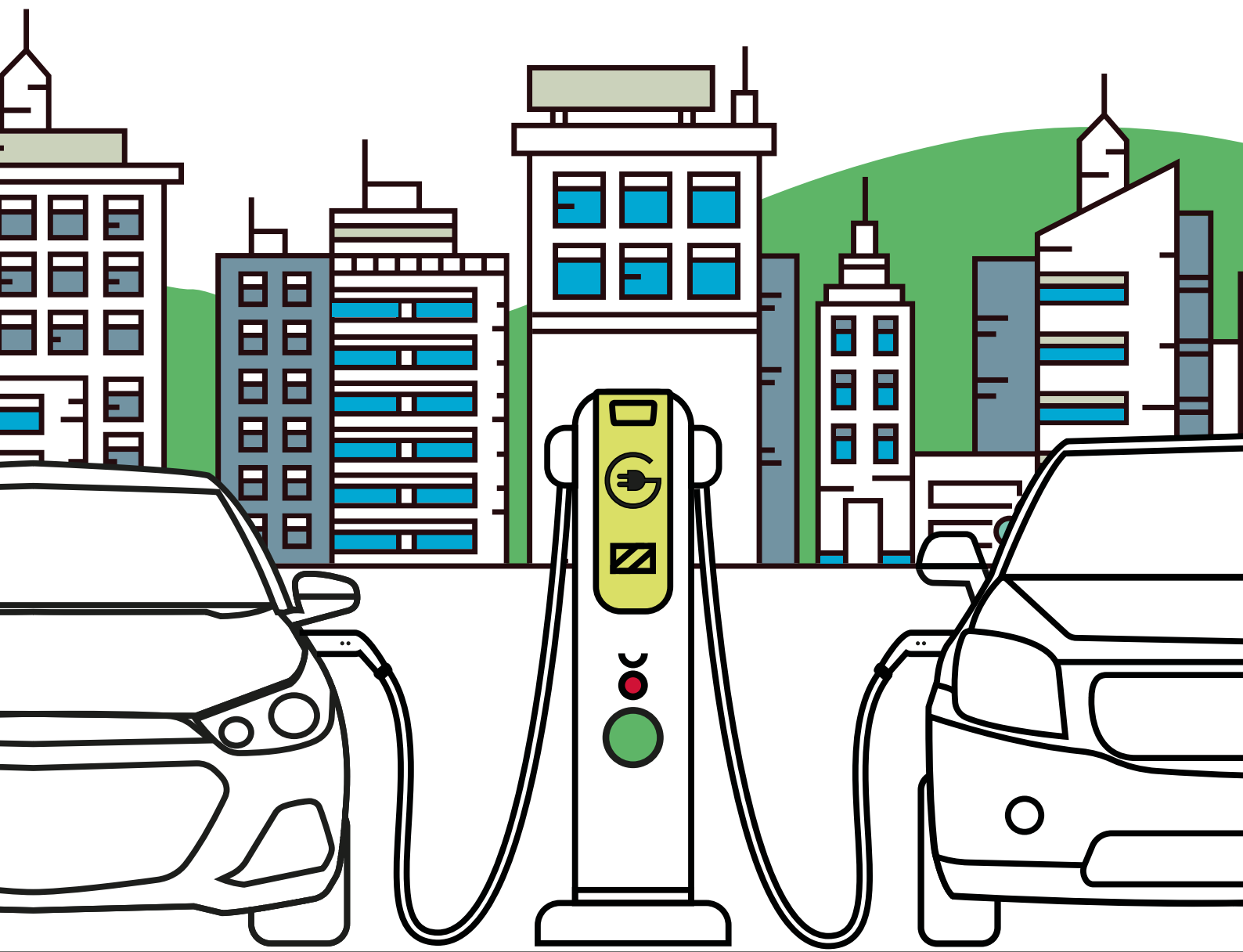


Incorporating EV chargepoints into local planning policies for new developments

A report by the Energy Saving Trust
April 2020



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

Abstract

Installing chargepoints within new developments is cheaper and easier than retrofitting and encourages drivers to make the switch to electric vehicles (EVs). By updating their planning policies or related guidance, local authorities can help this to become an established practice, benefitting communities, air quality and the environment.

This guide explores how local authorities can require or encourage developers to install chargepoints and details proposed updates to building regulations and other relevant legislation across England, Scotland and Wales. The guide forecasts the number of electric cars in the UK up to 2035 and offers guidance on determining what constitutes “appropriate provision” of chargepoints.

The guide also covers permitted development rights and planning for EV charging hubs.

Acknowledgments

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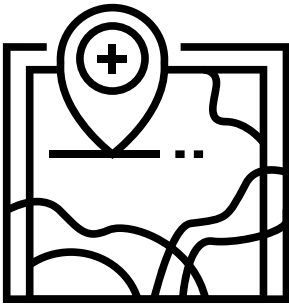
About the Energy Saving Trust

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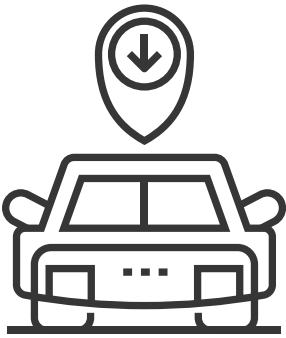
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1. Introduction



Planning and related policies can be used by local authorities to ensure that chargepoints for electric vehicles are integrated within new developments from the design stage. This ensures that chargepoints are conveniently placed and is less expensive and disruptive than installing chargepoints at a later date. A high-quality network of chargepoints at home and places where people regularly park is essential to unlocking electric vehicle (EV) uptake.

Depending on the outcome of a recent consultation, the government is expected to introduce national standards for chargepoint provision in England through building regulations in the coming years. Scotland and Wales are likely to adopt similar policies. However, local authorities may want to update their local planning policies or guidance for developers sooner or set more ambitious or detailed parking and design standards tailored to local circumstances.



Incorporating chargepoints into planning policies should be considered alongside other local authority strategies to reduce dependency on private cars, improve air quality, increase public transport use, car-sharing and the uptake of walking and cycling. Housing supply, climate change, transport and wider urban development and renewal strategies may also be relevant when developing EV planning policies or an EV strategy.

Energy Saving Trust has forecast the expected uptake of electric vehicles based on the UK Government's announcement in February 2020 that they plan to end the sale of petrol, diesel and hybrid vehicles by 2035, subject to consultation. These forecasts can be used as a proxy for chargepoint demand, helping to inform planning policy changes and demonstrate the need for charging infrastructure provision.

2. Why should charging infrastructure be considered within planning policies?

Planning shapes the development of cities, towns and communities. It is key to 'future-proofing' developments so they meet the needs of current and future generations in terms of design, sustainability and resource efficiency.

When local planning policies or related guidance for developers are being revised, local authorities have an excellent opportunity to incorporate requirements for chargepoints for new developments.

Providing chargepoints within new-build homes and residential developments with parking provision benefits residents because recharging an EV at home is often cheaper and more convenient than using public chargepoints. Ensuring chargepoints are available at new non-residential developments, especially workplaces and 'destinations', grows confidence that longer journeys can be comfortably completed in EVs and will help to meet demand for charging as EV numbers rise.

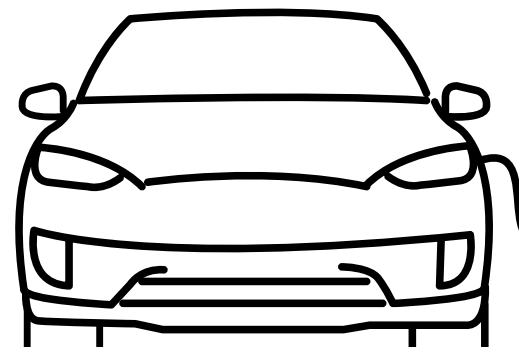
Installing chargepoints during the construction phase of a new development is often far easier, cheaper and less disruptive than retrofitting charging infrastructure, benefitting future residents, occupiers, property managers and site owners. At the design stage, suitable locations for chargepoints within the site can be earmarked and the electricity demand can be factored into other grid connection costs, avoiding or reducing the need for expensive upgrades at a later date (see Energy Saving Trust's guide¹ for further information).

Knowing that chargepoints are available, especially at their home and workplace, gives residents the confidence to purchase or lease an electric vehicle, supporting wider air quality and carbon reduction initiatives. Access to a chargepoint will become a selling point for a property and a positive commercial decision, irrespective of planning requirements.

One disadvantage of installing chargepoints within all new developments is the uncertainty over how much infrastructure will be required by when. However, planning policies can be used to ensure that underground cabling and/or ducting for a chargepoint is in place in new car parks. This allows for the proportional expansion of the charging network in the future as demand grows, with minimal disruption and additional cost for excavation and labour.

Incorporating chargepoints into planning policies grows confidence in EVs among drivers, makes driving an EV more convenient and reduces costs, air pollution and carbon emissions. Requiring chargepoint installation through planning policies will help this become standard practice among developers.

¹ Energy Saving Trust, 2019, Minimising the costs of street works and grid connections for electric vehicle charging infrastructure <https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Minimizing%20the%20costs.pdf>



3. EV charging hubs

Many local authorities and chargepoint companies are considering investing in charging hubs with multiple fast, rapid or ultra-fast chargepoints, similar to those in Milton Keynes² or ones proposed by Gridserve³ and Pivot Power⁴. These hubs could reduce the need for on-street charging infrastructure and provide a quick recharging experience more like refuelling with petrol or diesel.

For charging hubs to be convenient and welcomed by communities, they need to be well-situated. Where local authorities want to encourage the development hubs, they could proactively earmark suitable sites in long-term spatial or regeneration plans, and grant planning permission for hubs meeting high-quality design requirements and local needs. These hubs are likely to generate footfall and vehicles movement, although the traffic will be very quiet with zero tailpipe emissions. The sites may also have integrated renewable generation, battery storage and facilities such as a café or convenience store.

This guide does not offer specific planning advice but suitable urban sites are likely to have some of the following site characteristics:

- ▶ be a brownfield light industrial or retail site – more likely to have an existing grid connection with spare capacity, reducing grid upgrade costs
- ▶ on the periphery of the town centre – convenient for commuters, businesses and visitors, but without causing additional congestion
- ▶ in residential areas without off-street parking – this would help to ensure demand for the chargepoints
- ▶ located near existing facilities and local services, or with space to build facilities

Plans are underway to locate charging hubs across the motorway and major road network. National Grid has identified 50 strategic sites at motorway services across England and Wales which could accommodate numerous ultra-rapid chargepoints in the future.⁵ Through the Automated and Electric Vehicle Act (2018), the government has powers to require chargepoints to be installed at motorway service areas and large fuel retailers.

As well as EV charging hubs, a local authority may also want to earmark sites for battery storage and hydrogen refuelling stations. The RTPi Research Paper 'Planning for a smart energy future' looks in more depth at these integrated challenges.⁶

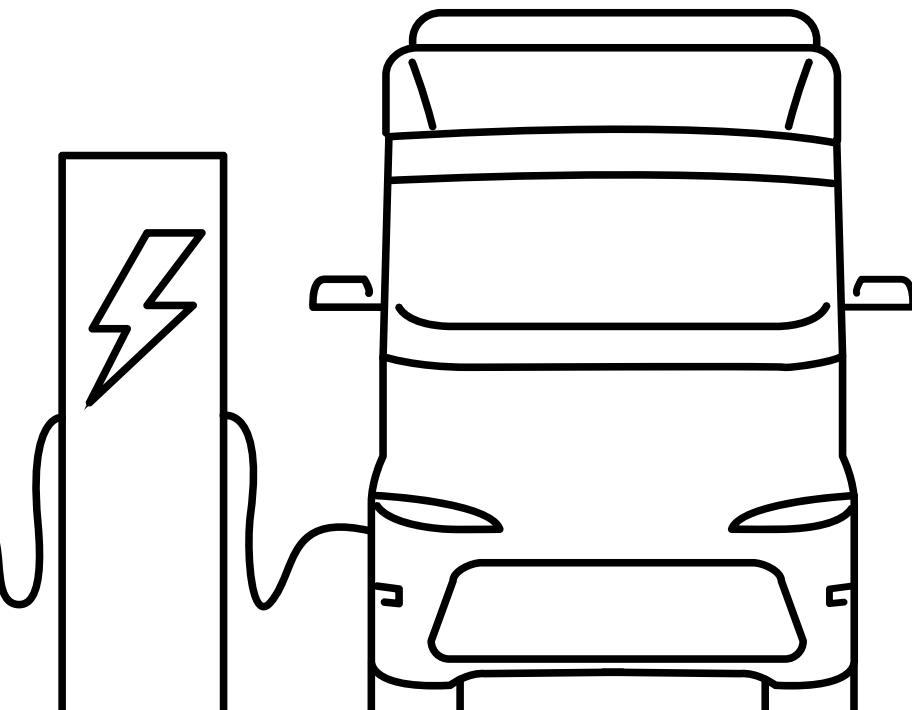
2 BP, 2019. <https://www.bp.com/en/global/corporate/news-and-insights/press-releases/uks-largest-public-rapid-charging-hub-inaugurated-in-milton-keynes.html>

3 Gridserve, 2019. <https://www.gridserve.com/electric-vehicle-charging>

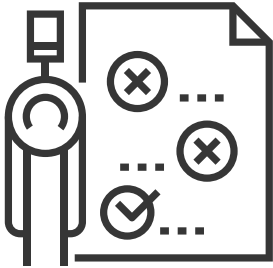
4 Pivot Power, 2018. <https://www.pivot-power.co.uk/pivot-power-work-national-grid-future-proof-energy-system-accelerate-electric-vehicle-revolution/>

5 National Grid, 2018, Electric Vehicle Charging <https://www.nationalgrid.com/document/115536/download>

6 RTPi, 2019, Planning for a smart energy future <https://www.rtpi.org.uk/research/2019/july/planning-for-smart-energy/>



4. Permitted development rights



Gaining planning permission is costly and lengthens the process of installing charging infrastructure. Permitted development rights mean that planning permission is not necessary for chargepoints, provided certain conditions are met.

In situations not covered by these permitted development rights, planning permission is required in order to install chargepoints. There is minimal formal guidance available to help applicants gain approval, but few stakeholders have reported it to be a major problem. In general, chargepoints are more likely to be accepted by planning authorities if they are well-designed chargepoint units (i.e. sensitive to context, with minimal street clutter and impact on street scene), placed so they do not excessively narrow pavements, have minimal lighting and signage around the unit, and no advertising.⁷ See Energy Saving Trust's guide⁸ on best practice for positioning chargepoints in car parks.

4.1 England

The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011 introduced permitted development rights for EV chargepoints in off-street public and private car parking areas (Part 2 Class D & E).

Specifically, chargepoints can be installed, altered or replaced in areas of off-street parking if:

- ▶ they are not within 2 metres of the highway
- ▶ 'upstands' (i.e. bollards) do not exceed 2.3 metres in height,⁹ or 0.2 cubic metres if wall-mounted
- ▶ they are not within a site designated as a scheduled monument, or within the curtilage of a listed building
- ▶ there is not more than one upstand for each parking space.¹⁰

The Amendment also clarified that local authorities could install on-street chargepoints as permitted development, in a similar way to other street furniture (Part 12 Class A).¹¹

4.2 Wales

From 1 April 2019, permitted development rights came into force in Wales to allow the installation of off-street charging infrastructure. The restrictions are the same as in England, apart from the height limit for an upstand remains at 1.6 metres. On-street infrastructure can also be installed by local authorities without requiring planning permission.¹²

4.3 Scotland

The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2014 makes provisions for local authorities installing chargepoints as permitted development. Different rules apply if the cost exceeds £250,000 and where installations are proposed by a third party, rather than a local authority (Class 33).

Similar to England, for a chargepoint to be permitted development in Scotland, Part 2D states that it must not exceed 1.6 metres if free-standing (i.e. bollards) or 0.5 cubic metres if wall-mounted, or be within 2 metres of a highway. Development is restricted in a range of designated conservation areas, such as sites of archaeological interest or National Parks, and there are restrictions on the size and location of name plates of charging providers.^{13,14}

7 Presentation delivered at TfL EV Infrastructure Workshop 2 in August 2018.

8 Energy Saving Trust, 2019, Positioning chargepoints and adapting parking policies for EVs <https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Positioning%20chargepoints.pdf>

9 From May 2019, the government increased the height limit for chargepoints in designated off-street parking spaces in England from 1.6m to 2.3m, reflecting advances in technology. UK Parliament, 2019, Planning Update: Written Statement HCWS1408 <https://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2019-03-13/HCWS1408/>

10 HM Government, 2011, The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011 <http://www.legislation.gov.uk/uksi/2011/2056/introduction/made>

11 Ibid.

12 The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2019 <http://www.legislation.gov.uk/wsi/2019/330/made> For details of the consultation, see <https://gov.wales/subordinate-legislation-consolidation-and-review>

13 HM Government, 2014, The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2014 <http://www.legislation.gov.uk/ssi/2014/142/contents/made>

14 Urban Foresight, 2016, National Framework of Local Incentives for Electric Vehicles <https://urbanforesight.org/wp-content/uploads/2016/11/REP-1409-TS-A-National-Framework-for-Local-Incentives.pdf>

5. Changes to building regulations



Following its Road to Zero strategy commitment, the Government held a consultation in summer 2019 on changing building regulations in 2020 to require every new home in England to have a chargepoint, where applicable.¹⁵ The government also consulted on transposing the requirements from the EU Energy Performance of Buildings Directive (EPBD), which also sets minimum requirements for charging infrastructure in new and existing non-residential buildings.

5.1 Proposed building regulations (in England)

Whilst the proposed requirements are still subject to change,¹⁶ the proposed building regulations can be considered as the baseline by local authorities when reviewing Local Plans, parking standards or EV strategies, for both residential and non-residential buildings.

For residential developments, the following is proposed:

- ▶ every new residential building with an associated car parking space should have a chargepoint. This also applies to buildings undergoing a material change of use to create a dwelling.
- ▶ every residential building undergoing major renovation with more than 10 car parking spaces to have cable routes for electric vehicle chargepoints in every car parking space. One chargepoint per building may also be required, awaiting clarification from government.

In line with the requirements from the EU Energy Performance of Buildings Directive (EPBD),¹⁷ the government has proposed the following additions to building regulations:

- ▶ every new non-residential building, and every non-residential building undergoing a major renovation, with more than 10 car parking spaces to have:
 - one chargepoint
 - chargepoint cable routes for one in five spaces.

The government proposes that, from 2025, existing non-residential buildings with more than 20 car parking spaces will require at least one chargepoint. This will be introduced through separate legislation, not building regulations.

Various exemptions are being considered, including for residential buildings where there are exceptionally high electricity grid connection costs, listed buildings, and SMEs.

As building regulations are a devolved matter, the Scottish, Welsh, Northern Irish governments are also required to transpose the requirements of the EU EPBD. As of October 2019, they had not published details of their plans.

¹⁵ Department for Transport, 2019, Electric vehicle chargepoints in residential and non-residential buildings. <https://www.gov.uk/government/consultations/electric-vehicle-chargepoints-in-residential-and-non-residential-buildings>

¹⁶ As of November 2019, The government's response following the consultation will be published at <https://www.gov.uk/government/consultations/electric-vehicle-chargepoints-in-residential-and-non-residential-buildings>

¹⁷ European Parliament, 2018, Directive (EU) 2018/844 of the European Parliament and of The Council amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=uriserv:OJ.L_.2018.156.01.0075.01.ENG

6. Incorporating charging infrastructure into local planning policies



18 Note – Some out-of-date local authority guidance specifies three-pin sockets which is no longer considered adequate for regular charging at home or work.

19 Tunbridge Wells Borough Council, 2018, EV charging points for new development: Guidance Note for applicants. http://www.tunbridgewells.gov.uk/_data/assets/pdf_file/0007/279106/Electric_Vehicle_Charging_Points_for_New_Development_Guidance_Note_for_Applicants-2018Dec2018-v6.pdf

20 Swindon Borough Council, 2019, Parking Standards for New Development https://www.swindon.gov.uk/news/article/249/swindon_is_charging_ahead_with_plans_for_an_electric_vehicle_future

21 Leeds City Council, 2018, Parking SPD, Additional Guidance on EV charging points <https://www.leeds.gov.uk/docs/Guidance%20on%20Electric%20Vehicle%20Charging%20Points.pdf>

22 HM Government, 2018, Guidance, Local Plans <https://www.gov.uk/guidance/local-plans--2>

23 Ministry of Housing, Communities and Local Government, 2019, National Planning Policy Framework, Ch9, 105e https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740441/National_Planning_Policy_Framework_web_accessible_version.pdf

24 Ibid

25 House of Commons Business, Energy and Industrial Strategy Committee, October 2018, Electric Vehicles: Driving the transition, p36 <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/383/383.pdf>

26 HM Government, accessed 2019, Planning practice guidance <https://www.gov.uk/government/collections/planning-practice-guidance>

Planning policies can accelerate the delivery of charging infrastructure if developers are required or encouraged to install chargepoints at new developments with parking provision as part of the process of obtaining planning permission. Alternatively, local authorities can also provide or update supplementary guidance or technical advice notes for developers to encourage provision or update technical specifications.

Parking standards or planning conditions can be used to require developers to install chargepoints to ‘future-proof’ developments or as an air quality mitigation measure. Usually, the proportion of chargepoint provision in the parking standard is dependent on the use of the site and type of parking (i.e. if spaces are for particular households or unallocated).

The London Plan is among the earliest and most ambitious of these policies, but an increasing range of other local authorities have similar, up-to-date¹⁸ guidance, such as Tunbridge Wells Borough Council,¹⁹ Swindon Borough Council²⁰ and Leeds City Council.²¹

Local parking standards could be introduced before the updated building regulations come into force or used to exceed the building regulation requirements thereafter.

6.1 National Policy Planning Framework (NPPF) in England

The National Planning Policy Framework (NPPF) sets out planning policies for England and how these should be applied. When first published in 2012, the NPPF (para 35) stated that Local Planning Authorities should support development that facilitates the use of sustainable modes of transport through the provision of infrastructure. It also set out that developments should, where practical, incorporate facilities for charging ultra-low emission vehicles.

This led to some planning authorities developing parking standards as part of their Local Plan²² or Supplementary Planning Guidance that require some developers to install chargepoints, based on either development size or number of parking spaces.

The revised NPPF was published in July 2018 and fulfilled a commitment in the Government’s Road to Zero strategy. The revised NPPF advises that local parking standards for residential and non-residential development should consider the need to ensure “adequate provision of spaces for charging plug-in and other ultra-low emission vehicles” (105e).²³ It also states that new development applications should be designed to enable EV charging in safe, accessible and convenient locations (110e).²⁴

Although welcomed as a step forward, a report published by the BEIS Committee²⁵ on electric vehicles noted concerns that the revisions were too weak and the difficulties of interpreting “adequate” (p36).

This will partly be addressed through additional planning practice guidance that is due to be issued by the Ministry of Housing, Communities & Local Government.²⁶ Section 7 in this guide forecasts the number of EVs expected to be on the road if the Government ends the sales of new petrol, diesel and hybrid cars and vans by 2035, and other related factors which can be used by local authorities to assess what constitutes “adequate provision” for their locality.

6.2 Case study – London Plan

The London Plan is the overall strategic plan for London setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20 to 25 years. Produced by the Mayor of London and the Greater London Authority, it is consistent with the National Planning Policy Framework (2012).

Due to the importance of parking availability and regulation in influencing transport choices and addressing congestion, the London Plan set car parking standards. It stipulated minimum numbers of chargepoints, which apply for all new developments in all parts of London, regardless of the number of spaces, as per Table 1.²⁷ Table 2 details the updates in the draft New London Plan (July 2019).²⁸

The London Plan (draft revisions) states that residential car park spaces should be leased, not sold, to ensure the land they take up is used as efficiently as possible over the life of a development. Leasing also allows spaces with chargepoints to serve electric vehicle drivers, easier conversion from passive to active provision and for spaces to be re-purposed if necessary, following changes to technology or services.

Further revisions and requirements in the draft London Plan include:

- car-free development should be the starting point for all development proposals in places that are well-connected by public transport, with developments elsewhere designed to provide the minimum necessary parking ('car-lite').
- where car parking is provided in new developments, provision should be made for infrastructure for electric or other ultra-low emission vehicles (as per Table 2).
- new petrol filling stations should provide rapid chargepoints and/or hydrogen refuelling facilities.
- where chargepoints are provided on-street, they should not negatively affect pedestrians and ideally be located off the footway. When located on the footway, the chargepoint must remain accessible to all, including disabled people.
- to support carbon-free travel from 2050, the provision of hydrogen refuelling stations and rapid electric vehicle chargepoints at logistics and industrial locations should be supported.

²⁷ More information can be found in the Supplementary Planning Guidance: Land for Industry and Transport (2012), Annex 6. Electric vehicle charging infrastructure at new London developments https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/SPG%20Land%20for%20Industry%20and%20Transport.pdf

²⁸ Greater London Authority, 2019, Draft London Plan – Consolidated Suggested Changes Version, July 2019 <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/draft-london-plan-consolidated-suggested-changes-version-july-2019>

²⁹ Note: Passive provision is sometimes defined as ducting or cable routes only, such as in the EU EPBD and the proposed building regulations.

Table 1: Comparison of regulation orders

Active provision is defined as an actual, ready-to-use socket, connected to the electrical supply system. Passive provision is defined as the network of cables and power supply necessary so that at a future date a socket can be added easily (p419).²⁹

Type of development	Active Provision	Passive Provision
Residential development	20% of all spaces	20% of all spaces
Retail development	10% of all spaces	10% of all spaces
Employment uses	20% of all spaces	10% of all spaces

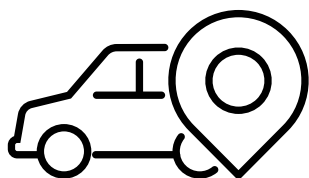
Table 2: Summary of draft New London Plan revisions and updates related to chargepoints

Type of development	Active Provision	Passive Provision
Residential development	<ul style="list-style-type: none"> ➤ 20% of all spaces ➤ All (new) car club spaces should have chargepoints 	All remaining spaces (i.e. 80% of spaces)
Retail development	<ul style="list-style-type: none"> ➤ Where parking is provided, should provide rapid chargepoints or hydrogen refuelling facilities ➤ Forthcoming Supplementary Planning Guidance will provide details for provision 	Not specified
Employment uses	<ul style="list-style-type: none"> ➤ No minimum percentage specified for offices ➤ "Appropriate provision" of infrastructure where lower density development than offices ➤ All operational parking must provide charging infrastructure, including active chargepoints for all taxi spaces 	10% of all spaces
Hotels and leisure	<ul style="list-style-type: none"> ➤ Must provide infrastructure for operational parking and active chargepoints for all taxi spaces 	Not specified

6.3 Local Development Plans in Scotland

In June 2019, the Planning (Scotland) Act 2019 was passed by the Scottish Government, changing how the planning system operates and its role in addressing climate change.³⁰

Preparation is underway for the fourth National Planning Framework but until this is implemented in 2021, the National Planning Framework for Scotland 3 (NPF3) published in 2014 sets out the Scottish Government's strategy for Scotland's spatial development for the next 20 to 30 years. It details the Scottish Government's ambition to decarbonise road transport by 2050 and explains how ChargePlace Scotland will deliver future charging infrastructure, in partnership with local authorities. Sections 5.30 and 5.38 outline the role of rapid chargepoints for Scotland's rural, coastal and island communities.



Planning authorities are required to take account of NPF3 policies when drafting Local Development Plans and making development management decisions. The NPF3 has an intended lifespan of five years from publication and any subsequent versions will take into account the changes introduced by the Planning (Scotland) Bill. Once the Planning (Scotland) Bill is enacted, it is expected that the relevant Planning Circulars and Planning Advice Notes will be updated and offer clarity to local authorities regarding charging infrastructure.

Currently, the Local Development Plans for Dundee City Council, Aberdeen City Council and South Lanarkshire Council³¹ all require the installation of charging infrastructure, and Glasgow's plans are detailed below.

30 Scottish Government, 2019, Planning and architecture: Reforming the Planning System. <https://www.gov.scot/policies/planning-architecture/reforming-planning-system/>

31 Urban Foresight, 2016, National Framework of Local Incentives for Electric Vehicles <https://urbanforesight.org/wp-content/uploads/2016/11/REP-1409-T5-A-National-Framework-for-Local-Incentives.pdf>

32 Glasgow City Council, March 2017, City Development Plan SG11: Sustainable Transport, Supplementary Guidance. <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=36522&p=0>

6.4 Case study – Glasgow City Council

In line with the Scottish Government's Climate Change Delivery Plan and Scottish Planning Policy which requires the provision of charging infrastructure, Glasgow City Council updated its Supplementary Guidance in 2017.³²

The guidance requires new residential developments of over 10 units to have 100% passive provision, defined as the necessary underlying infrastructure in order to enable simple installation and activation of a chargepoint at a future date. This includes ensuring capacity in the connection to the electricity network and electricity distribution board, individual fuse boxes for each space, and cabling to each parking space.

Passive provision makes it easier to install chargepoints as demand arises when residents move in and out of the development.

The guidance states that the cost and technical implications of providing passive provision are likely to be minimal and can be reconsidered where there are exceptional circumstances.

However, as significant numbers of the spaces are not expected to be converted to active chargepoints in the short term, developments need only safeguard capacity in the electricity network for 20% of passive spaces. The provision of individual fuse boxes will enable supply to be switched from space to space if required.

In commercial developments, both passive and active provision is required, and minimum requirements are set out in Table 3. The Council may require additional active spaces where a Transport Assessment or Air Quality Assessment determines that this is necessary.

Table 3: Adapted from Table 4 EV Spaces as a Proportion of General Parking Provision in Glasgow's City Development Plan SG11: Sustainable Transport Supplementary Guidance.

Commercial development	Minimum passive provision	Minimum active provision
Retail (over 500 sqm), commercial leisure , commercial car parks (over 20 spaces)	10%	2%
Office and business (over 55 sqm), general industry (over 1000 sqm) and storage and distribution (over 2000 sqm)	20%	5% of operational and staff parking combined
Hotels and higher/further education	20%	2%
Hospitals (over 50 beds)	10% staff parking, 10% visitor parking	2% of operational and staff parking combined

6.5 Planning policies in Wales

Published in December 2018, Planning Policy Wales (Edition 10) (PPW) sets out the land use planning policies of the Welsh Government.

The PPW aims to ensure that the planning system delivers sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

It encourages the provision of chargepoints at new non residential developments where car parking is provided.³³ It states that planning authorities should seek a minimum of 10% of car parking spaces to have chargepoints. Some of this provision could be 'passive', where appropriate.

It recommends that planning authorities ensure the level, location and type of charging infrastructure is appropriate and consider how long drivers will stay, the number of vehicles accessing the site, existing chargepoints nearby and other proposed emission mitigation measures.

The draft report entitled Electric Vehicle Charging Infrastructure published by the National Assembly for Wales³⁴ outlines the benefits of requiring chargepoint provision in new residential developments, in terms of reducing costs, encouraging behavioural change and creating liveable communities.³⁵ This indicates support for updating local planning policies. In addition, the Welsh Government plans to consult on amending building regulations to include chargepoints for new homes and developments and transpose the EU Energy Performance in Buildings Directive (see section 5).³⁶

7. Forecasting demand for chargepoints – what is 'adequate' provision?

33 Welsh Government, 2018, Planning Policy Wales, Edition 10, p51 <https://gov.wales/sites/default/files/publications/2018-12/planning-policy-wales-edition-10.pdf>

34 National Assembly for Wales, Economy, Infrastructure and Skills Committee (2019), Electric Vehicle Charging Infrastructure (draft report) <http://www.assembly.wales/laid%20documents/cr-ld12394/cr-ld12394-e.pdf>

35 Emerging Conclusion 9, p27, as above.

36 Welsh Government, 2019, Prosperity for All: A Low Carbon Wales (p104). https://gov.wales/sites/default/files/publications/2019-06/low-carbon-delivery-plan_1.pdf Note – This document outlines a wide range of proposals to increase EV uptake in Wales.

37 HM Government, 2020. Press release: PM launches UN Climate Summit in the UK <https://www.gov.uk/government/news/pm-launches-un-climate-summit-in-the-uk>

38 HM Government, 2018. The Road to Zero, p2. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

39 HM Government, 2019. Statistical Release: Vehicle Licensing Statistics https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853446/vehicle-licensing-statistics-july-to-september-2019.pdf

The NPPF states that there should be “adequate provision” of spaces for electric vehicles. However, it can be difficult for local authorities to interpret this and decide how many chargepoints are appropriate to include in parking standards, for different types of development.

The analysis in Section 7 below acts as a partial answer to this question, based on the Government's ambitions. Section 8 expands on other factors that local authorities should consider when setting standards or developing guidance.

7.1 Forecast of the uptake of electric vehicles nationally

In February 2020, the UK Government announced plans to bring forward the end of the sale of new petrol and diesel cars and vans from 2040 to 2035, or earlier if a faster transition appears feasible, as well as including hybrids for the first time, following a consultation period³⁷.

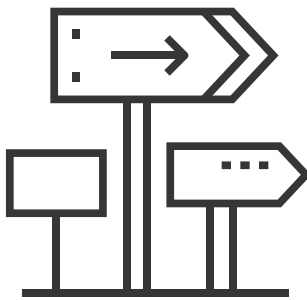
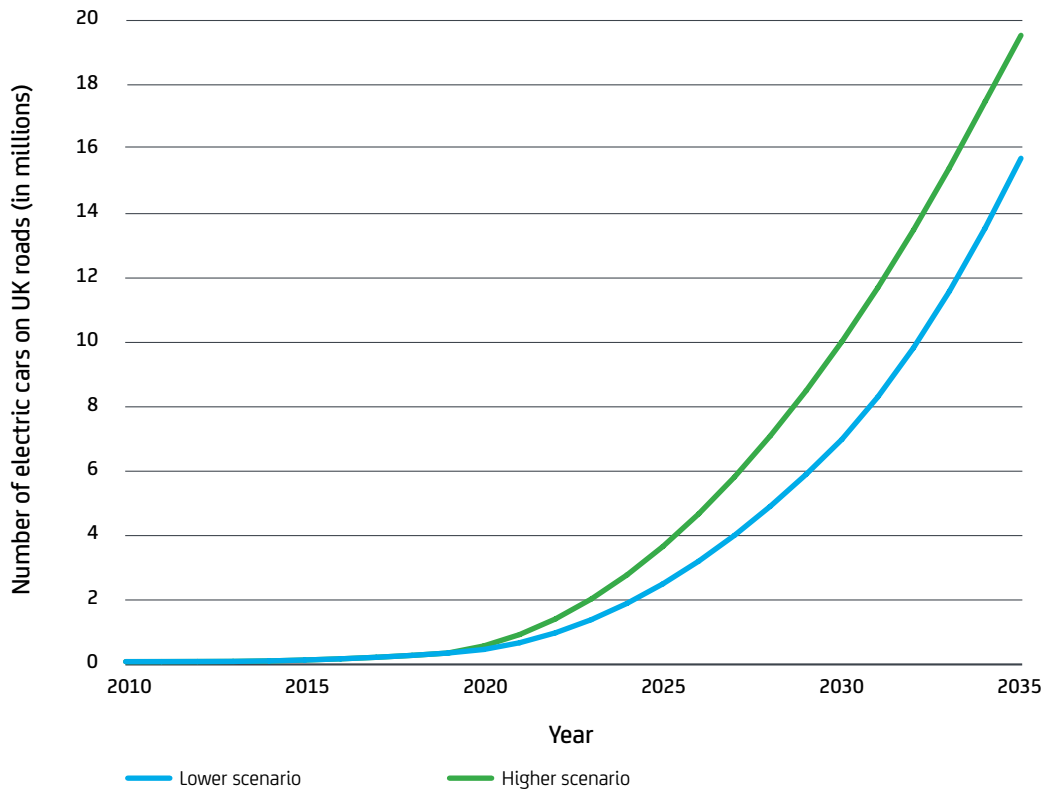
This is sooner than the ambition proposed by the UK Government in The Road to Zero³⁸ in July 2018, to end the sale of new conventional petrol and diesel cars and vans by 2040.

Energy Saving Trust has forecast the number of electric vehicles that could be expected to join the UK's roads if the 2035 target is to be achieved. This indicates there could be between 15.6 million and 19.4 million electric cars in the UK by 2035, see figure 1. For context, the total number of cars in the UK was 32 million in 2019 (most recent available data).³⁹

The rate at which EV adoption occurs is unlikely to be consistent across the UK. Some areas may lag behind others for various reasons, including smaller or sparser populations, public transport availability, economic affluence, land availability for EV infrastructure, local political interest in EVs and the extent of local incentives offered to EV users. Where these factors are within the control of local authorities, they can effectively be used to accelerate the local uptake of EVs.

Figure 1: Forecast of the number (in millions) of electric cars on UK roads, aligned with the Government’s proposal to end the sale of new petrol, diesel and hybrids cars from 2035.

Assumptions: Stable registration of 2.2m cars per year, and average car lifespan of 15 years.



7.2 Forecasts of EVs nationally as a proxy for chargepoint demand

Based on the estimated number of electric cars, Energy Saving Trust has forecast proportion of electric cars expected in the UK up to 2035 relative to petrol, diesel and hybrid cars, see Figure 2 and Table 4.

Although there is not a direct correlation, the number of electric cars can be used as a rough proxy for the growth in demand for chargepoints in public locations, up to 2035.

For example, by 2035 between 47% and 59% of all cars on the road will be electric (or possibly hydrogen fuel cell), and these drivers may be interested in recharging at destination or on-street locations. These forecasts demonstrate the scale of demand predicted for charging infrastructure over the next few decades. While not all chargepoints installed in new developments now will be used immediately and some uncertainties remain, the direction of growth is clear and can be used to inform planning policies.

Figure 2: Forecasted proportion of electric cars on UK roads up to 2035, aligned with the Government’s proposal to end the sale of new petrol, diesel and hybrids cars from 2035.

Assumptions: Stable registration of 2.2m cars per year, and an average car lifespan of 15 years.

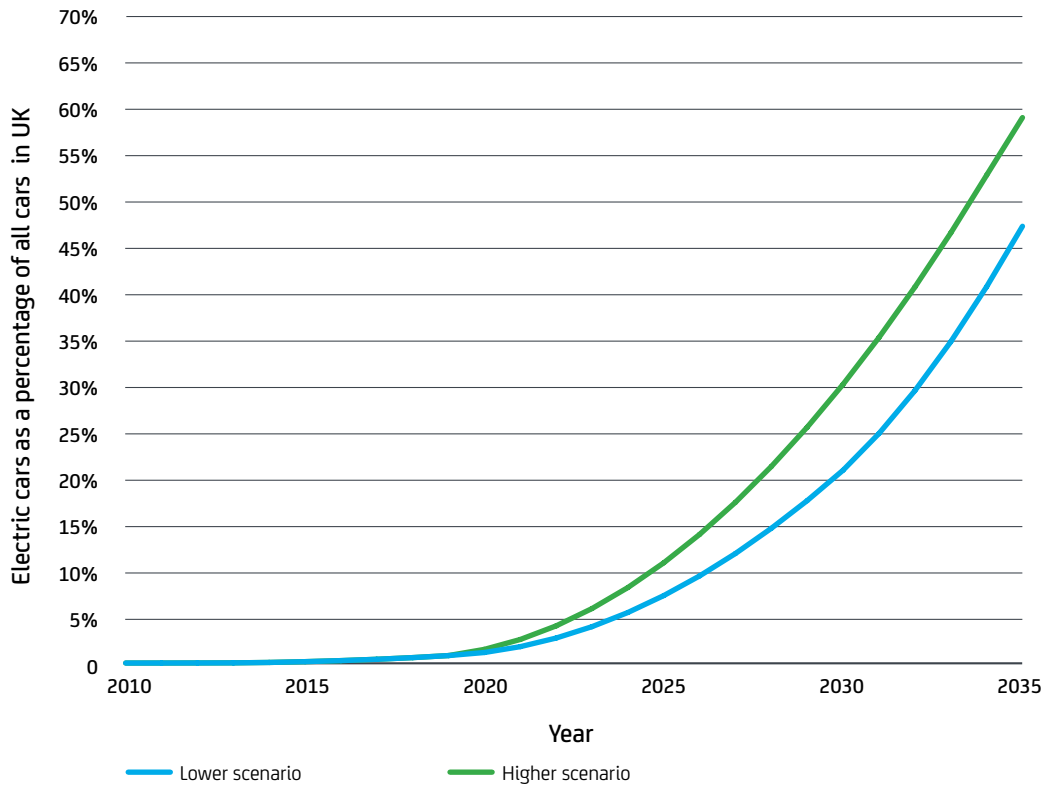


Table 4: Forecasts for the update of electric cars in the UK, based on the end of sale of new petrol, diesel and hybrid cars by 2035.

Assumes an average car lifespan of 15 years and stable registration of 2.2m cars per year.

Year	Electric cars as a percentage of new car sales		Total number of electric cars in the UK (cumulative)		Electric cars as a proportion of all cars	
	Lower uptake scenario	Higher uptake scenario	Lower uptake scenario	Higher uptake scenario	Lower uptake scenario	Higher uptake scenario
2010	0%	0%	252		0%	0%
2015	1%	1%	50,234		0%	0%
2020	5%	10%	376,999	486,999	1%	1%
2025	28%	40%	2,411,747	3,566,747	7%	11%
2030	50%	70%	6,893,655	9,918,655	21%	30%
2035	100%	100%	15,611,999	19,406,999	47%	59%

7.3 Forecast for Scotland based on 2032 target

The Scottish Government have a target to phase out the need to buy petrol and diesel cars or vans by 2032, see figure 3.⁴⁰

Figure 3: Percentage of non-conventionally fuelled vehicles on Scottish roads up to 2040, if meet the 100% ULEV sales target by 2032.

Assumes 195,000 new cars registered per year, and 15 years as the average lifespan of a car.

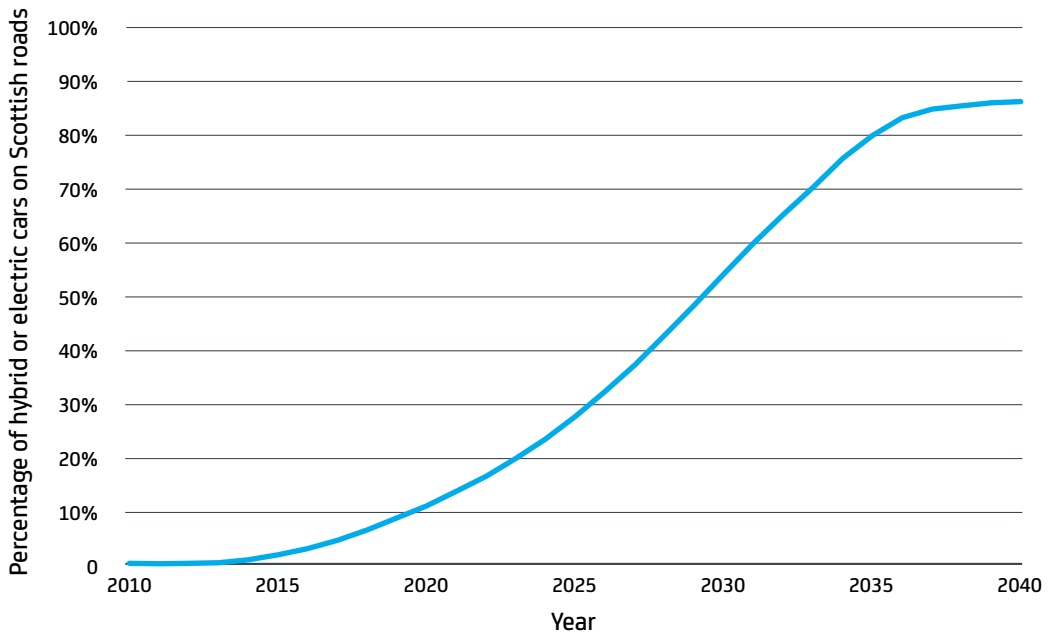


Table 5: Forecasts for uptake of hybrid or electric cars in Scotland, and as percentage of all cars on the road, based on the 2032 target, up to 2040.

Assumes average car lifespan of 15 years, and a stable number of registrations of 195,000 new cars registered per year.

Year	ULEVs as % of all car sales	ULEVs as % of all cars on road
2015	2%	0%
2020	18%	3%
2025	52%	18%
2030	86%	47%
2035	100%	84%
2040	100%	97%

⁴⁰ Scottish Government, 2018, Climate Change Plan: third report on proposals and policies 2018-2032 (RPP3) <https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/pages/12/>

8. Factors that local authorities should consider when setting parking standards

When developing and implementing chargepoint-related planning policies as part of parking standards or similar guidance, it is important to consider the number of EVs that are forecasted to be on the road in the medium and long term.

Energy Saving Trust's forecasts in Section 7 demonstrate that in some locations, demand for charging infrastructure is likely to exceed the proposed national building regulation requirements for non-residential developments within a decade. More ambitious local planning policies are likely to be worthwhile. It is unlikely that 100% provision will become necessary for non-residential sites as improving battery technology is extending vehicle ranges, so only a proportion of parked cars will need to recharge at the same time.

In addition to total numbers of EVs, several other factors will influence how many chargepoints will be needed at a new development, including the location, purpose and size of a development, as outlined below.

The ratio of 'passive' provision and 'active' chargepoints

A realistic balance between chargepoints and passive provision can help meet demand for charging infrastructure whilst mitigating developer concerns over the costs. Passive provision allows flexibility to adapt as the EV market develops and charging behaviours become established. This allows the home or site owner to install the most advanced and appropriate type of chargepoint equipment at a later date,

but at a cheaper cost than if full retrofitting was required. Passive provision can include ducting or cable routes as a minimum through to full cabling, a connection plate and reserved grid capacity, so it should be clear in any policy what precisely is required from developers.

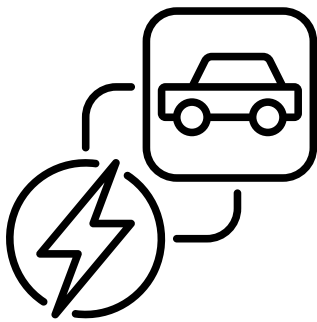
The number of vehicles accessing a proposed development

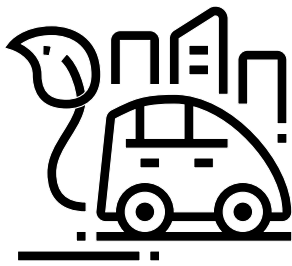
The more vehicles visiting a development, the higher the potential demand for chargepoints. In parking standards, such as the London Plan, chargepoint requirements are often expressed as a percentage in order to increase provision proportionally.

Some policies will also specify a minimum and maximum number of parking bays or chargepoints in order to keep numbers realistic. It might also be possible to introduce exemptions or reduce the requirements where this would require additional very expensive electricity grid upgrades, for example at a large multi-storey car park being renovated or built.

The length of stay at a proposed non-residential development

Where vehicles are likely to be parked for a longer period, such as office car parks or train stations, a greater number of slow chargepoints would be suitable. Where vehicles are parked relatively briefly, such as at retail developments, a smaller number of fast or rapid chargepoints would be better. Users may also choose to 'top-up' their batteries, rather than fully recharge.





Likely journey length to visit a proposed development

Some developments have a broader catchment area for visitors than others. For example, very large retail developments or tourist destinations attract visitors from across a region. At these developments, a greater provision of charging infrastructure would encourage visitors to travel if they are confident that they will be able to conveniently recharge during their visit before returning home. Encouraging EV users to the site also reduces the air quality impact of the increased volume of local road traffic.

Local air pollution issues

Certain developments may negatively impact on air quality due to the volume of traffic they create or are situated in areas where air pollution is already an issue.

Providing chargepoints will help to increase the proportion of traffic which is electric, helping to mitigate the air quality impact of additional traffic. For example, drivers living at a new multi-storey residential development with communal parking will be more likely to switch to EVs if chargepoints are available.

Pre-existing EV charging infrastructure near to a proposed development

If there is already significant charging infrastructure provision close to a proposed development, there may be a reduced need for further on-site provision. This is especially the case when users of the infrastructure are likely to want to charge at different times of day.

For example, rapid chargers in an off-street car park may be mainly used during the day. Meanwhile, residents of a new development nearby are more likely to use them in the evening so less infrastructure may be required. The pre-existing infrastructure would then be better utilised, generating more revenue.

However, it should be noted that off-site infrastructure may be less convenient and public charging infrastructure is more expensive to use than a dedicated home chargepoint.

Chargepoint operators typically allow local authorities to view usage patterns for installed infrastructure to help establish baselines, monitor utilisation over time and determine what additional infrastructure may be required.

Provision for disabled bays and car club bays

To date, there is little best practice guidance available on how many disabled parking bays per site should be equipped with a chargepoint. Partly due to the Motability Scheme, uptake of EVs among disabled drivers is likely to be quicker than among the population as a whole.

Parking standards should therefore specify the proportion of disabled bays that should have active chargepoints or passive provision. Once installed, it should be made very clear through signage whether non-disabled EV drivers and disabled non-EV drivers can also park in the space without penalty.

Similar considerations apply to car club bays. It should be made clear to developers if any car club bays should have charging infrastructure or ducting, whether these spaces count as part of the overall percentage of spaces with chargepoints, and which user groups can exclusively use the space.

Developments in vehicle battery technology

Battery capacity and drivetrain efficiency is increasing the range of EVs. This means that more energy will be needed to fully charge vehicles from empty but they will be capable of charging less frequently. This might result in a fall in demand for on-route and destination charging, and greater reliance at home or workplace charging.

100% chargepoint provision for non-residential developments, especially at local destinations such as retail centres, might never be necessary as it is unlikely all electric vehicles visiting the site will need to recharge. Ensuring extensive passive provision now at new developments is a low-regret, low-cost option as this allows decisions to be taken at a later date on how many spaces should be 'activated' (i.e. chargepoint installed), and when, as technology and demand patterns develop.

Good design principles and conservation areas

In addition to the number of chargepoints per development, local authorities should consider developing a minimum technical specification and design principles to ensure delivery of appropriate, high-quality infrastructure which minimises impact on other road users and pedestrians. For an example, see TfL's Streetscape guidance.⁴¹

Additionally, a local authority may want to specify or strongly encourage smart charging functionality, interoperability, responsibilities for maintenance and repair, and consider exemptions or tighter design guidelines in conservation areas and for listed buildings.

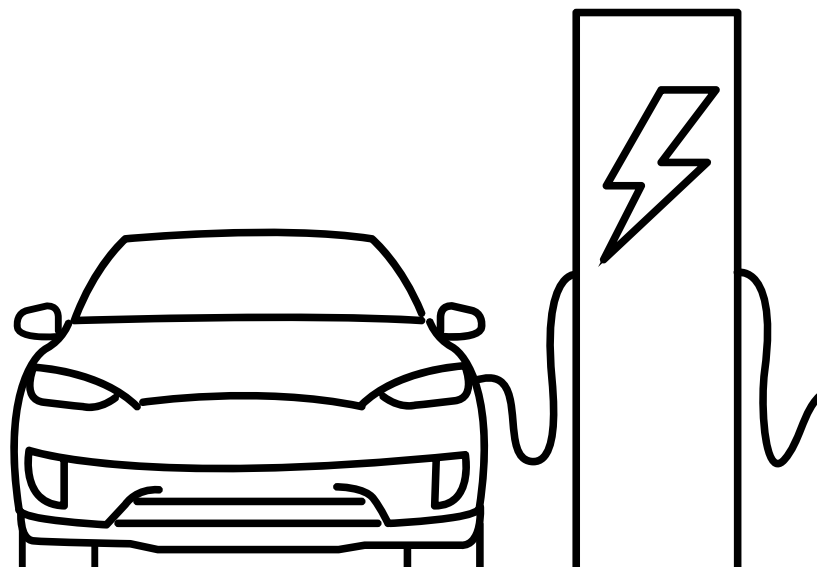
8.1 Case study – Chargepoints at VVE Overhoeks Parklaan

A project undertaken by Vattenfall in Amsterdam illustrates how the provision of charging infrastructure can be scaled-up over time in residential developments with communal car parks. It offers a brief example of how private sector investors may respond in practice to the inclusion of active and passive chargepoint requirements in planning policies and adopt a business model that accounts for the forecasted growth in EV uptake.

In 2018, Vattenfall initially invested €50,000 in infrastructure as part of a seven-year contract which will enable them to install up to 75 chargepoints. As of early 2019, five chargepoints had been installed. Vattenfall manages the installation and operation of the chargepoints, including billing, electrical load balancing and servicing.

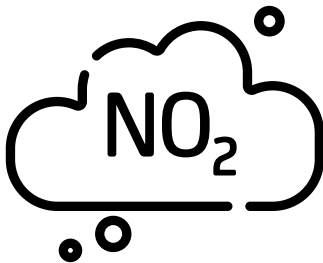
Residents own the parking spaces and can request the installation of chargepoint from Vattenfall. Residents are expected to pay for the costs of the chargepoint, including an ongoing subscription, as well as a share of the initial investment and installation costs. Residents pay €48 a year to maintain the chargepoints and each chargepoint has a two-year warranty. Residents pay 0.28c per kWh for charging, with 0.23c per kWh returned to the homeowner association as it is a joint electricity connection.

Vattenfall has a separate contract with the homeowner association covering the installation and separate contracts with each individual EV driver.



41. Transport for London, 2019, Streetscape guidance (4th edition) 10.E Electric Vehicle Charging Points, p188 <http://content.tfl.gov.uk/streetscape-guidance-.pdf>

9. Air Quality Plans



Planning has an important role to play in improving air quality and reducing exposure to air pollution. Chargepoints can be included by developers as a mitigation for transport emissions that occur as a result of a new development.

In addition to the 'standard' provisions of chargepoints based on percentages of parking spaces, an alternative is an 'emissions assessment' approach. Developers are required to estimate the emissions impact of a new site and propose appropriate mitigation, which may include chargepoints.⁴²

Where a development is likely to generate significant additional traffic, a detailed travel plan will be required. This plan would include measures to encourage sustainable means of transport (public, cycling and walking) such as subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to enhance accessibility and safety.⁴³

10. Planning obligations

Planning obligations, also termed developer contributions or planning gain agreements, can be used to mitigate the site-specific impact of a development and for improvements in the urban environment.⁴⁴ Although rarely used, planning obligations can be used to mandate charging infrastructure installation or passive provision (ducting) by developers.

Such agreements can be made under Section 106 of the Town and Country Planning Act 1990 (as amended) in England and Section 75 of the Town and Country Planning (Scotland) Act 1997.

There is precedence for this approach. In 2014, York City Council secured 30 chargepoints as part of the development of a Community Stadium for York.⁴⁵

Alternative levers include the Community Infrastructure Levy, highways contributions, or Section 69 of the Local Government (Scotland) Act 1973.

42 Low Emission Strategies, 2013, Provision of EV charging points via planning agreements [http://www.lowemissionstrategies.org/downloads/Nov13/TN1%20-%20EV%20Requirements%20\(v1.1\).pdf](http://www.lowemissionstrategies.org/downloads/Nov13/TN1%20-%20EV%20Requirements%20(v1.1).pdf)

43 Institute of Air Quality Management, 2017, Land-Use Planning & Development Control: Planning For Air Quality <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

44 Planning Advisory Service, accessed 2019, S106 obligations overview <https://www.local.gov.uk/pas/pas-topics/infrastructure/s106-obligations-overview>

45 LowCVP, 2015, Local Measures to encourage the uptake of low emission vehicles, p19 <https://www.lowcvp.org.uk/assets/reports/LEVs.pdf>

11. Further resources

- ▶ This consultancy report for South Gloucester Council sets out recommendations for parking standards for EV chargepoints, based on various forecasts:
Cenex and Systra, March 2019. Evidence base: Introducing planning policy for electric vehicles in new development. Prepared for South Gloucester Council, covering the West of England sub-region unitary authorities.
https://www.southglos.gov.uk/documents/2019-05-01-Evidence-Base_Introducing-Planning-Policy-for-Electric-Vehicles-in-New-Developments_FINAL-ISSUE-003.pdf
- ▶ The implications for planning for EV charging, as well as smart energy, energy storage and decarbonisation of heating and cooling are detailed in: RTPI, 2019. Planning for a Smart Energy Future
<https://www.rtpi.org.uk/research/2019/july/planning-for-smart-energy/>
- ▶ For a comprehensive but dated review of approaches taken by local authorities to integrate EV charging infrastructure into the planning guidance for new developments, see: Low Emission Strategies 2013, Provision of EV charging points via planning agreements.
[http://www.lowemissionstrategies.org/downloads/Nov13/TN1%20-%20EV%20Requirements%20\(v1.1\).pdf](http://www.lowemissionstrategies.org/downloads/Nov13/TN1%20-%20EV%20Requirements%20(v1.1).pdf)
- ▶ For information on mechanisms available to Scottish local authorities, see section five of: Urban Foresight 2018, National Framework of Local Incentives for Electric Vehicles.
<https://urbanforesight.org/wp-content/uploads/2016/11/REP-1409-TS-A-National-Framework-for-Local-Incentives.pdf>
- ▶ For information on how planning guidance can be used to improve urban air quality, see: Institute of Air Quality Management 2017, Land-Use Planning & Development Control: Planning for Air Quality.
<http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

12. Support from the Energy Saving Trust for local authorities

Through our Local Government Support Programme,⁴⁶ Energy Saving Trust provides tailored support to help local authorities in England to improve local air quality and reduce CO₂ emissions through sustainable transport initiatives. This support is fully-funded by the Department for Transport.

We offer impartial advice on chargepoint procurement, planning policies, staff travel policies, business engagement and more.

For example, we can independently review your proposed local plan chargepoints requirements or related guidance and recommend where clarification or a more detailed technical specification would be beneficial.

Local authorities based in Scotland can seek support on charging infrastructure through Switched On Towns and Cities⁴⁷ and ChargePlace Scotland.

46 EST, 2019, Local Government Support Programme. <https://www.energysavingtrust.org.uk/transport/local-authorities/local-government-support-programme>

47 EST, 2019, Switched on Towns and Cities. <https://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/switched-towns-and-cities>

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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