Luton

Electric vehicle chargepoint strategy 2022 to 2025

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Foreword

The government's decision to end the sale of new petrol and diesel cars by 2030 is a historic step on the road to ending the UK's contribution to climate change. Many people have been persuaded to make the switch to drive electric, taking advantage of lower costs, less noise and pollution.

Motorists are shifting to electric vehicles in record numbers. There are over half a million electric plug-in cars now registered in the UK and in 2021, battery electric cars outsold diesel powered vehicles for the first time in history. By 2030, 1 in 3 of the cars on our roads could be electric.[1]

To build on the progress that has been made transitioning from internal combustion engines to less polluting cars, the council will play its part in making sure charging infrastructure is delivered and meets the needs of our residents. Our track record in moving to cleaner forms of fuel, be that the gas-to-liquid used to power our vehicle fleet, or the heat-pumps installed in our corporate properties and schools, puts us in a good position.

It's in the council's interest to increase the provision of electric vehicle chargepoints in Luton. The future prosperity of our town and communities relies on us taking bold and decisive decisions to ensure we deliver on our ambition to make Luton carbon neutral by 2040, 10 years ahead of the legally binding target.

Our town-wide 2040 vision, Climate Change Action Plan and Local Transport Plan 4 recognise that achieving net-zero carbon from transport starts from first principles; reducing our reliance on the private car.

For local journeys this can be achieved by more people cycling and walking, but for journeys that rely heavily on roads, trips by car will remain necessary to connect people with services and opportunities. Planning for wide-spread electric vehicle adoption in Luton will reduce our impact on the environment when car travel remains the only feasible option.

Working with government and the private sector to deliver reliable and accessible electric vehicle charging infrastructure in Luton is central to our vision for the town. This Strategy sets out our plan for Luton to become an electric vehicle friendly town and the policies to get us there. This Strategy adopts a three year planning horizon that allows us to move forward cautiously in the face of market uncertainty, whilst still maintaining momentum.

Cllr Robert Roche
Inclusive Economy (Finance and Revenue & Benefits)
Luton Council

[1] https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Surface-transport.pdf

Introduction

Why do we need an electric vehicle chargepoint strategy?

Electric Vehicle (EV) battery technology has grown from an abstract idea to government policy in a short space of time, although the chargepoints landscape is still complex.

Everything from the connector type used to charge a car, where it can be charged and the way we pay to charge is different. Across the country, chargepoints have been funded, delivered and operated through a patchwork of different agreements involving central government, local councils and the private sector.

We are not proposing to fix all of this with this Strategy, as many of the regulations underpinning EV charging infrastructure are managed by government. However, as the shift to EVs accelerates, the government recognises there is an important role for local authorities to help guide the market to deliver the charging needs of residents.

This EV Chargepoint Strategy is our blueprint for this. It sets out the council's objectives, priorities and a pathway to charging delivery until 2025.

Who is this electric vehicle chargepoint strategy for?

As a consequence of government policy and significant investment, EVs are becoming a more attractive proposition and will eventually become standard for all new vehicles. Our businesses, residents and visitors will need the certainty of being able to charge at home, on route or at destinations.

Most charging is undertaken at home[2][3] and around 65% of our residents have access to off-street parking.[4] Consequently, this Strategy primarily focuses on our role in increasing the provision of residential EV charging (on-street and through charging hubs) and across the council estate. Prioritising the roll-out of a network of public chargepoints, where they are most needed, will provide confidence to those drivers thinking of making the switch.

What is an electric vehicle chargepoint?

An EV chargepoint is a piece of equipment used to charge 'plug-in' vehicles. A plug-in vehicle is any motor vehicle with rechargeable batteries, which includes both fully battery electric vehicles (BEVs) and plug-in hybrids electric vehicles (PHEVs).

Chargepoints are classified by their power and are measured in kilowatts (kW). The higher the kW the faster the charge. An EV chargepoint device can have multiple connectors, which connect a chargepoint to an EV and charge its battery.

EV batteries are expressed in kilowatt hour (kWh). The bigger the kWh, the longer the car's range, comparable to the fuel tank size of a petrol or diesel car. This means a 7kW chargepoint would take about 6 hours to fully recharge a car with 40kWh battery (40÷7).

Chargepoint operators charge users different rates for the electricity they consume. This is shown in pence per kWh. The cost of charging varies between home, work and in public.

[2]EST (2022) Charging electric vehicles
[3] https://innovation.ukpowernetworks.co.uk/wp-content/uploads/2019/11/UK-Power-Networks-Electric-Vehicle-Strategy-November-19.pdf
[4] https://onstreetcharging.acceleratedinsightplatform.com/

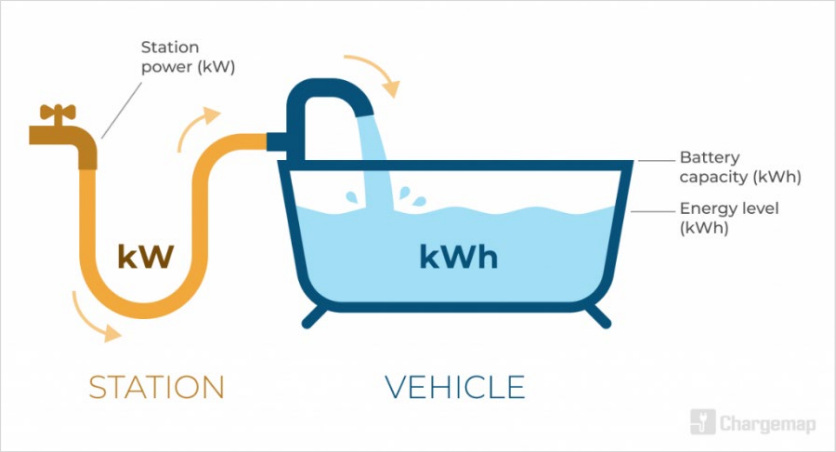

Figure 1: A simplified breakdown of EV charging

What are the public charging options?

Chargepoints are found in a variety of public and private settings. Chargepoints are split into four types, slow, fast, rapid and ultra-rapid. Generally, the speed of a chargepoint will dictate the place in which it is used.

Different power ratings produce a significant difference in electrical capacity. Rapid and ultra-rapid chargers only make up around 20% of total devices but account for around 60% of the total capacity.[5]

There are two types of electricity supply, alternating current (AC) which is the standard power supply for UK households and comes straight from the grid and DC (direct current).

Typically, slow and fast chargers will use AC, which is converted to DC by an inverter in the car. Rapid and ultra-rapid chargers will use DC to charge the battery directly.[6] Not all vehicles are capable of charging at the highest rate of kW. Table 1 lists the type and speed of chargepoints and where they're typically found.

[5] https://www.zap-map.com/statistics/
[6] https://shellrecharge.com/en-gb/solutions/support/faq/ac-charging-vs-dc-charging

Table 1: EV chargepoints options

Chargepoint power rating	Speed of charge	Type of chargepoint	Example locations
2.3 to 7kW	Slow (10 to 12 hours full charge)	Home charging or lamp column (on-street)	Private driveways, garages or on-street integrated into street furniture (eg lamp posts)
7 to 22kW	Fast (4 to 6 hours full charge)	Destination or on-street	Gyms, supermarkets, shopping centres and transport hubs or on-street (ie standalone)
Up to 50kW	Rapid (<1 hour full charge)	Destination or on-route	At destinations but also in dedicated charging hubs (eg service stations)
100 to 350 kW	Ultra Rapid (15 minutes full charge)	Destination or on-route	At destinations but also in service stations and dedicated charging hubs (eg service stations)

The average car journey length in England was 7 to 8 miles for drivers in urban areas.[7] For most people in Luton, charging will not be needed more than once a week.[8]

How does this electric vehicle chargepoint strategy work?

This Strategy aligns with government policy and legislation. It is a policy framework from which EV chargepoint solutions will be brought forward over the next three years. The policies cover a number of different issues, some are locally specific and others are high-level principles that will guide our approach to EV chargepoint delivery.

A three-year time horizon has been adopted for this EV strategy (2022 to 2025). This allows the council to balance what is currently known with expected technological advancement. Policies that support each of the council's EV priorities are found within Section 4.

The EV Chargepoint Strategy is divided into five sections. Section 1 sets the scope of the strategy, its vision, aims and objectives. Section 2 analyses the EV charging landscape in Luton and provides some useful statistics. Section 3 considers future EV demand. Section 4 identifies our priorities for EV charging. Finally, Section 5 will set out how the strategy will be put into practice.

Charge Points like this indicate policies

[7] DfT (2021) National Travel Survey 2019, NTS9910. Available at: https://www.gov.uk/government/statisticaldata-sets/nts99-travel-by-region-and-area-type-of-residence

[8] https://www.lapv.co.uk/Vast-majority-of-EV-drivers-use-public-chargers/3383?actId=ebwp0YMB8s3Mv0l20l85odUcvuQDVN7aQskTnitAEcrezH5LpkU-5wZXkIVKQHDn&actCampaignType=CAMPAIGN_MAIL&actSource=504928

Section 1: Aims and objectives

Supporting wider council plans

Luton's 2040 vision sets out the town's shared ambition over the next 20 years. Its vision is to build an inclusive economy and enhance the wellbeing of our population so that Luton is a healthy, fair and sustainable town where everyone can thrive and no-one has to live in poverty.

EVs sit within our plans for a broader sustainable transport system. This strategy supports a number of wider corporate plans, shown in Figure 2:

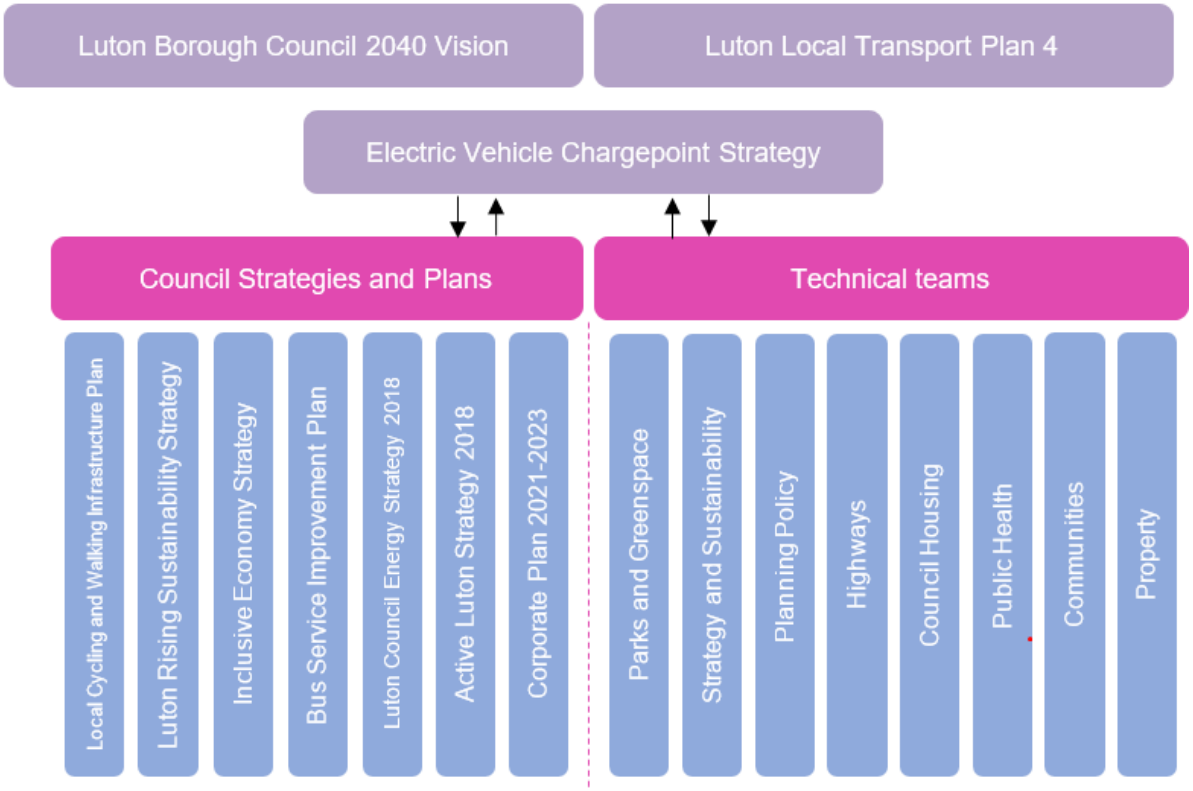

Figure 2: How the EV strategy supports council plans

In developing this strategy, the council recognises that proposals brought forward for the development of the transport system must reduce reliance on the private car, by considering the needs of users based on the following travel hierarchy:

- active travel modes (pedestrians and cyclists)
- enabling access to services and opportunities without the need for motorised travel
- public transport and shared modes (bus, scheduled coach and rail)
- low emission/zero carbon private vehicles

Policy 6 of LTP4 commits to increase the provision of EV chargepoints across the borough.[9] Table 2 shows how this EV Strategy meets some of the key objectives of LTP4.

Table 2: How the EV chargepoints strategy meets the objectives of Local Transport Plan 4

Local Transport Plan 4: 2020-2040 objective	**How the EV Chargepoint Strategy will help achieve the objective**
Enabling people to choose more sustainable transport habits	The Strategy will support a low-carbon alternative to petrol/diesel engines
Promote equitable opportunities and access to services for all members of the community	The Strategy focuses on delivering chargepoints for residents without off-street parking and at Luton Council housing sites
Create and preserve an attractive natural/built environment and living conditions	The Strategy will support the shift to a quieter, less polluting alternative to petrol/diesel engines
Improve access to jobs, skills and training through the provision of improved/ new transport infrastructure	The Strategy will ensure a network of chargepoints expand labour catchments and attract inward investment

What are the aims and objectives of the EV Chargepoint Strategy?

The aims and objectives have been shaped by Luton's 2040 Vision, Local Transport Plan 4 and in response to engagement with the public and key stakeholders.

Aim: to support the roll-out of public EV chargepoints that enables the transition to a zero-emission road transport system for journeys that can't otherwise be made by sustainable transport

To realise this vision, a set of objectives have been provided.

Objective 1: Increase the number of public EV chargepoints across the council estate to meet the charging needs of residents, businesses and visitors

[9] Luton Transport Strategy and Local Transport Policies 2020-20240

Objective 2: Ensure residents without off-street parking have access to a range of convenient, accessible and reliable EV chargepoints, on-street and through charging hubs

Objective 3: Support the transition of the council fleet, public transport and private hire/taxi vehicles to zero carbon fuels

Objective 4: Promote EV chargepoints solutions that improve the user experience of public charging in Luton

Objective 5: Ensure chargepoints are fairly priced and inclusively designed

Section 2: The EV chargepoint landscape

National context

Transport is the UK's largest emitting domestic sector of greenhouse gases and 91% of these emissions come from road transport.[10] The UK government has committed to net zero emissions by 2050 [11] and will phase out the sale of new petrol and diesel cars and vans in 2030, with all new cars and vans being fully zero emission at the tailpipe from 2035.[12]

In recent years, a number of strategies effecting EVs and charging infrastructure have been published. These have been taken into consideration to ensure the council's strategy is consistent with national priorities. Key government policies that underpin this Strategy are summarised below.

Taking charge: the electric vehicle infrastructure strategy (2022)

- Plans for a minimum of 300,000 public chargepoints in the UK
- Focuses on two sectors, high powered chargers on the strategic road network and local on-street charging
- Sets out a commitment to ensure there are at least six high powered chargepoints at each motorway service area by the end of 2023
- Will consult on the design of the £950m Rapid Charging Fund which will support at least 6,000 high powered chargepoints across England's motorways and major A-roads by 2035.
- A new £450m Local EV Infrastructure Fund (LEVI) to facilitate the rollout of larger-scale chargepoints infrastructure projects

Net Zero Strategy: Build Back Greener (2021)

- Introduce a zero emission vehicle mandate setting targets for a percentage of manufacturers' new car and van sales to be zero emission each year from 2024
- Take forward the commitment to end the sale of all new, non-zero emission road vehicles by 2040, from motorcycles to buses and HGVs, subject to consultation

[10] BEIS (2021). 2020 UK Greenhouse Gas Emissions (online). Available at: https://www.gov.uk/government/ statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2020
[11] Climate Change Act (2008). Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654
[12] DfT Decarbonising Transport (2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

Transport Decarbonisation Plan (2021)

- Supports demand for zero emission vehicles through a package of financial and non-financial incentives

Infrastructure for the charging of electric vehicles: Approved Document S (Building Regulations 2010)

- From June 2022, every new home including those created from a change of use, with associated parking, must have a chargepoint
- Residential buildings undergoing a major renovation which will have more than 10 parking spaces must have at least one EV chargepoints per dwelling with associated parking, along with cable routes in all spaces without chargepoints
- All new non-residential buildings with more than 10 parking spaces must have a minimum of one chargepoint and cable routes for one in five (20%) of the total number of spaces
- All non-residential buildings undergoing a major renovation that will have more than 10 parking spaces must have a minimum of one chargepoint, along with cable routes to one in five spaces

National EV uptake

In the last two years, the total number of EVs on UK roads has more than tripled.[13] March 2022 saw the highest volume of EV registrations ever recorded in a single month. During this month, there were 39,315 new registrations, giving EVs a market share of 16.1% of all new car registrations.[14] Figure 3 shows the licensed Ultra Low Emission Vehicles (ULEVs) and BEVs. ULEVs are those that reduce extremely low levels of CO_2, such as self-charging hybrids.

[13] DfT Vehicle Licensing Statistics (VEH0132a). Available at: https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables
[14] https://www.zap-map.com/ev-market-statistics/

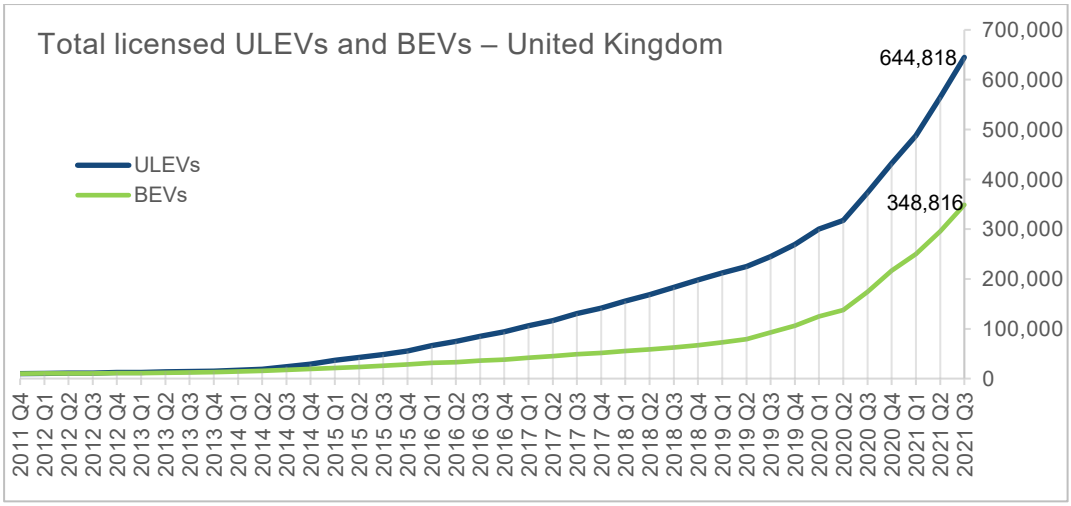

Figure 3: Total Licensed ULEVs and BEVs

Local emissions

Reducing CO_2 emissions in Luton is central to our decision making. In 2020, Luton Council declared a climate change emergency and made a commitment to ensure Luton is carbon neutral by 2040, ten years ahead of the government's own target. Since then, the council is making significant progress in reducing CO_2, by improving energy efficiency and promoting sustainable transport.

It is thought that around a quarter of the town's CO_2 comes from surface transport. This is an area of policy that we are mostly able to effect. Supporting a roll-out of public EV chargepoints across the town will help us decarbonise road-based emissions.

The council is developing a 'net-zero road map' that will set out the steps the council need to take to reach carbon neutrality across sectors within our scope of influence. This will include actions to increase modal shift from car to public transport and active travel.

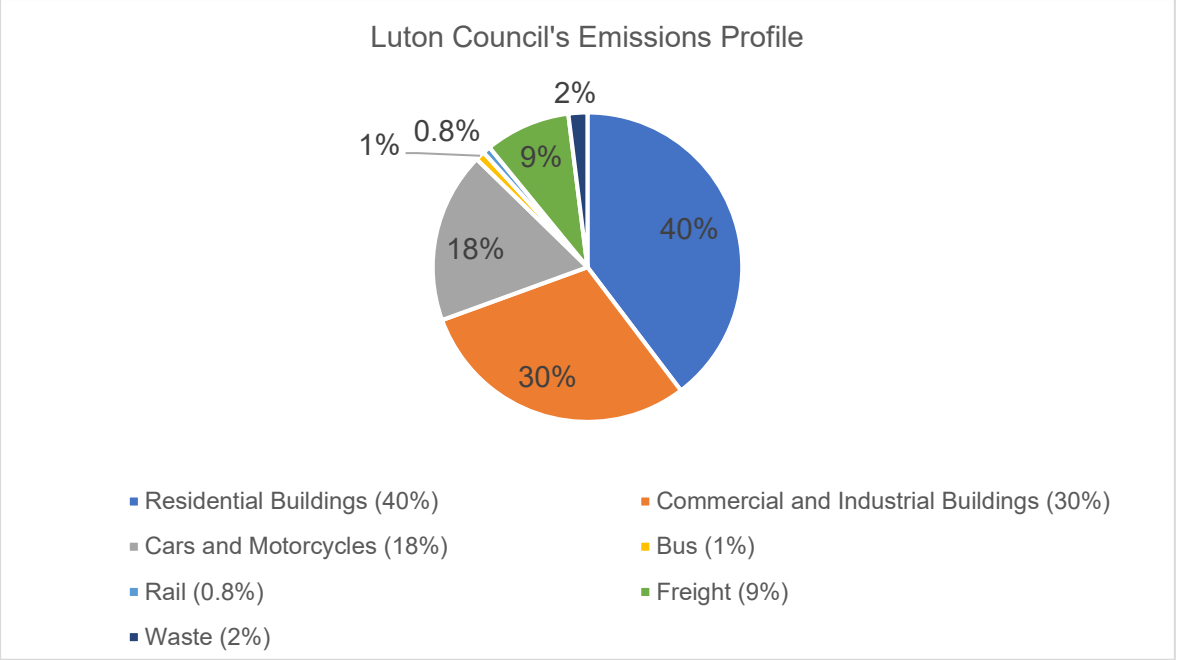

Figure 4: Luton Council's Emission Profile, 2019, (aviation emissions excluded)[15]

Local EV uptake

In the last few years, the number of EVs in Luton has grown sharply, consistent with national trends. PHEVs still outnumber BEVs but this is expected to change. Figure 5 shows growth in the EV market, separated by type of electric vehicle.

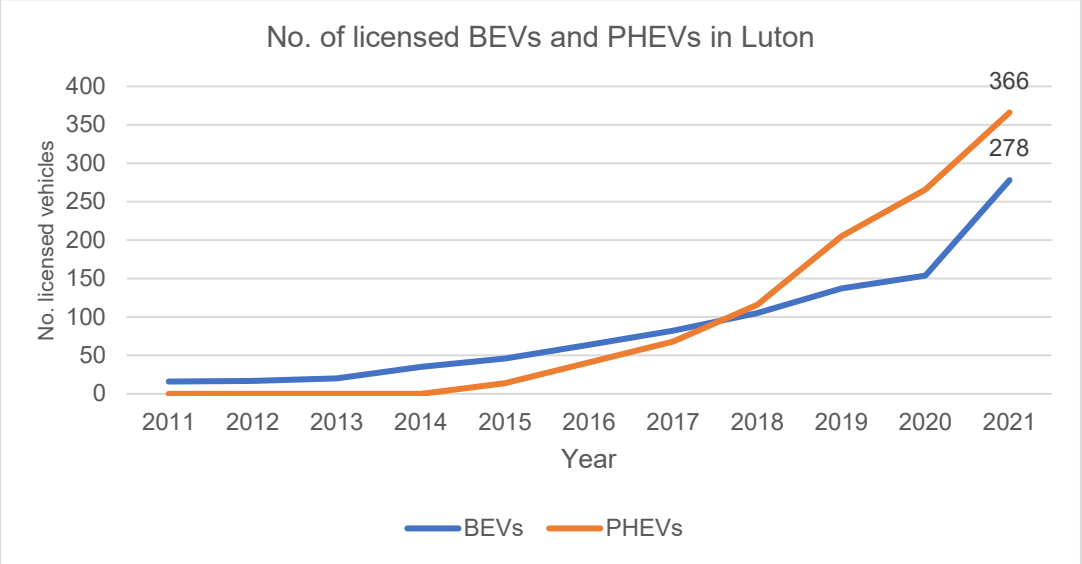

Figure 5: Number of licensed BEVs and PHEVs in Luton[16]

[15] Luton Council's Emerging Net Zero Roadmap (2022)
[16] DfT Vehicle Licensing Statistics (VEH0132b) (VEH0132c). Available at https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables

Whilst there has been growth in EVs in Luton, uptake has not increased as quickly as our local authority neighbours'.[17] The percentage of licensed ULEVs in Luton is less than local authorities that border the authority. The reasons for this are not fully understood, although economic and geographic factors, such as increased access to off-street parking may play a part.

Table 3: Estimated Ultra Low Emission Vehicles as percentage of licensed vehicles

Local authority	**Total no of licensed vehicles (2020)[18]**	**Total no of licensed ULEVs (2021)[19]**	**Estimated percentage of licensed vehicles that are ULEVs**
North Hertfordshire Council	71,800	1,141	1.5%
Central Bedfordshire Council	163,000	2,484	1.5%
Luton Council	85,900	793	0.9%

National EV chargepoint infrastructure

Since 2015, public chargepoints devices have grown by 9% quarterly [20] to over 31,000[21], including more than 5,400 rapid chargers. On average 600 new chargers are being added to the UK's roads each month, of which 100 are rapid.[22]

16,864 chargepoints are located at destinations such as retail car parks, hotels and workplaces, 9,382 at on-street locations, 2,011 are rapid or high powered devices along the strategic road network and over 1,000 are at other locations including train stations and airports.[23] Figure 6 illustrates the growth in public chargepoints in the UK and separates charging devices by speed.

[17] DfT Vehicle Licensing Statistics (VEH0132a)
[18] DfT Vehicle Licensing Statistics (VEH0105)
[19]DfT Vehicle Licensing Statistics (VEH0132b) (VEH0132c)
[20] DfT (2021) Charging Device Statistics. Available at: https://www.gov.uk/government/statistics/electric-vehicle-charging-device-statistics-october-2021/electric-vehicle-charging-device-statistics-october-2021
[21] https://www.zap-map.com/statistics/
[22] HM Government (2022).Taking charge: the electric vehicle infrastructure strategy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065576/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf
[23] HM Government (2022).Taking charge: the electric vehicle infrastructure strategy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065576/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf

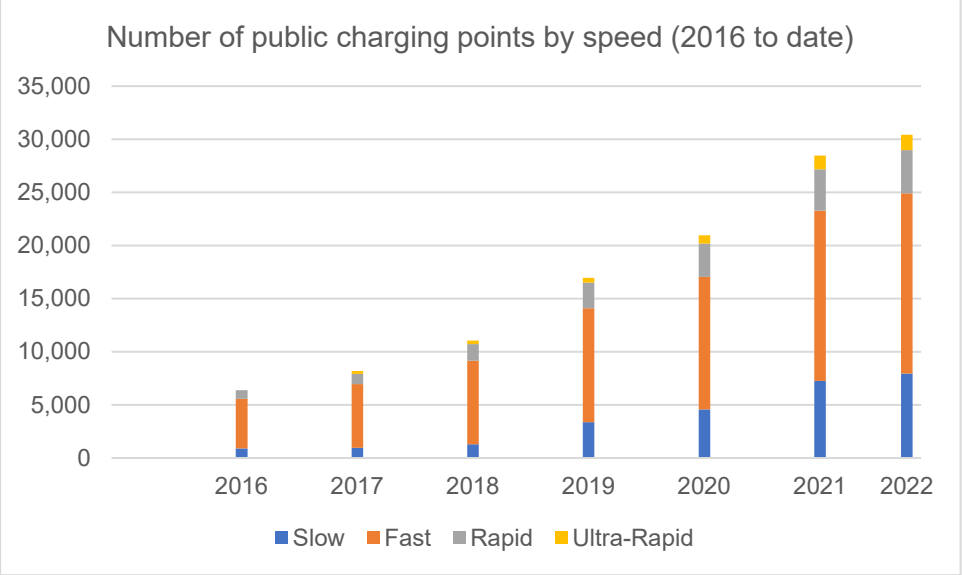

Figure 6: Number of public charge points by speed of charging (ZAP MAP)

Local EV chargepoint infrastructure

As of October 2022, there were 45 publicly available charging devices in Luton,[24] equating to approximately 21 chargers per 100,000 people. Of these chargers, 24 have been delivered through grant funding such as the On-street Residential Charge point Scheme (ORCS)[25], or previously awarded by the Ultra Low Emission Taxi Infrastructure Scheme.[26]

These chargepoints currently provide free-to-use electricity to incentivise the transition to EVs. This model is no longer sustainable and therefore the council will no longer provide free electricity and these chargepoints will become pay-to-use. The remaining chargepoints have been delivered privately.

The utilisation of these charging devices varies but is increasing, we expect this trend to continue over the coming years. Figure 5 shows the spatial distribution of chargepoints across Luton today, color-coded by speed of charge and funding mechanism.

[24] https://maps.dft.gov.uk/ev-charging-map/index.html
[25] https://www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints/grants-to-provide-residential-on-street-chargepoints-for-plug-in-electric-vehicles-guidance-for-local-authorities
[26] https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#ultra-low-emission-taxi-infrastructure-scheme

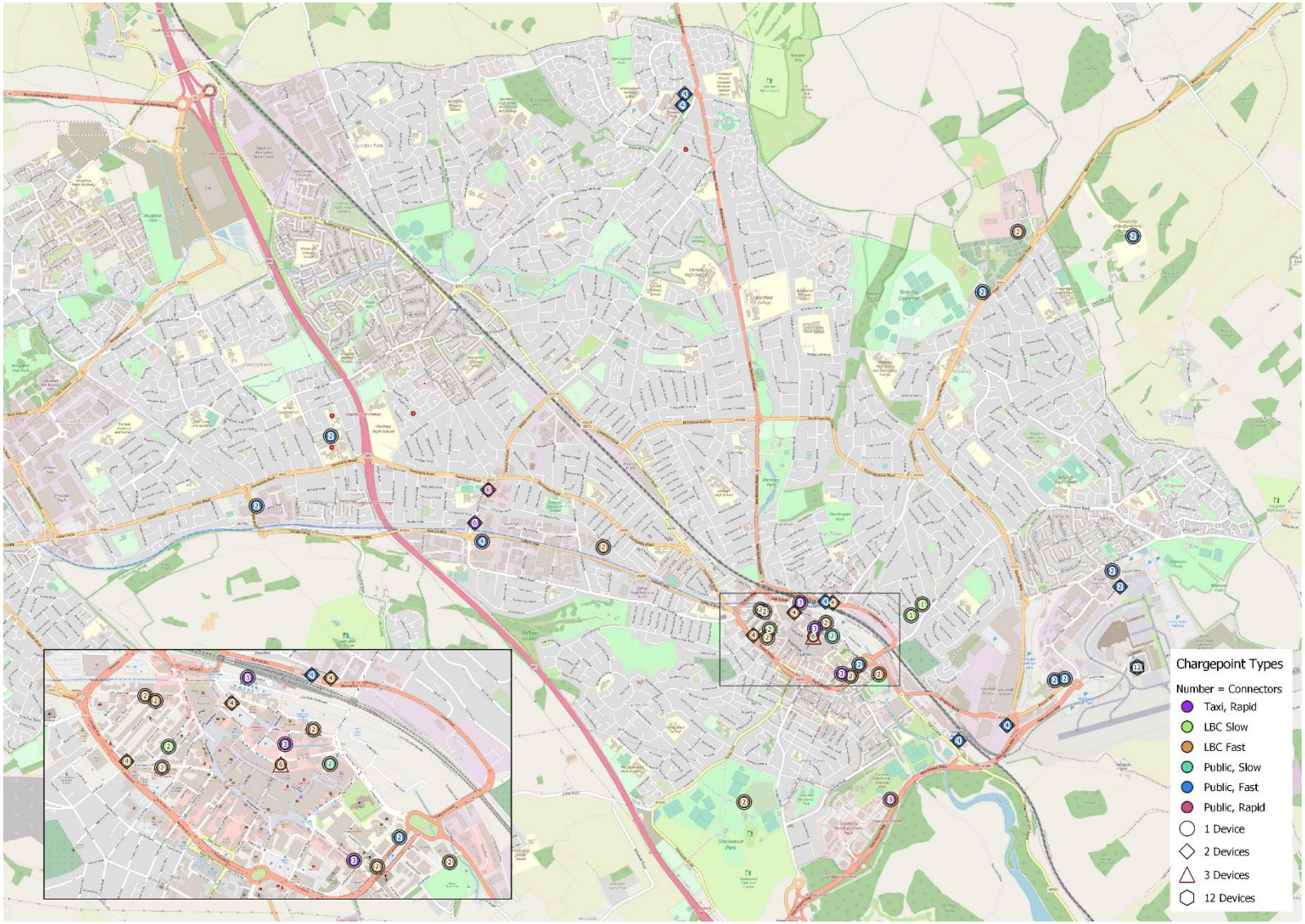

Figure 7: Location and type of existing EV Chargepoints in Luton

Section 3: EV chargepoint demand

Investment in EV chargepoints

Demand for EV chargepoints is being met by increasing private and government investment. The home charging market is supported by small and medium-sized enterprises which supply cables, chargers and adaptors.

Demand for destination charging is being met by the private sector without government subsidy. Charging at work is growing, supported by grants towards up-front costs of the purchase and installation of chargepoints.

The need for different charging solutions has created a charging eco-system in which multiple chargepoints operators have emerged. Figure 8 sets out the national market share, by chargepoint operator.

In Luton, BP Pulse has the largest market share of chargepoints. Other major chargepoints operators in Luton include Ubitricity, Pod Point, Tesla Destination and VendElectric.

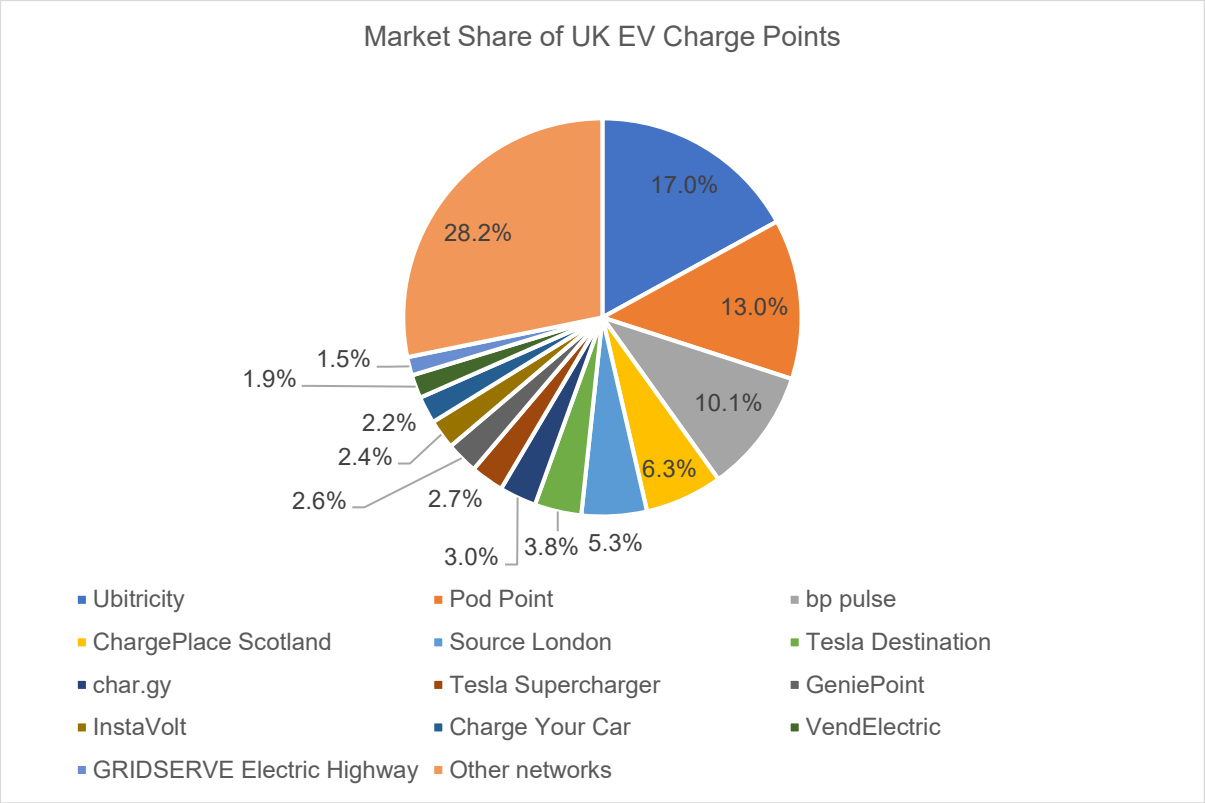

Figure 8: Market Share of UK EV Chargepoints (ZAP MAP)

In many cases, delivery of chargepoints benefits from central government investment as well as private financing. Table 4 lists the current grant schemes offered by the government.

Table 4: Grant schemes for electric vehicle charging infrastructure

Funding scheme (May 2022)	**Description**
Residential Landowners Electric Vehicle Chargepoint Scheme	Open to non-resident building owners (including landlords and social housing providers) to apply for a grant which covers 75% of the costs towards purchase and installation of chargepoints. Scheme is limited to £350 per socket, with a limit of 200 applications per year per applicant. Provides help for owners of apartment blocks to install chargepoints in the building's associated parking area; up to £30,000 is available per building, with a limit of 30 applications per year per applicant
Workplace Charging Scheme (WCS)	A voucher-based scheme to provide eligible applicants with support towards the upfront costs of the purchase and installation of EV chargepoints. The contribution is limited to 75% of purchase and installation costs, up to a maximum of £350 for each socket, up to a maximum of 40 across all sites for each applicant
On-street Residential Chargepoint Scheme (ORCS)	Provides local authorities with up to a maximum of 60% of capital costs that can be used towards the installation of on-street EV chargepoints infrastructure to meet residents' needs. The funding available contributes to the capital costs of procuring and installing the chargepoints and an dedicated parking bay (where applicable)
Local EV Infrastructure Fund (LEVI Fund)	A new £450m fund to facilitate the rollout of larger-scale chargepoints infrastructure projects, including local rapid hubs and larger on–street schemes not captured by ORCS
Rapid Charging Fund (RCF)	£950m fund to future-proof electrical capacity at motorway and major A-road service areas for the installation of EV infrastructure under development
Charging Infrastructure Investment Fund (CIIF)	A £422m investment which is managed and invested on a commercial basis by a private sector fund manager. The fund is dedicated to catalysing the rollout of a robust and diversified public EV charging infrastructure. Four investments have been made from the CIIF so far: InstaVolt, Liberty Charge, char.gy, and Zest

Utilisation of local EV chargepoints

Of the 22 chargepoints the council has delivered through grant funding, we have obtained usage data from 12 of them to understand how much electricity is being consumed. Figure 9 shows that the overall usage of these chargepoints has nearly doubled in a year. Vicarage Street chargepoints is our most used chargepoints, situated in a town centre car park.

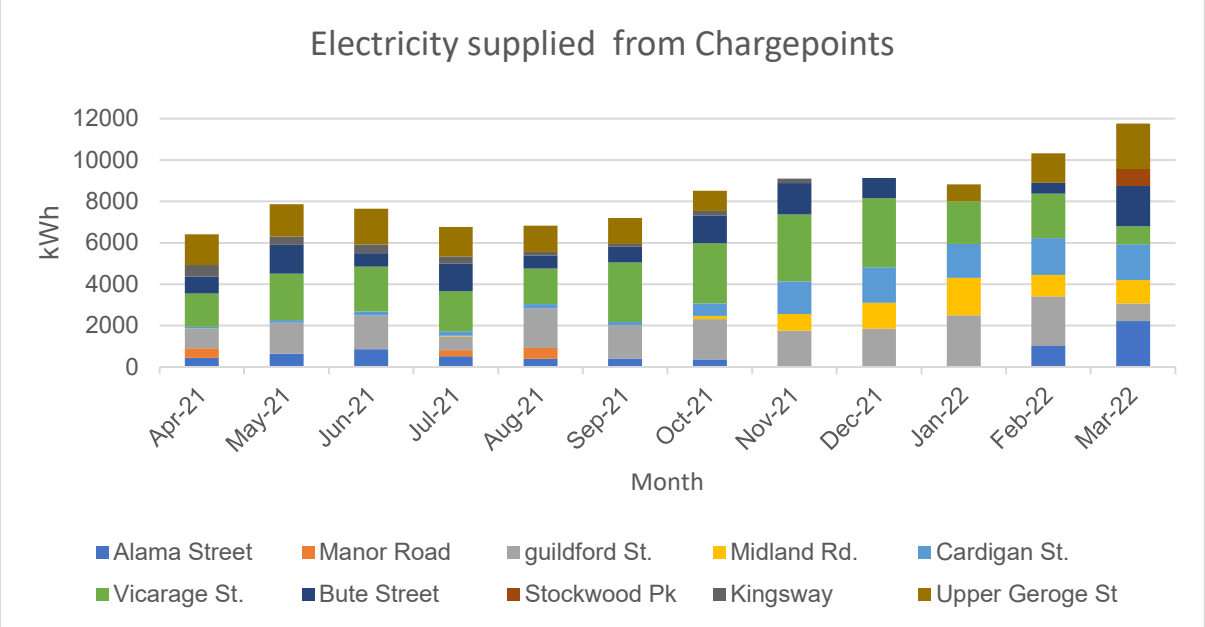

Figure 9: Electricity supplied from some of Luton's chargepoints

Forecasting local EV chargepoint demand

Forecasting the number of EV chargepoints needed in Luton is highly complex. Understanding which charging solutions are most suited for people without off-street parking is unclear and still evolving. Charging options are becoming widespread across a mix of places which helps to create charging flexibility and overlap. For example, high demand for workplace or destination charging will reduce the level of on-street charging needed.

This Strategy focuses on supporting residents without driveways, for whom a network of conveniently located chargepoints is essential. Our approach is to increase the provision and accessibility of residential EV charging (on-street and through charging hubs) and across the council estate. As such, we have been able to make some assumptions on the number of EVs we should plan for and how this could translate to chargepoints required.

Table 5 estimates the number of public EV chargepoints that might be required over the next three years in Luton, although these figures are highly uncertain. This has been calculated by taking the number of expected EVs (cars and vans) in Luton from UK Power Networks (UKPN) forecasts. It adopts their most likely 'Consumer Transformation' scenario in which the UK reaches 2050 Net Zero target thanks to widespread electrification.[27]

Using the expected number of EVs, the council assumes that 35% of these owners will not have access to off-street charging [28] and adjusts down the data to account for this. To arrive on the indicative number of chargepoints required, we've assumed one EV charging point per ten cars, a ratio base on a European directive.[29] This formula does not differentiate between the different speeds of chargers.

[27] https://uk-power-networks.github.io/DFES-visualisation/2021-DFES/
[28] https://onstreetcharging.acceleratedinsightplatform.com/
[29] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0094&from=EN

Table 5: Estimated number of EV public chargepoints

Year	Indicative no. of EVs	Indicative no. of EVs (without off-street parking)	Current number of public EV chargepoints	Estimated number of public EV chargepoints required
2022	819	286	45	28
2023	1794	628	n/a	62
2024	3521	1232	n/a	123
2025	6057	2120	n/a	212

Section 4: EV chargepoints priorities

Challenges and opportunities

Responses to our 2018 chargepoints survey told us that the decision to purchase an EV was influenced by the number of chargepoints in the town. By working with the private sector and accessing government grants, the council has delivered a network of chargepoints across Luton. However, as the demand for EV charging accelerates, the rollout of chargers will need to keep pace.

Our approach is to increase the provision and accessibility of residential EV charging (on-street and through charging hubs) and across the council estate. However, the commercial model for on-street residential charging (and charging hubs) is an issue, exacerbated by low utilisation rates as the EV market is still not as mature as it needs to be.

Local on-street charging volumes are lower, indicative of their slow speeds of charge and lower margins on the sale of each kWh. Space for installation, either on our pavements or roads is constrained.

The council will endeavour to make public chargepoints accessible to all users, where space allows, and will adopt the DfT's accessible charging standards when published.[30] Finally, connecting new chargepoints to the electricity system can be slow and expensive and electricity grid capacity is often limited.

To help resolve these challenges, it's important that the council focuses its effort in areas that it can directly control, this is what we describe as 'leading'. Where we have less autonomy, we should 'enable' solutions that are consistent with the aims and objectives of this strategy. Whether the council is 'leading' or 'enabling', it's important that we continue to 'understand' developments in EV charging technology. This terminology is defined below.

The council's EV chargepoint strategic priorities

- **Leading** – actively lead on solutions that increase the number of public EV chargepoints across our highway and the council estate
- **Enabling** – support private sector organisations to develop and deliver EV chargepoint solutions
- **Understanding** – through the use of data, research and innovation, support the transition to EVs

To make clear the role of the council in different chargepoint solutions, we've assigned each EV policy area in Table 6 a 'leading' or 'enabling' status. The 'understand' priority is a common thread that will run through all of our activity. We recognise there may be some overlap between each strategic priority.

[30] Source: https://www.gov.uk/government/news/uk-government-partners-with-disability-charity-to-set-standards-for-electric-vehicle-chargepoints

Table 6: The council's role in EV chargepoint provision

EV charging policy area	Strategic priority (lead / enable)
Residential (on-street)	Lead
Residential (hub charging)	Lead
Residential (council owned housing)	Lead
Across the council estate	Lead
Fleet charging	Lead
E-Car clubs	Lead
Planning of new development	Enable
On-route charging	Enable
Destination charging	Enable
Workplace charging	Enable
Bus/taxi electrification	Enable

Residential EV charging (on-street)

These are chargepoints installed to service vehicles, parked on-street. They can be standalone units or integrated into existing street furniture. An estimated one third of Luton's 79,000 households do not have access to off-street parking. [31]

Whilst destination or workplace charging offer viable alternatives, short-term, there is a need to increase the provision of on-street devices.

As the Local Highway Authority, Luton will prioritise slow and fast on-street chargepoints where there is no viable off-street alternative and access to our existing chargepoints network (Figure 6) is limited.

Chargepoints installed will need to be sensitive to the streetscape and minimise clutter. This could involve adaptions or innovative charging technology, such as 'flat and flush' chargers that sit below the pavement surface thereby reducing street clutter.[32] Utilising our lamp posts for charging is something we will consider.

The council is aware that chargepoint operators offer a range of different business models. There are broadly split into revenue share (sharing the profits of the electricity consumed in return for some form of council investment) or fully funded by charge operators (charge point operators install and manage the charge point at their own cost and risk).

In the short-term, we believe a model in which chargepoints are financed solely through government and private sector funding best meets our needs.

The majority of on-street charge points will be delivered in existing residential parking zones. Chargepoints would remain public, although non-residents would need to adhere to parking restrictions.

[31] https://onstreetcharging.acceleratedinsightplatform.com/
[32] https://www.trojanenergyltd.com/

We do not currently propose to create dedicated EV charging bays in these specific locations as they are already controlled parking areas. However, where chargepoints are deployed, we will monitor their accessibility.

EV1: The council will continue to expand its on-street EV charging network

EV2: The council will ensure chargepoints are integrated sensitively into local streetscapes

EV3: To develop the on-street EV charging network, the council will create a dedicated e-form so residents can suggest new locations for EV chargepoints

Residential EV charging (hub charging)

The ability to deliver on-street chargepoints is constrained by demand for parking, pavement availability and electrical capacity. A key priority is creating residential charging hubs. Residential charging hubs include multiple EV chargepoints and the concentration of demand increases viability.

These hubs should be located within a reasonable walking distance from homes in densely populated areas, ideally no more than 500m or five minutes from where people live. In Luton, carparks or community centres owned by either the council or community groups are good candidates for this type of EV charging location.

These hubs will comprise a mixture of fast and rapid chargers. Our preference is that these hubs will generally be used by residents, although potentially some parking bays might be accessible to non-residents. Any restrictions would be managed by a Traffic Regulation Order.

Where suitably located, residential charging hubs have the potential to become mobility hubs that co-locate other public, shared and active travel modes, like public transport, car-clubs and cycling alongside EV charging. Mobility hubs offer a convenient travel experience by seamlessly integrating multi-modal trips.

EV4: The council will explore opportunities for residential EV charging (Hub Charging) where it provides a more attractive alternative to on-street charging

EV5: The council will ensure the design of residential EV charging (Hub Charging) provides safe, accessible spaces that integrate with other sustainable modes of transport

Residential EV charging (council owned housing)

As of October 2022, council owned housing stock stood at 7,661 homes.[33] Council tenants are less likely to have access to a private driveway, making it difficult to install home charging solutions. These residents often have the most to gain from EVs due to being disproportionately exposed to high levels of air pollution.

As the owner of approximately 10% of all housing in Luton and the off-street car parks serving these homes, we have a responsibility to ensure residents living in our housing have access to affordable, accessible, reliable EV charging infrastructure.

The council will take the lead in rolling-out a network of EV chargepoints in key council housing carparks where demand is greatest, enabled by grants pertaining to residential landowners.

The council anticipate local charging hubs, which offer rapid charging, to meet the needs of most council housing sites, such as Hockwell Ring, Lewsey Farm, Marsh Farm and Hart Hill.

EV6: The council will deliver a phased roll-out of EV chargepoints at key council housing carparks

EV7: Where EV charging bays are solely reserved for LBC tenants, the council will consider offering sustainable EV charging concessions to tenants

Charging across the council estate

Generally, destination charging is not an area the council will actively lead on (see Table 6). government and experts are confident that the majority of destination charging will be funded and managed, almost completely, by the private sector. Many supermarkets already offer EV charging for their customers and workplace charging is growing. As of January 2022, government invested in 22,000 workplace charging sockets.[34]

[33] LBC Housing Database January 2022
[34] DfT (2021). Electric vehicle charging device grant scheme statistics: October 2021. Available at: https://www.gov.uk/government/statistics/electric-vehicle-charging-device-grant-scheme-statistics-january-2022

Notwithstanding, the council's large and diverse corporate estate presents an opportunity for delivering additional chargepoints in locations where they're most needed. This estate ranges from our offices, country parks, community centres, leisure centres and the 13 public car parks we manage.

Subject to viability, these locations can provide ideal locations for fast, rapid or ultra-rapid charging, which supports community, visitor or on route charging requirements. Figure 10 shows future, potential sites for EV charging location across our corporate estate.

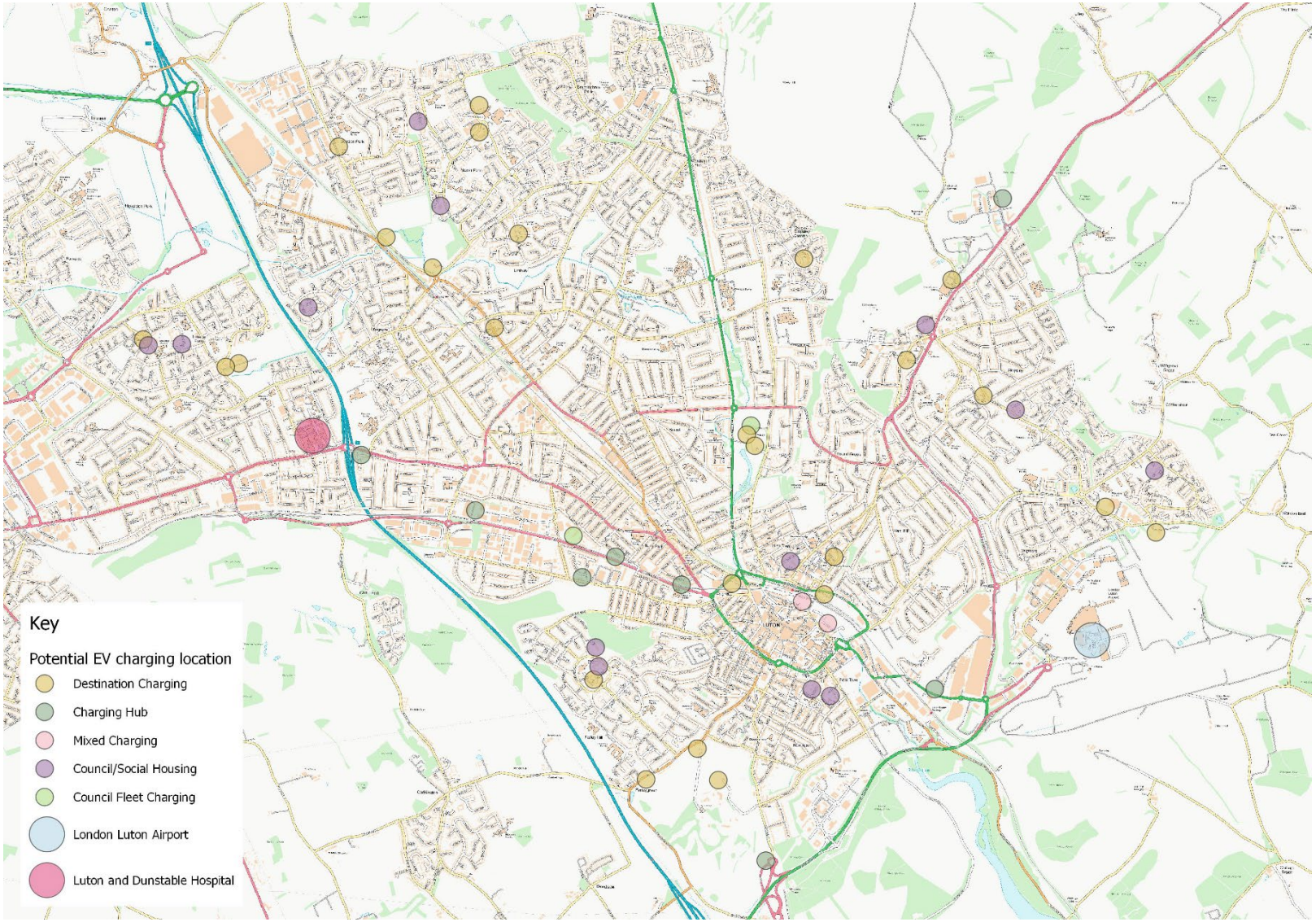

Figure 10: Potential EV Charging Locations across our corporate estate

To justify the cost of installing fast, rapid or ultra-rapid charge points in these locations, chargepoints operators will want certainty over demand. Consequently, these types of locations will encourage public use and generally be open to those travelling to, from or through Luton.

Providing chargepoints across strategically located council owned sites will open up opportunities for the developer to access ancillary revenues, such as providing cafes and shops, potentially creating 'rapid charging hubs' at key nodes along or close to our strategically important road network.

EV8: The council will work with the private sector to explore the viability of delivering fast, rapid or ultra-rapid chargers in potential EV charging locations

Fleet charging

The council owns and operates nearly 300 vehicles as part of undertaking its statutory functions. These range from commercial vans, utility vehicles, minibuses and refuse trucks. Currently, nearly all of this fleet are euro 6 diesel emission standard.

Whilst not yet powered by alternative fuels such as electricity, the entire fleet is fuelled by gas-to-liquid (GTL), a considerably cleaner synthetic alternative to pure diesel. The advantages of GTL are reductions in CO_2 and NO_x, reduced noise levels and removing impurities, such as sulphur, aromatics and nitrogen which are found in crude oil.

Our longer-term ambition is for the council to transition away from synthetic diesel and electrify our fleet, where feasible. This aligns with government's policy that diesel vans will no longer be sold by 2030, vans must be zero emission at the tailpipe from 2035 and a pledge to end the sale of all non-zero HGVs from 2040, with light HGVs from 2035.[35]

Whilst current technology makes the cost of smaller EVs more viable, the technology for larger and/or more specialised vehicles is still evolving, which brings with it more financial risk. Whilst our preferred pathway to achieve entire fleet decarbonisation is being developed, we anticipate that a phased approach to fleet renewal will be adopted, to allow time for technology to mature and whole life costs to fall.

EV9: The council will, subject to viability, commit to delivering multiple fast, rapid or ultra-rapid charging points at its fleet depot to accelerate a phased transition towards EV use

EV10: The council will undertake a fleet review, to identify a preferred pathway to electrify its vehicle fleet and inform a procurement strategy based on whole life costs

[35] DfT Decarbonising Transport (2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

E-Car clubs

Car clubs use a pay-per-trip/mile approach that allows individuals and businesses to have unattended access to a personal vehicle without being tied to ownership. Using electronic systems, customers access cars for short-term rental, often by the hour.

Car club models are usually categorised into round-trips, where the vehicle must be returned to its home station, and flexible, which allow a one-way trip. These can be run commercially or by communities.

Before the pandemic, the council operated a car club for public and employee use. It consisted of four Nissan LEAF EVs. Luton's e-car club provided a convenient and affordable way of travelling by car in the town, supported by dedicated parking spaces and competitive charges. Cars were booked online and were well utilised.

The global pandemic caused unprecedented changes to travel consumption, trip patterns and a requirement for more intensive cleaning regimes. As a result, the scheme was withdrawn and has not yet been reinstated. However, car use, whilst still slightly below pre-pandemic levels, appears to be rising steadily. [36]

The council is therefore ready to test the demand for an e-car club in the town and will use the DfT's recently published Car Clubs: local authority toolkit to introduce a pilot scheme.

EV11: The council will support an E-Car Club pilot scheme in Luton

Planning of new development

From June 2022, all new homes, or those undergoing major renovation with associated parking must have chargepoints installed. These requirements are contained in Approved Document S, Infrastructure for the charging of electric vehicles.

Luton's adopted local plan sets out development policies for the period 2011-2031. A new local plan is being developed and will reflect the latest building regulations for the installation of EV chargepoints or cable routes discussed in Section 2.

EV12: The development of the new Local Plan will support a place-based approach that accelerates the transition to a zero-emission road transport system for journeys that can't otherwise be made by active travel

EV13: The development of the new Local Plan will, where appropriate, reference the Luton EV Chargepoint Strategy

On-route charging

On-route charging describes a type of EV charging made by people on longer journeys, usually along motorways or major A-roads. As this type of charging is necessary as part of a longer journey, there is a

[36] https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic

requirement for on-route charging to be rapid or ultra-rapid. These speeds can charge a car from 0-80% charge in around half an hour.

The on-route sector is the focus of government's future interventions; funding the rollout of at least 6000 high powered chargepoints across England's motorways and major A-roads by 2035. [37] In November 2021, the council wrote to the government placing on record its support of the £950 million Rapid Charging Fund as a mechanism to realise this ambition.

EV14: The council will encourage and support national agencies, private sector developers and chargepoint operators to deliver high powered EV charging along the strategically important road network

Destination charging

In Luton, over half of the 45 registered EV public chargepoints were installed without any local authority or government involvement. These destination chargers have been delivered across of a suite of commercial sites, eg the Mall Central Car Park and Luton interchange.

The government expects the number of chargepoints delivered by private developers, without any intervention from the public sector, to rise rapidly. This could mean upgrading, increasing or retrofitting chargepoints at existing sites and/or deploying new chargers, in new places.

For these reasons, unless located on land the council owns, we will enable destination charging points installed in private carparks connected to such places as gyms, supermarkets, shopping centres and transport hubs to be delivered privately. The council recognises the important role destination charging plays in plugging gaps in the town's EV charging infrastructure.

The council recognises that key strategic partners, such as Luton airport and Bedfordshire, Luton and Milton Keynes Health and Integrated Care System have a significant opportunity to roll-out charge points at scale for its staff and visitors. The council is committed to working with these partners to support them bring forward solutions across the wider public sector estate.

EV15: The council is supportive of a commercially driven EV charging network, which is environmentally sustainable and inclusive; increasing consumer choice and accelerating chargepoint delivery across a wider geographical spread

Workplace charging

Over half the journeys to work in Luton are made by car.[38] To reduce our reliance on motorised transport, particularly for shorter journeys, we will deliver active travel infrastructure that creates a tenfold increase in levels of cycling and twice as much walking by 2040.

Inevitably, there will still be a proportion of journeys to work that are made by car as part of a thriving and functioning town. To help stimulate inward investment, attract skilled labour and deliver on our commitments for carbon neutrality by 2040, a widespread offer of workplace EV charging is essential.

[37] DfT Decarbonising Transport (2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf
[38] Luton Transport Strategy and Local Transport Policies 2020-20240

Unless located on council owned land, the council will not intervene in the workplace charging sector but recognises the key role it has and will continue to play in the town's transition to EVs.

E16: The council will, where appropriate, support and enable opportunities to encourage the uptake of EV charging at business premises and offices

Bus/taxi charging

Buses are one of the most environmentally friendly ways of travelling and the council will be investing significantly to improve bus services in the town. Whilst bus services already have an integral position at the heart of a public transport network, a transition to zero emission buses will ensure their future operation produces no carbon impact.

The council's aspiration is for its partners to introduce electric buses on the entire Luton Dunstable Busway network with associated infrastructure. The introduction of electric buses on here will demonstrate that with zero-carbon vehicles, we can deliver all-the-same benefits an electric tram or metro system provides with better value for money.

Of our licensed taxis, plug-in electric accounts for 5% of our hackney and 1% of our private hire vehicles respectively.[39] This demonstrates that there is a propensity amongst our drivers to make the switch, subject to the infrastructure being available.

Our four rapid chargers in or near to the town centre, reserved exclusively for taxi operators, is indicative of the important role electric taxis will play in being a green substitute for private vehicle trips.

EV17: The council will engage with our registered/licensed bus and taxi operators to understand how the council can enable the transition to electric vehicles.

EV18: The council will consider the needs of licensed taxis and private hire vehicles when considering new chargepoint sites across the council's estate.

EV19: The council will, as appropriate, enforce 'taxi only' recharging points for Luton's licensed hackney/PHV fleet.

EV20: The Council will undertake a hackney/PHV fleet review and work with operators to develop a pathway that increases EV uptake for these vehicles

[39] EST (2022) Private Hire Vehicle and Taxi fleet review

Section 5: Putting the strategy into action

Delivering the EV chargepoint strategy

Government's EV Infrastructure Strategy provides welcome certainty on the ways in which commercial, regulatory and consumer barriers to EV adoption will be addressed. As the evidence and policies in this strategy suggest, we do not believe there is a 'one-size-fits-all' approach to EV chargepoint roll-out across Luton.

This means our strategy is unlikely to be delivered entirely through one commercial operator or a few discreet council-led schemes. We will need to enable partners and the private sector to work independently or alongside us to deliver more chargepoints.

Table 4 lists the grant schemes available to support the EV chargepoint infrastructure. The two grant schemes most relevant to this strategy are the on-street residential charging grant (ORCS) which runs to 2023 and the local electric vehicle infrastructure fund (LEVI) which runs to 2025.

The pace of technological change coupled with the council's constrained budget and resource means our chargepoint solution must avoid any capital or revenue cost liabilities to the council. Our preferred delivery model for the priority areas identified in Section 4 is to partner with chargepoint operators that offer a supplier owned and operated model.

Through government intervention, EV chargepoints will become increasingly standardised, both in terms of their interoperability and method of payment. LEVI funded chargepoints are required to provide contactless payment and ORCS funded chargepoints must meet this requirement later in the year.

Government will also mandate a single payment metric, so consumers can compare prices across different charging networks. The council will pursue opportunities with a number of chargepoint operators to help drive competition and bring down prices. The council is seeking to partner with chargepoint operators that provide an end-to-end 'turnkey' chargepoint solution.

This means any chargepoint operator we work with to deliver chargepoints on our land will need to undertake site feasibility, installation, maintenance of the chargepoints and manage all back office solution over the life of the agreement. This arrangement will be captured through service level agreements and legal contracts.

What needs to be done?

The 20 policies in this strategy, developed with stakeholders and underpinned by national strategy, will steer future decision making surrounding EV chargepoint infrastructure in Luton. It is proposed that an EV chargepoint working group is established.

This will comprise of officers that oversee responsibility for the priority areas identified in Section 4. The group will be responsible for developing an annual EV chargepoint status report and establishing a route to market to deliver chargepoints located in Figure 9.

For the ambitions of this strategy to be realised, we need to measure our policies against indicators of success. This will enable us to track, analyse and report on progress, through the status report. The indicators in Table 7 will form the basis of our monitoring and evaluation framework. Each policy and indicator is aligned with the strategy objective it best supports.

Table 7: Monitoring and evaluation

Objective	Policies	Indicator
Increase the number of public EV chargepoints across the council estate to meet the needs of residents, businesses and visitors	EV1, EV8, EV12, EV13, EV14, EV15, EV16	Total number of public EV chargepoints EV chargepoints per 100,000 population
Ensure residents without off-street parking have access to a range of convenient, accessible and reliable chargepoints, on-street and through charging hubs	EV3, EV4, EV5, EV11	Percentage of residents within 500m or five minutes of a public EV chargepoints Utilisation rate of public EV chargepoints Chargepoint uptime
Support the transition of the council fleet, public transport and private hire/taxi vehicles to zero carbon fuels	EV9, EV10, EV17, EV18, EV19, EV20	Number of public transport, licensed Hackney/PHVs and council owned vehicles that are electric
Promote EV charge point solutions that improve the user experience of public charging in Luton	EV2	Percentage of chargepoints uptime Percentage of chargepoints that offer a single payment solution Feedback on chargepoints identified through social media or Zap Map.
Ensure chargepoints are fairly priced and inclusively designed	EV6,EV7	Number of sustainable EV chargepoints concessions provided

How do we intend to deliver it?

The council's capacity to do more than it is statutory obliged is challenging. Over the life of this strategy, we do not propose to appoint a dedicated resource to project manage EV chargepoint solutions. Instead, we will await the full detail of government's LEVI Fund that includes £50m to fund the staff needed to support local authorities to plan and deliver local public charging infrastructure.

Implementation of this strategy will require feasibility work undertaken by the private sector in partnership with the council. Through the work of the EV chargepoint working group, we will host a supplier engagement event in winter 2022/23, to undertake market testing.

The council will invite expressions of interest from commercial EV chargepoint operators to understand how we can work together to deliver large scale, ambitious and commercially sustainable projects, using the locations in Figure 9 as the basis of these discussions.

Potentially, larger deployment may need to be supported by smaller scale, trials. This route to market will coincide with announcements expected on the LEVI fund later in 2022/2023. In the interim, a range of wider funding opportunities will be investigated through channels shown in table 8.

Table 8: EV chargepoint funding opportunities that will be investigated

EV Chargepoint funding opportunities
Central government grants
S106 Agreement contribution from developers
Internal funding
Bids for innovation in transport
Opportunities from strategic funding
Combining our projects with other initiatives
Other future sources of grant funding from public bodies

Glossary

Battery Electric Vehicle (BEV)

A vehicle powered by a battery, which can be plugged into an electricity source to recharge. Also known as ‘pure’ or ‘100%’ EVs. These vehicle produce zero tailpipe emissions.

Chargepoint

A charging socket which is connected to an electric vehicle via a charging cable to allow the battery to be recharged with electricity

Electric Vehicle (EV)

The vehicle is charged by electricity so requires plugging into recharge the battery

Kilowatt Hour (kWH)

A unit of electricity. Car batteries are sized in kWh, ie a 40 kWh battery stores 40kWh of electricity

Plugin Hybrid Electric Vehicle (PHEV)

Combines a smaller battery with a conventional internal combustion engine and an electric motor. This allows a driver to use the car with an empty battery using petrol or diesel.

UK Power Networks (UKPN)

Own and maintain electricity cables and lines across London, the South East and East of England.

Ultra-Low Emission Vehicle (ULEV)

Ultra-low emission vehicles (ULEVs) are vehicles that are reported to emit less than 75g of carbon dioxide (CO2) from the tailpipe for every kilometre travelled.