

Worcestershire Electric Vehicle Charging Infrastructure (EVCI) Strategy

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Glossary

Abbreviation	Definition
BEV	Battery Electric Vehicle
BSIP	Bus Service Improvement Plan
CPO	Chargepoint Operator
DfT	Department for Transport
DNO	Distribution Network Operator - owns and operates infrastructure connecting properties to the national grid
EV	Electric Vehicle
EVCP	Electric Vehicle Charging Point
EVCI	Electric Vehicle Charging Infrastructure
ICE	Internal Combustion Engine – traditional diesel and petrol engine vehicles
IOT	Internet of things
KPI	Key Performance Indicator
LEP	Local Enterprise Partnership
LCWIPs	Local Cycling and Walking Infrastructure Plans
LEVI	Local Electric Vehicle Infrastructure
LTA	Local Transport Authority
LTP	Local Transport Plan
PHEV	Plug-in Hybrid Electric Vehicle – a vehicle that has a combustion engine and a small battery
V2G	Vehicle to grid charging – term for transfer of electricity stored in EV battery back into the grid to support increase period of demand
V2X	Vehicles to everything – term for transfer of electricity stored in EV battery to all energy consuming destinations such as houses
WCC	Worcestershire County Council
WLEP	Worcestershire Local Enterprise Partnership
ZEPLVs	Zero Emission Powered Light Vehicles

1. Introduction

1.1. Background

- 1.1.1. Worcestershire County Council (WCC) declared a climate emergency in July 2021, and we have set a target to be carbon neutral by 2050. At a national level, the Government is banning the sale of new petrol, diesel and plug in hybrid cars from 2035 as part of its commitment to reach Net Zero by 2050. It is recognised that the transition to electric vehicles is a crucial element to achieving these targets.
- 1.1.2. This first Electric Vehicle Charging Infrastructure (EVCI) Strategy for Worcestershire, sets out how the County Council and its partners intend to support the transition to electric vehicles and help to coordinate the development of accessible chargepoints across the County.

1.2. A Strategy for Worcestershire

- 1.2.1. The transition to Electric Vehicles (EVs) is essential in assisting with the UK's Net Zero target, as well as delivering many other co-benefits. The strategy is underpinned by the WCC Corporate Plan 'Shaping Worcestershire's Future' which focusses on four key areas:
- Open for business;
 - Children and families;
 - The environment; and
 - Health and wellbeing.
- 1.2.2. This strategy aims to support the delivery of these key priorities in the wide range of co-benefits that a transition to electric vehicles brings. The benefits are not limited to environmental gain and will be reflected also in the health and wellbeing of our communities, enabling a thriving local economy to respond to the changes and will support families to respond to the national transition by planning for appropriate charging infrastructure.
- 1.2.3. It is intended that this strategy will form part of Worcestershire's refreshed Local Transport Plan (LTP5). At the time of writing, final guidance on the development of LTP5 is awaited but it is expected that this EVCI strategy along with Local Cycling and Walking Infrastructure Plans (LCWIPs) and the Bus Service Improvement Plan (BSIP) will be key documents for LTP5.
- 1.2.4. It is expected that the majority of drivers will be able to address their charging needs at home, using private chargers, overnight on a driveway (Figure 5.1). Electric Vehicle Charging Infrastructure (EVCI) is however, essential to encourage and support the EV transition and to:
- Enable long distance journeys;
 - Support those without off-street parking;
 - Support household with multiple EVs and limited home charging provision; and
 - Provide 'top up' destination charging.
- 1.2.4. In most locations, the private sector will be pivotal in provision of Electric Vehicle Charging Infrastructure (EVCI). However, we recognise we also have an important role to play in this, particularly around attracting charging infrastructure that is accessible and equitable. We are well placed to access funding, identify opportunity, work in partnership and attract private investment for the required infrastructure, and assist with wider enablement.
- 1.2.5. As we move towards net zero, we will work towards equitable EV charging provision in Worcestershire to make sure our residents do not get left behind the national transition.

1.3. Purpose of this strategy

- 1.3.1. The transition to EV transport is accelerating at pace and in recognition of this, the strategy is Phase 1 and has been developed with the next 5 years in mind (2024-2029). It will ensure integration with other local transport services and support EV mobility in our county as the EV transition develops.
- 1.3.2. This strategy is a high-level document which identifies the scope and current direction of travel for EVCI in our county. Its primary focus is on delivering EVCI in the county for communities and in particular, deployment of the Local Electric Vehicle Infrastructure (LEVI) Capital Funding¹ for households without dedicated off-street parking.
- 1.3.3. Through LEVI, WCC intends to deliver a step-change in the deployment of local, primarily low powered, on-street EVCI across the county. It is expected that the external funding will accelerate the commercialisation of, and investment in, local EVCI.
- 1.3.4. Whilst this EV strategy's focus is primarily intended for those without dedicated off-street parking, the resulting EVCI may also be utilised by other EV drivers such as visitors, tourists, non-residential commuters, taxi & private hire and commercial car and Light Goods Vehicles (LGVs).
- 1.3.5. In relation to this EVCI, there will also be common ground in how we approach privately owned residential chargepoints e.g., on a person's drive and what is and is not acceptable from the perspective of WCC as a Highways Authority.
- 1.3.6. We will use this strategy to communicate our role in EVCI with partners and communities and identify our intentions to partners, the community and Government.
- 1.3.7. We will be consulting with our partners and communities on this strategy to ensure our vision, objectives and overall direction is reflective of the growing needs for EV drivers.
- 1.3.8. Subsequent strategy will also be developed to represent development in legislation, funding, policy, technology, market forces and growing demand and to cater for different EV demands in our county.

1.4. The Challenges

1.4.1. The key challenges include:

- Meeting Net Zero Targets and achieving improved air quality in Worcestershire;
- Enabling households without off-street parking to have access to EV charging, particularly where this prevents the transition to EVs;
- Ensuring equitable opportunity to charge EVs in a largely rural county;
- Financing EVCI and attracting appropriate private investment to do this in locations considered to be less commercially attractive; and
- Addressing blockages with landownership, electrical capacity, on-street parking, EV anxieties etc.

¹ A Central Government fund supporting local authorities in England to work with the chargepoint industry to improve rollout and commercialisation of public chargepoint for residents that don't have off-street parking.

1.5. Our Vision for Worcestershire

1.5.1. By the end of the term of this strategy we envisage a positive change for EV charging infrastructure in our county.

1.5.2. Our vision for Worcestershire:

A robust EV charging infrastructure for residents, businesses, and visitors. Charging solutions are equitable, accessible, and reliable giving confidence to drivers to drive EVs. Charging infrastructure integrates with local transport services, supports EV mobility and has positive decarbonisation impacts in our county.

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2. Worcestershire EVCI Strategy Objectives

2.1. Introduction

2.1.1. In order to deliver our vision, we will focus on the following five impacts to make sure EVCI in our county is:

- Environmentally Sustainable;
- Reliable;
- Equitable;
- Accessible; and
- Integrated.

2.2. Objectives

2.2.1. To deliver against our objectives we have produced a set of priorities to assist us in implementation of this strategy and in engagement and planning.

2.2.2. **Objective 1: Environmental Benefits** - To deliver improved air quality and reduced emissions by decarbonising transport in and around our county.

2.2.3. **Objective 2: Reliable** - To enable charging solutions that give users confidence to transition to EV and continue to drive EV in the future.

2.2.4. **Objective 3: Accessible** - To increase provision of inclusively designed charging solutions that are located conveniently for homes with on-street parking.

2.2.5. **Objective 4: Equitable** - To enable access to charging facilities for residents particularly in locations that address inequalities in social, economic and ruralism.

2.2.6. **Objective 5: Integrated** - To provide opportunity for integration with wider local transport services, active transport, and to widen travel choice.

2.3. Limitations of this Strategy

2.3.1. This primary focus of the strategy is around delivery of lower powered EVCI and specifically utilisation of current available funding.

2.3.2. The Phase 1 Strategy contains only primary details for delivery of chargepoints, more detail will be covered in future implementation plans for delivery of specific projects.

2.3.3. Whilst we will always work with all stakeholders in our community, this strategy is not specifically concerned with EVCI provided to support:

- Private Workplace charging;
- Motorway and non-residential A-road Ultra rapid and rapid chargepoints (On route charging);
- Private Chargepoints for buses;
- Chargepoints for blue light services;
- Chargepoints to support heavy goods vehicles; and
- Hydrogen and other alternative power solutions.

2.3.4. The above will be monitored and assessed for inclusion in future strategies.

3. Transition to EV's

3.1. Introduction

3.1.1. This strategy will set the agenda for how WCC engage with EVCI delivery and aims to give confidence to drivers to make the transition and ensure infrastructure is installed using the right charger in the right place approach. The need to deliver this strategy is driven by six key concerns that are outlined below:

- Environmental;
- Social;
- Economic;
- Political;
- Technological; and
- Legislative.

3.2. Environmental

3.2.1. The clear impact of Greenhouse gases (also known as GHGs) being released into the atmosphere can now be clearly evidenced from the weather extremes we witness in Worcestershire and nationally. 2022 was a record year for high temperatures the UK, made more likely by climate changeⁱ and the five warmest recorded years since 1884 include 2020, 2022 and 2023ⁱⁱ. As a result of the changing conditions, we have experienced the impact of severe storms, floods, wildfires, and extreme temperatures accompanied by the often devastating financial and social impacts this has on our communities.

3.2.2. Contributing to EV transition will play a considerable role in reducing GHG emissions and reducing Worcestershire's impact on global and local climate change.

3.3. Social

3.3.1. Planning of EVCI and adopting a right charger in the right place philosophy is essential to ensure access to EV's and provide confidence for the take up of EVs within all communities. Equity and accessibility are key to enabling both rural and urban communities can make the transition to EVs.

3.3.2. Poor air quality is now the largest environmental risk to UK public healthⁱⁱⁱ and emissions from vehicles are a known key factor contributing to poor air quality. EVs will play a significant role in reducing air pollution and improving air quality. Air pollution often affects the most vulnerable in our society due to socio geographic factors and acknowledging and addressing this trend is essential in location of charging infrastructure. All District Councils in the County recognise this in their Air Quality Status Reports^{iv}.

3.4. Economic

3.4.1. Uptake of EVs in our community can assist with business growth, help to grow our low carbon economy, and deliver inward investment opportunities. Attracting Chargepoint Operators (CPOs) to our area can enable free movement of people and goods in out and around our county to assist with businesses adapting to EV technology. Adapting to EVs at a household level can also assist residents directly via specialist EV energy tariffs, use of household battery storage or solar PV panels to assist with charging. This can also have the added benefit to free up money that can then contribute to the local economy.

3.5. Political

- 3.5.1. In response to the changing needs and demands of drivers, UK legislation, Central Government and our own WCC net zero targets, we are establishing the strategic approach to the electrification of transport. This strategy identifies our commitment to support the transition to Electric Vehicles (EV's) and outlines our role in this transition. This not only addresses targets and legislation but also The Corporate Plan's 2022-27 core priorities and needs of our communities.
- 3.5.2. Local policy from Worcestershire district partners, the WLEP and Midlands Connect (Appendix 5), identify the need to deliver EVCI locally to support communities. Due to the 2-tier relationship, WCC as the Local Highways Authority and Transport Authority, is a critical partner that is needed to deliver EVCI. A partnership working is, therefore, required for successful outcome.
- 3.5.3. One the Worcestershire Energy Strategy's four themes is Promotion of Low Carbon Transport and particularly, to recognise the use of electric vehicles as an opportunity for rapid decarbonisation and this strategy therefore directly supports this aim.
- 3.5.4. Midlands Connect is working to transform regional and UK gateways, bringing the Midlands closer together to drive the scale of electric vehicle charging points to support the accelerated growth of EVs in the region. WCC has joined a Midlands Connect Consortium working together with 13 other Transport Authorities from the Midlands region to support this aim.

3.6. Technological

- 3.6.1. Advancement in EV technology has accelerated in recent years and there is now a wide offering of EVs to cater for most motorists driving range, needs and requirements. Initial outlay of vehicles remains an issue for some but again, advances are seeing more competitive models from all standard Original Equipment Manufacturers² (OEMs). Technology in charging infrastructure is becoming more intelligent which in turn assists with accessibility and choice leading to increasing solutions for most situations.

3.7. Legislative

- 3.7.1. Due consideration has also been given to:
- The UK Electric Vehicle Infrastructure Strategy (2022)^v and the Transport decarbonisation plan (2021)^{vi} set out Government aims on transport decarbonisation and the transition to EVs;
 - Local Transport Plans, as derived from the Transport Act (2000)^{vii}, are required to set the vision for net zero in transport and in the future, updates to Local Transport Plans will include the area's EV charging strategy. It will also be essential to integrate the Strategy with Local Area Energy Mapping and Planning (LAEMP) as this evolves;³
 - The Road to Zero (2018)^{viii} : Outlines the ambition that every new car and van sold in the UK should be zero emission by 2040, and that the entire UK road fleet should be effectively decarbonised by 2050. This target was further strengthened in November 2020 to end new Internal Combustion Engine (ICE) and Plug-in Hybrid Electric Vehicle (PHEV) car sales in 2035;
 - The Carbon Plan (2011)^{ix}, Clean Growth Strategy (2017) ^x& Industrial Strategy (2017)^{xi} Identify the role that transport plays in addressing the Climate Change Act (2008)^{xii};

² OEM's manufacture the original component parts of vehicles.

³ New guidance on development of plans is imminent and is expected to include provision for a low traffic future including electric vehicles.

- Air Quality Plan for Nitrogen Dioxide (2017)^{xiii}: The Government plans to reduce NO₂ at roadside locations kickstarted the phase out of new sale petrol and diesel vehicles;
- Automated Electric Vehicles Bill (2018)^{xiv}: Industrial Strategy boosted by investments into zero emission vehicle technology. Government are requiring motorway service area and large petrol stations to install EVCI; and
- United Nations Paris Agreement on Climate Change (2015)^{xv}: Government addressed this agreement by committing to limit global warming to below 2°C.

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4. Worcestershire County Council's Role

4.1. Introduction

4.1.1. The long-term vision for EVCI is for it to be driven by private sector investment and become a self-sustaining network. Like any other utility, with time, EVI will become a driven by the demand of its users. Whilst EVCI provision is in its elementary stages, Government has recognised local authorities can have a pivotal role to play. It is providing LEVI funding for local authorities to:

- Deliver a step-change in the deployment of local, primarily low power, on-street charging infrastructure across England; and
- Accelerate the commercialisation of, and investment in, the local charging infrastructure sector.

4.1.2. WCC welcome this challenge and look forward to supporting this short-term transition stage. Some of the key roles for WCC are outlined below:

- **Inspire and Influence** by our own actions and provide vision for the county.
- **Leverage Opportunity** to deliver EVI for locations to audiences that may not otherwise offer a commercial opportunity for the private sector.
- **Engage** with business, residents, partners and private investors to deliver the best outcomes. We will particularly seek opportunities to strengthen delivery of projects such as partnering with bodies such as Midland Connect for EVCI procurement.
- **Enable EVI through timely** approval of highway permissions, access of Government funding.
- **Overcome issues** like time delays, landownership issues, grid connectivity and wayleaves etc. and seeking solutions.

4.2. Alignment with WCC Strategic Priorities

4.2.1. The WCC corporate Plan contains 4 pillars that govern the way that we do business. This Strategy supports each of the 4 pillars and will assist in achieving the overall purpose of the Council and its wider work within the County. The transition to EVs fully supports each of the 4 pillars either directly or indirectly through the many and wide-reaching co-benefits.

- Open for business;
- Children and families;
- The environment; and
- Health and wellbeing.

4.2.2. Through reduction in air pollution and improving air quality and reducing reliance on fossil fuels that community will benefit economically, and socially as well as assisting towards Net Zero goals.

4.2.3. WCC has a long history of action on climate change delivering on both internal and wider area projects. In 2019 we declared a climate emergency as further commitment towards our sustainability goals. For WCC fleet a ULEV first policy has already been adopted and we are developing a fleet replacement schedule that is compliant with Governments decarbonisation plans. We are also planning EVI in our own car parks to support staff commuting and business travel in our own work force.

4.3. WCC Supporting Business

4.3.1. Our extensive Net Zero Business Programmes have promoted electric transport to business for several years and we continue to identify EV transition opportunities in existing business support programmes.

4.4. WCC Supporting Partners

4.4.1. Where we can identify opportunities to partner with other organisations for electric fleet opportunities we will endeavour to do so. We facilitate a Worcestershire Public Sector Sustainability Group where we meet with other public sector partners to discuss plans such as the delivery of EVI. This group include NHS, Fire Service, Education Providers, and the Police.

4.4.2. Due to a shared depot, WCC and Worcester City are working to evaluate the options for electrification of the depot. This arrangement will help to support the transition for our own fleet but also for Worcester City's street cleansing, and waste collection functions.

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5. Current EV charging in Worcestershire

5.1. Background

5.1.1. Driving a Battery Electric Vehicle (BEV) or a Plug-in Hybrid Electric Vehicle (PHEV) requires a reliable source of charging. Where drivers have their own driveway to park their vehicle off street, they will usually install their own home charger for private use. This method of charging at home allows access to specialist tariffs which make EV driving even more affordable. They can also choose to make their private home charger accessible to other EV drivers although this is by exception.

5.1.2. Along with the rest of the nation, Worcestershire is in the early stages of adoption of EV uptake but the number of EV drivers and EV chargepoints is rapidly increasing. Coverage of chargepoints ranges from district to district from 3% of residents living within a 5–10-minute walking distance of a chargepoint to nearly 12%. Whilst access to off street parking ranges from 26% to 37%.

5.2. At a Glance

5.2.1. Key highlights include:

- 16,558 Fully or partially electric vehicles are registered in Worcestershire in 2023^{xvi}
- 280 chargepoints in Worcestershire registered for public use^{xiv}
- 30% of households have no access to off-street parking, equating to nearly 80,000 households;^{xvii}
- Of those households 92% are not within a 5 mins walk of a publicly accessible chargepoint; and
- During 2023, 1,012,360 t of emissions were from cars and LGVs on our county's roads.

5.3. Number of Registered EV's

5.3.1. Nearly 4% of the total cars and LGVs registered in Worcestershire are EVs, this equates to 16,558 vehicles out of 435,589 standard engine vehicles^{xviii}. Table 5.1 identifies 4,437 domestic charger grants that had been accessed by the end of 2022 and were applied for by private households in Worcestershire.

5.4. Current Chargepoints

5.4.1. Worcestershire currently has 280 public EV chargepoints, with 130 being able to deliver a fast high-powered charger (over 25kW) and 150 delivering a slower powered charge (up to 25kW). Table 5.1 gives the total number of available chargers within Worcestershire, note that several chargepoints may be installed at single site.

Table 5.1: Number of Domestic Charger Grants and Public Charging Sites per District

District	Domestic Car Charger Grants ^{4xix}	Publicly Available Chargers
Bromsgrove	1,084	71
Malvern	612	32
Redditch	486	20
Worcester City	510	52
Wychavon	1,222	72
Wyre Forest	523	33

⁴ Note, grant now for residents in flats and residential chargers are also installed without this grant scheme.

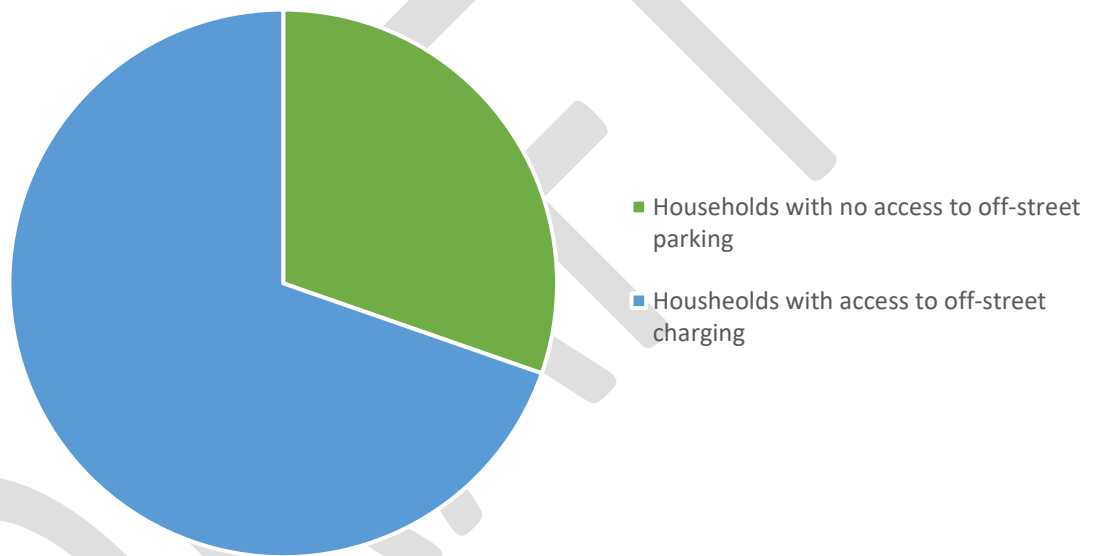
Total Worcestershire	4,437	280
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Source: CENEX, National EV Insight and Support-NEVIS and Government Statistics, 2023

5.5. Access to Charging

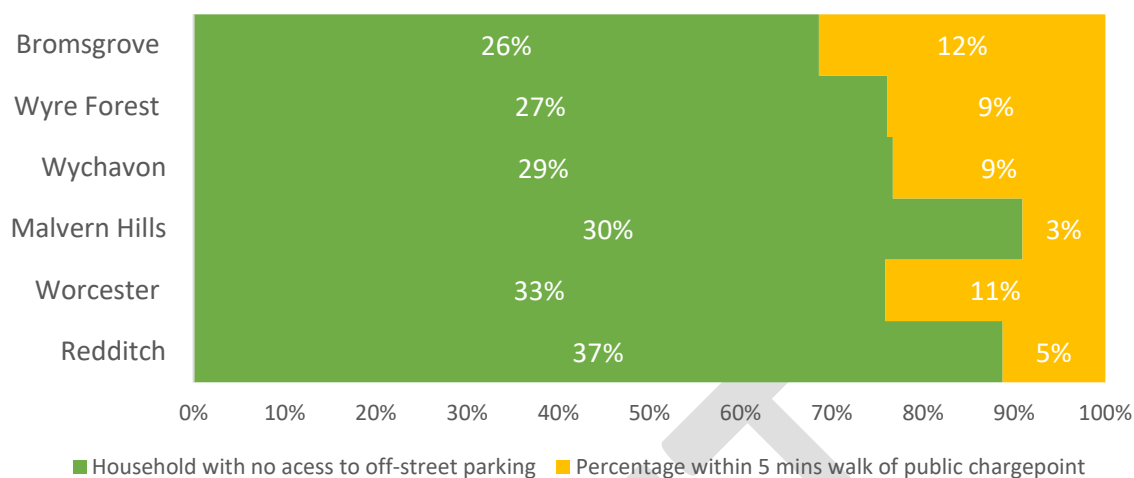
- 5.5.1. Having access to off-street parking is the key to unlocking easier transition to EV ownership. It is estimated that 30% of homes in our county have no access to off-street parking (Figure 5.1) and therefore no means of installing their own private EV charger. This amount to nearly 80,000 households in total. This figure is in line with the UK national average, although it ranges from 26% to 37% dependent on district.
- 5.5.2. For those residents that do park on-street, only 8% are within 5-minutes walking distance of a public charger although this ranges from 3% to 12% (Figure 5.2) dependant on district.

Figure 5.1: Indicative Proportion of Worcestershire Households with Access to Off-street Parking



Source: Accelerated Insights Platform, 2022

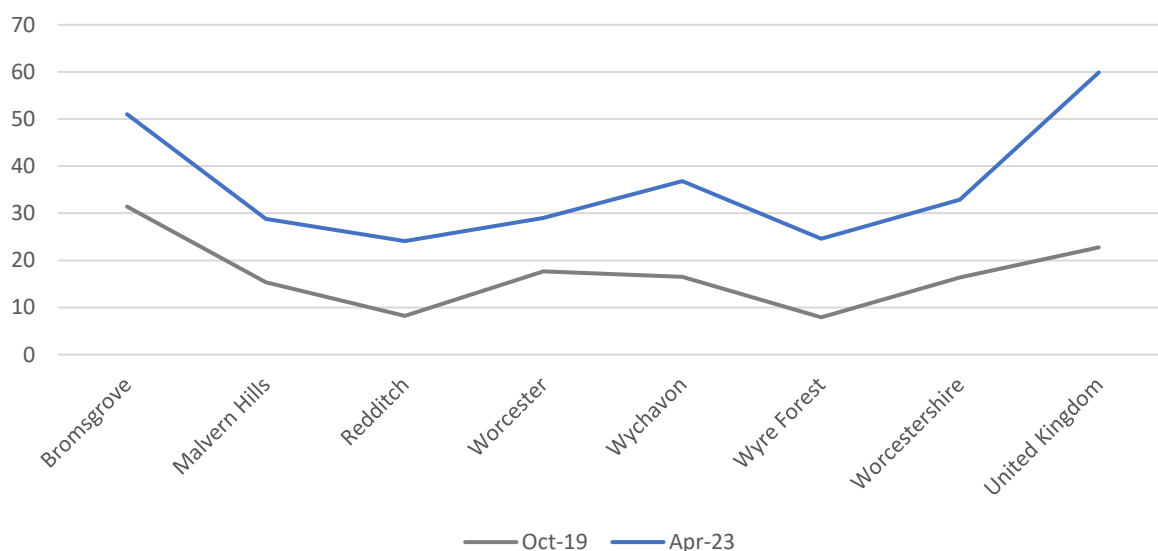
Figure 5.2: Percentage of On-Street Households within 5 mins walk of a Public Chargepoint



Source: Accelerated Insights Platform, 2022

5.5.3. For homes without access to off-street parking, reliance on public charging provision is essential for EV charging. Provision in Worcestershire is below the national average (Figure 5.3). To compare charging provision, a ratio for public chargers per 100,000 of the population is used. The national average for the UK stands at 60 and for Worcestershire this figure is 33 chargers per 100,000. The range depending on district is 24 to 51 per 100,000.

Figure 5.3: Charger Ratio for Worcestershire and UK Comparison



Source: DfT, 2019 and Zap Map, 2023

5.6. Air Quality and Emissions

5.6.1. The latest data (2022) indicates transport accounted for 34% of emissions in the UK^{xx}. Worcestershire's Green Infrastructure Strategy (2023-2028) states that transport emissions are one of the biggest contributors to CO₂ emissions in Worcestershire due to the greater use of private cars in the more rural areas. It reports that air quality is generally good in the county but is poorer around urban areas and major road infrastructure. Air Quality Management

Areas (AQMA) are used to highlight locations where air pollution exceeds government defined limits; there are seven named AQMA within the County.

5.7. Integration of EV infrastructure

5.7.1. There are a number of opportunities to integrate EV charging into active travel and passenger transport provision in Worcestershire. WCC will identify opportunities to link up with active travel options where the opportunity presents. Some recent and current schemes are outlined below:

- Demand Responsive Transport (DRT) – working in partnership with local bus operators, buses pick up residents on request, adapting routes to allow all passengers to get to where they need to go. Currently in operation in Bromsgrove and Malvern Hills.
- Many of the railway stations in Worcestershire have EV chargers for public use to satisfy commuters needs and we look to support commuters further using EVs moving forward.
- Beryl bike share scheme – based within the Worcester City boundary the scheme will support active transport using publicly accessible bikes within the local area. Riders will be able to hire one of the 225 bikes (including e-bikes) that will be located in strategically selected parking bays from where the rider will collect and deposit the bikes.
- Community Car Clubs – offering a range of cars including EV options currently available to residents of Malvern Hills and Worcester City
- E-Scooters – As part of the Government approved trials, an E Scooter trial ran in Redditch from 2020-2023. The trials' objective was to assist with informing future travel policy drawing on both qualitative and quantitative data. On average 258 users a week access the e-scooters travelling a total of 121,000 journeys during the trial period which saved 4.2TCO_{2e}. The trial is now closed whilst the Government decide on its approach to e-scooters.
- Other EVCI projects – District Councils have been involved with developing EVI on a local level where opportunities and funding has allowed. WCC will collaborate with districts and aim to complement existing⁵ EVCI where possible.

⁵ WCC do not own or operate any EVCI currently, integration would be with district and privately owned networks

6. The Future of EV charging in Worcestershire

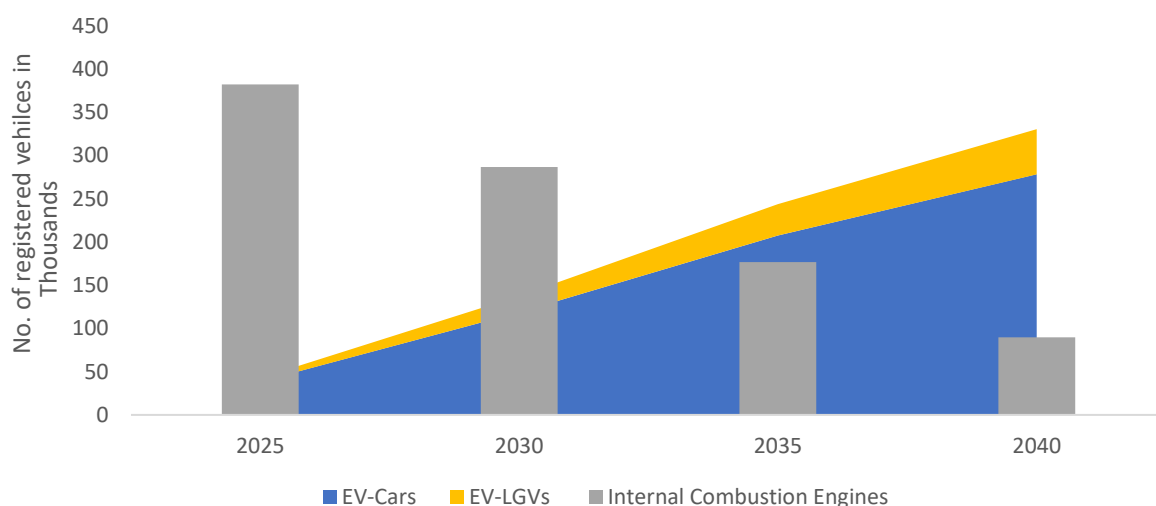
6.1. Future at a Glance

- By 2035 58%^{xxi} of all registered cars and LGVs on the road in Worcestershire will be electric;
- Around 4,000^{xxii} public chargepoint sockets will be required to meet EV driver demand by 2030;
- The majority of these will be low powered and located near to residential properties; and
- Emissions from cars and LGVs will reduce by 45% by 2035 and 85% by 2040^{xxiii}.

6.2. Predicted number of EVs

6.2.1. Government predictions estimate increasing sales for EVs will rise quickly from 2025 with a 10% to a 32% market share in 2030. By 2040 only 21% of registered vehicles on Worcestershire streets are predicted to be internal combustion engine vehicles, see Figure 6.1 below.

Figure 6.1: Predicted rate of EV & ICE Registrations for Worcestershire 2025- 2040



Source: CENEX, National EV Insight and Support-NEVIS

6.2.2. It should be recognised that data relating to chargepoints is based on predicted EV registration in each location. This data can therefore be affected by the location of dealerships, large company car schemes or a car rental agencies.

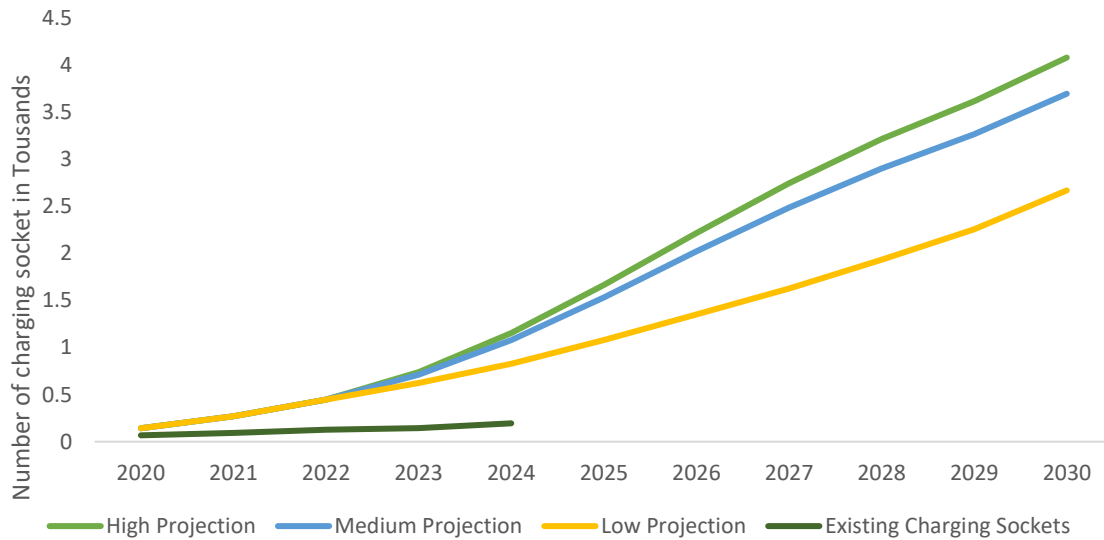
6.3. Meeting the Demand

6.3.1. To satisfy the charging needs for Worcestershire residents charging on street, it is important to ensure EVCI provision grows at the rate required to support travel and transition to EVs. We recognise that a mixture of approaches will be required in providing EVCI and therefore a blended approach to EVCI is being used in our estimated provision with a medium take up on EVs. This will account for both residential on street charging along with some hub-based car park-based type infrastructure.

6.3.2. Figure 6.2 gives an illustration of the gap in EVCI provision by showing an indication of the rate of deployment required by 2030. Following the medium projection, 3,693 on street residential charging sockets are estimated to be required to meet the predicted demand in EV growth in Worcestershire. These low powered 'slow chargers' will be required to be located near homes to satisfy the need of residents without off-street parking. In addition, there is also estimated

to be a need for around 600 additional fast and high-powered charger sockets in the County (Figure 6.3).

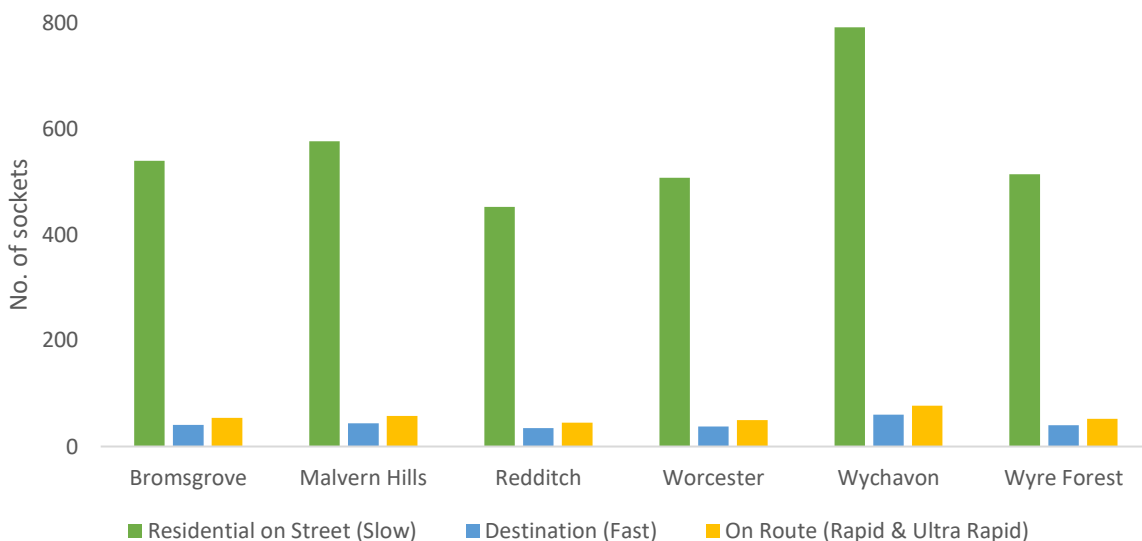
Figure 6.2: Projected EVI Requirement and Gap analysis of Low Powered on street Charging Sockets.



Source: CENEX, National EV Insight and Support-NEVIS

6.3.3. To give an indication of how the 3,693 slow charging sockets and 335 high powered charging sockets need to be distributed throughout the county Figure 6.3 gives a breakdown by district of where these chargers are likely to be needed to meet demand. For context, the chart gives an indication of the destination and on route chargers required.

Figure 6.3: Indicative Projected Chargers Required to Meet Demand in 2030 Split by District



Source: CENEX, National EV Insight and Support-NEVIS

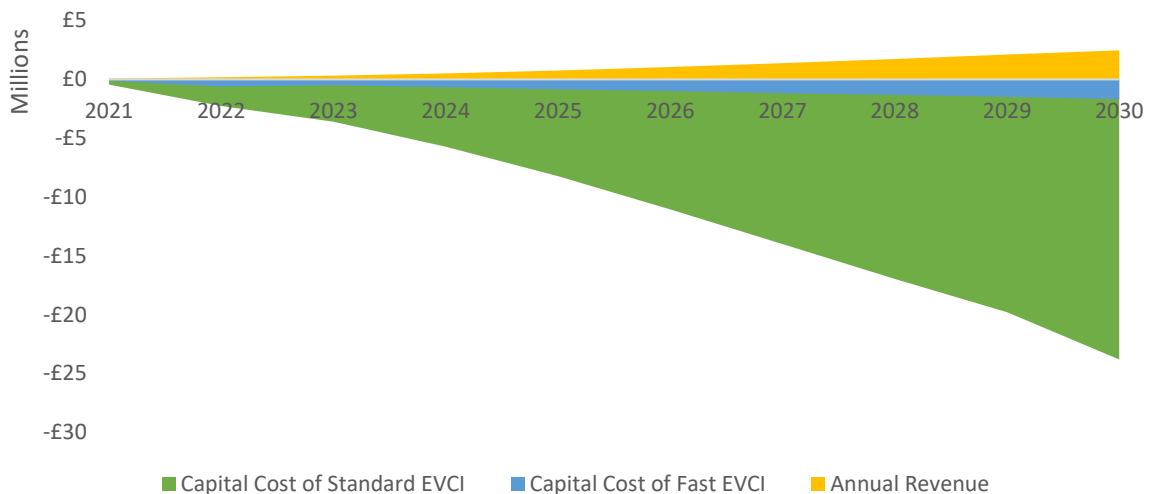
6.3.4. There is a significant gap in funding the infrastructure required compared with existing provision. We will apply for all relevant funding to assist with meeting the desired outcomes whilst at the same time seeking opportunities with private funders to leverage additional

opportunity and funds as appropriate. The need to keep up to date with developments in the industry will also be key to identification of innovative and new technology that may assist in meeting the level of EVCI required.

6.3.5. There are several operating models available for EVCI and careful consideration of commercial arrangements is needed to determine the best outcomes for the county. (See section ‘Commercial arrangements’) Figure 6.4 shows that projected capital costs for the EVCI required is estimated at around £25m by 2030 whilst annual total annual revenue at this point is just short of £2.5m.

6.3.6. To finance the EVCI required for, WCC have identified a public-private commercial partnership offers the most flexible approach using a concession model. (See section ‘Implementation’). WCC will seek opportunity to utilise government funding as capital investment and retain some control over deliverables whilst transferring the risks from installation, operation, and maintenance to the service provider. To ensure on social equity, WCC would forfeit any potential revenue share to be fed back into the network.

Figure 6.4: Projected Cumulative Capital Costs and Annual Revenue for EVCI in Worcestershire 2021 -2030



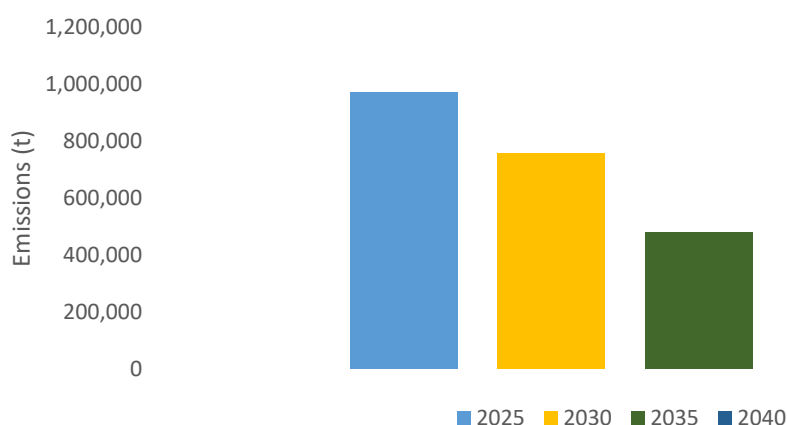
Source: CENEX, National EV Insight and Support-NEVIS

7. Wider Benefits of EV transition

7.1. Improved GHG Emissions

7.1.1. Projected uptake of EVs in our County could result in reducing annual emissions from car and LGVs by over 73% by 2040 as seen in Figure 7.1. This will not only assist with climate change action but also in improving air quality in our region.

Figure 7.1: Reducing Emissions Predicted from EV Adoption in Worcestershire



Source: CENEX, National EV Insight and Support-NEVIS

7.1.2. EVs do not address the issues of carbon neutrality as emissions can be attributed to the energy supply and in manufacturing. Whilst significantly reducing GHG emissions as there are no tailpipe gases, EVs can still contribute to some particulate matter from tyre wear.

7.1.3. It should also be noted that increasing the overall number of journeys undertaken by EV is not the intention. The priority is reduction in car travel, particularly single occupancy travel, along with increased up take up in active travel and public transport.

7.2. Quieter Vehicles

7.2.1. Electric motors are quieter than petrol or diesel engines meaning less noise pollution from our streets, there will still be audible road noise from tyres, but the absence of an engine allows for much quieter roads which will be particularly evident at junctions and other locations where vehicles would normally be idling. Whilst beneficial, reduced road noise is also cause for concern for pedestrians, who are visually impaired or have low vision. Vehicle manufactures are overcoming this with use of audible alerts to signify movement at low speeds.

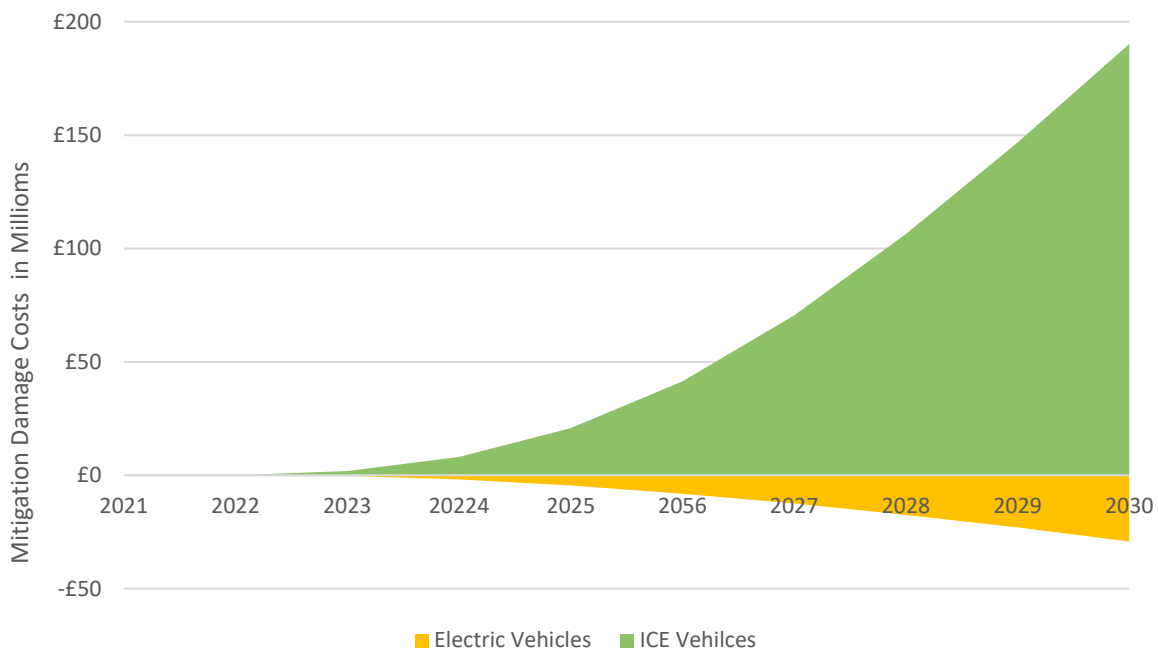
7.3. Mitigated Costs

7.3.1. There are associated costs that can be attributed to the use of traditional combustion engine vehicles for example NHS spending on illnesses related to poor air quality from pollutants like NO₂ and PM_{2.5}⁶. In replacing combustion engine vehicles with EVs these associated costs can

⁶ Nitrogen Dioxide and fine Particulate Matter are known contributors to lung and respiratory tract illnesses. Between 2017 and 2025 the combined total cost of air pollution to the NHS and social care is estimated to be £1.6 billion for PM_{2.5} and NO₂ combined [Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/90442/estimation-of-costs-to-the-nhs-and-social-care-due-to-the-health-impacts-of-air-pollution-summary-report.pdf)

be avoided; these are referred to as mitigated costs. An estimation of predicted mitigated cost is expressed in Figure 7.2. This identifies that the level of spending that is being directed towards dealing with the negative impacts of ICE vehicles. By 2030 this runs in excess of £150m. This is in stark contrast to the benefits or savings in monetary terms with the transition to EVs where saving of nearly £30m are predicted for 2030 (Figure 7.2).

Figure 7.2: Projected Indicative Mitigated Damage Costs Attributed to ICE and Electric Vehicles to 2030



Source: CENEX, National EV Insight and Support-NEVIS

7.4. More Cost-Effective Motoring

7.4.1. EVs can be cheaper to run⁷ than a traditional petrol/diesel vehicle. They also carry reduced maintenance as fewer moving parts. Charging at home costs on average 8p per mile, compared with diesel at 13p and petrol at 17p per mile (Jan 2024 DfT figures) this offers significant saving to the driver. Despite the initial outlay, EV drivers can find driving EVs a more cost-effective experience and saving on repairs, fuel and maintenance can assist drivers with cost of living and or be spent within the local community.

⁷ Depending on the cost of electricity compared with petrol or diesel at the time

8. Worcestershire EVCI Strategy

8.1. Introduction

- 8.1.1. This phase 1 strategy will span from 2024-2029 after which subsequent strategies will be required to represent changes in funding, technology, market forces and growing demand. Overall, the intention is to deliver the right charger at the right location.

8.2. Environmental Benefits

- 8.2.1. One of the key objectives of the Worcestershire's EVCI strategy is to deliver improved air quality and reduced emissions by decarbonising transport in and around our county.
- 8.2.2. With emissions from road transport being the second largest contributor to GHGs in the county, WCC are committed to facilitating the transition to EVs which will support Governments National Transport Decarbonisation Plan and Net Zero ambitions.
- 8.2.3. We will continue working with districts to address AQMA requirements and address outcomes of their Air Quality Action Plans to ensure EV transport is delivering the desired improvements in air quality.
- 8.2.4. In increasing the number of chargepoints, we will be assisting drivers to move from ICE vehicles into EVs will contribute to improving local and national air quality.
- 8.2.5. We will promote benefits of EVs and other sustainable travel options where opportunities arise to support the transition to EVs. This will involve dispelling myths and confusion over the environmental benefits of EVs.
- 8.2.6. We are looking to work with CPOs to ensure that environmental messaging is a key part of their deliverables and that this is done with clarity and accuracy.
- 8.2.7. To help minimise the CO₂e emissions associated with EV and EV charging, we require EVCI to be powered by energy from renewable sources. The use of microgeneration or other technology is welcomed to assist with energy supply and energy management on the sites (solar, battery storage or demand management etc)

8.3. Reliability

- 8.3.1. Worcestershire's EVCI strategy focuses on charging solutions that give users confidence to transition to EV and continue to drive EV. Clear ownership and resourcing in planning, delivery and maintenance of EVCI will be required.
- 8.3.2. Functional and well-maintained chargepoints that consistently deliver the service required at the point it is needed. Maintenance and servicing are important to keep EVCI active and available. Deterioration of associated elements to the EVCI, hoses, signage, out of date information, damaged chargers etc lends to a poor perception of the EVCI and will ultimately lead to loss of confidence by users. Simplicity of user experience is important to ensure confidence amongst drivers that need to use them and for those looking to make the move to an EV.
- 8.3.3. Safety is paramount for users whilst charging their car, all efforts must be taken to make chargepoint locations well lit, overlooked by properties and close to other amenities. This can also include the grouping together of chargepoints to allow safety in numbers and associated user activity at a given location.
- 8.3.4. Each chargepoint location should have more than one socket allowing for contingency measures and for multiple users to access a charge concurrently. Smart charging and load balancing would be welcomed as part of the solution for EVCI's as this will help to ensure the network is future proofed and reliable.

- 8.3.5. Futureproofing EVCI is required to ensure that investment in equipment does not lead to obsolescence. We will look for operators to make sure equipment is updated and kept up to speed with advancement in technology during the term of any contract.
- 8.3.6. WCC is developing its local Area Energy Plan and consider EV charging and the related infrastructure a key element of this process. Contribution towards the developing plan from partners including local chargepoint operators in the region will be expected.

8.4. Accessibility

- 8.4.1. The EVCI strategy also focuses on to increase provision of inclusively designed charging solutions that are located conveniently for homes with on-street parking. Charging solutions will support those without off-street parking and enable them to make the transition to EV. They will be conveniently located and should not hinder other footway or highway users in the process.
- 8.4.2. It is preferable that the chargepoints are installed on WCC land. However, we will also work with partners (primary other public landowners) where a suitable location has been identified.
- 8.4.3. The use of charging hubs (groups of chargers co-located) in council owned car parks as an alternative to on-street chargers will be utilised where this has a lower impact on the street scape and existing parking pressures. Community centres, public sports facilities and parish halls for example may provide a good fit in village and rural communities where off-street parking is not available.
- 8.4.4. We will work with districts, other appropriate landowners and the Distribution Network Operator to establish rural locations with suitable grid capacity for EVCI installation. Depending on site constraints, we will aim to make all EVCI inclusive and accessible for those with diverse accessibility needs. [PAS 1899](#)⁸ will be used as the specification to plan for accessible sites; this will include the physical location, placement, information provision and design of the chargepoint to ensure inclusivity for all.⁹
- 8.4.5. We welcome CPO's to use overstay charging and any other technological developments in discouraging blocking or 'ICEing'¹⁰ of charging bays. Any on street charging solution will be developed in line with the Highways Act 1980 and the Equalities Act 2010.
- 8.4.6. Any form of trailing cable involved in a charging solution (temporary or otherwise) is not supported by this strategy due to issues with access and risks to pedestrians tripping, wheelchair user and pushchairs etc;¹¹;
- 8.4.7. For avoidance of doubt:
- Nose to kerb on street parking locations are favoured as this ensures the least disruption to the footway from cables and structural charging components.
 - Lamppost charging is not a viable option as lampposts in the county are in the main located to the rear edge of the footway. These would give rise to cables crossing the footway.¹²
 - Charging cable covers, ramps, mats, protectors or other products that cover cables running on or through the footway are not supported.
 - Charging cable gullies within footways are not supported due to the structural integrity of the footway being undermined and resulting issues.

⁸ The standard that sets out good practice in delivering inclusive and accessible public chargepoints

⁹ Accessibility will be reviewed on a site-by-site basis.

¹⁰ Icing refers to where an internal combustion engine vehicle blocks the access to an EV charger.

¹¹ We will review outcomes of trials in other locations for charging solutions including cable gullies. We will also identify opportunities from developing technology to assist with innovative and developing charging solutions.

¹² significant upgrading of lamppost infrastructure would therefore be required for this option.

- 8.4.8. Securing funding is key to WCC's role in facilitating EVCI in our county. In addition to securing LEVI funding, we will identify and bid for other suitable available Government funding to support the installation of publicly accessible EVCI. This will assist in giving EVCI a balance between value for money for the user and viability as a self-sustaining network.
- 8.4.9. By establishing a Public – Private commercial partnership on a concession basis WCC is ensuring all operation cost and risk is transferred to the CPO for the period of the contract. WCC are open to revenue opportunities from EVCI and would look to invest this into the developing EVCI network. This approach will ensure the best charging outcome for the county protecting public finance and securing a committed CPO.
- 8.4.10. Ensuring value for money as part of our work will be central to this project, this is demonstrated in the approach of joining the Midlands Connect consortium to assist with procurement process therefore making the most of public funding.
- 8.4.11. Fair pricing is key to the success of any EVCI. Users must not be forced out of using chargepoints due to excessive unit prices and excessive price increases. WCC support charging solutions that do not require prior registration or 'priority membership' to access preferential rates.
- 8.4.12. The use of connection fees is not supported as this can unfairly disadvantage users that may require several small charges as opposed to a single longer charging session.
- 8.4.13. We welcome CPO's employing technology to provide time of use tariffs and preferential rates to EV drivers without off-street parking.
- 8.4.14. Futureproofing chargepoint locations is encouraged and the use of passive provision alongside active chargers is sought where there is opportunity.

8.5. Equitable

- 8.5.1. Worcestershire's EVCI Strategy would enable access to charging facilities for residents particularly in locations that address inequalities in social, economic and ruralism.
- 8.5.2. Our community consists of a diverse group of drivers, who will all be affected by the ban on petrol and diesel vehicles in 2035. Planning EVCI that allows access to charging despite differences in needs will be a priority for us.
- 8.5.3. 30% of households have no access to dedicated off-street parking allowing for them to access a home charger and the benefits that this can bring. Often these are the same properties where other issues including poor air quality and social inequalities.
- 8.5.4. 85% of Worcestershire is classed as rural and this can often result in unequal travel opportunities. We will use Government funding to leverage opportunities with CPOs and attract private funding to assist with coverage of EVCI.
- 8.5.5. As a tier 1 authority our plan is to utilise the LEVI funding to support the needs of our communities that do not have access to off-street parking. We will also improve the rollout and commercialisation of local charging using our influence to ensure less financially attractive locations can be built into the overall charging network.
- 8.5.6. The cost of charging an EV can vary greatly depending on the speed of the charge and the time of day of the charge. As with other electrical supplies, it is often cheaper to charge when there is less demand at nighttime. We will support more lower powered chargers within residential areas that do not have access to off-street parking. We welcome CPO's to employ technology solutions to provide preferential rates to EV drivers without off-street parking.
- 8.5.7. Our preference is to enable homes without off-street parking to be able to access charging within 5 mins walk of their homes, if this is not achievable, we aim to utilise safe locations for charging hubs. Preference will be given to locations that are under WCC ownership however,

where an ideal location may be under another landowner, this shall be considered, as long as all other requirements are agreeable.

- 8.5.8. When identifying locations for EVCI, careful consideration will be given to locations that have compromised parking and or conflicting demands over limited space.

8.6. Integration

- 8.6.1. The EVCI strategy will encourage integration with wider local transport services, active transport, and to widen travel choice.
- 8.6.2. To support this strategy, we will liaise with public sector partners and local businesses and explore their options to install workplace charging to allow staff to confidently charge at the workplace through the Government Workplace Charging Scheme.
- 8.6.3. Identifying opportunities to link with other travel options is a priority. Locating chargepoints to integrate with EV car clubs and train stations etc will assist in easier, low carbon travel.
- 8.6.4. As a predominantly rural county, well connected transport and easy transport solutions are even more important to those that live, work, and play in our county. Decarbonisation of transport is one of the Government's priorities^{xxiv} and this theme will be strengthened in future WCC Local Transport Plans.
- 8.6.5. Whilst preparing for the use of EVs in our county we will also be identifying opportunity to move people from vehicles to sustainable modes of travel such as, cycling, walking, public transport.
- 8.6.6. Application of 20-minute neighbourhoods as a future neighbourhood concept to locate services within easy reach of residents will also enable a reducing reliance on vehicles for transport as will making use of future technologies and increasing opportunities to adopt shared transport, and active travel.
- 8.6.7. We will look to utilise chargepoints as multifunctional pieces of infrastructure in the future, integrating with additional technologies such as public Wi-Fi connections, Internet of Things¹³ (IoT), delivery services environmental services, powering other Zero Emission Powered Light Vehicles (ZEPLVs) etc. In this way we can deliver efficiency and joined up working with other delivery services.

¹³ The use of embedding physical assets with software technologies to allow them to communicate using the internet. This enables the exchange of data and linkage of devices to support services and systems

9. Commercial Arrangements

9.1. Options for Chargepoints

9.1.1. There are several options available for the operation of chargepoints and each brings its own level of risk and control associated with it (Table 9.1). As a local authority, WCC wish to use its influence to bring the desired outcomes. In selecting the most appropriate commercial arrangement it is possible to further influence outcomes including affordability, equity in provision and an integrated network.

Table 9.1: Commercial Arrangement Options for Chargepoints

Category	Definition
Own and Operate	WCC to pay for all capital costs, operational costs and retain all ownership, control, responsibility, risk, and revenue. WCC will have full ownership of the charge-points and have the autonomy to select the charge-point location, type and number and set charging tariffs, while receiving one hundred percent of the revenue from usage charges.
Public Private Commercial Partnership (PPCP)	This will include a number of varying commercial arrangements between WCC and a service provider. However, the key strength of a PPCP arrangement is that it allows for a more flexible arrangement between the Council and the service provider. It can unlock private investment by more evenly sharing risk and revenue. The arrangement can be of two types: <ul style="list-style-type: none"> • External Operator – All capital costs are paid for by the LA. The maintenance costs will be shared by the LA and the CPO. • Concession approach - Funded by the public sector or part funded by the public and private sector and operated by a Charge Point Operator (CPO) for an agreed period under a profit share arrangement.
Joint Venture (JV)	Setting up a JV comes with its own range of risks, which WCC will be needed to be considered carefully. A potential good alternative option for deploying EV infrastructure but dependent on contractual agreement with a service provider.
Land Lease	This approach is a low-risk low revenue commercial arrangement. However, WCC will retain little control over the resulting service by leasing land it owns to a service provider.

Source: WCC

Appendix 6 presents potential risk appetite, strengths and weakness of the categories in table 9.1.

10. Implementation

10.1. WCC Five-year Action Plan

- 10.1.1. Worcestershire County Council are partnering with Midlands Connect and utilising a consortium approach to procure a CPO to pool resources and bring about the most appropriate solution for the provision of off-street charging facilities covered by this strategy phase 1. As a result of using a consortium approach we are making use of shared resources.
- 10.1.2. Subject to securing government funding, Worcestershire County Council intend to appoint a Chargepoint Operator (CPO) through a concession contract ¹⁴ (see also Table 9.1). The procurement of this will utilise capital LEVI funding allocated for Worcestershire totalling £3.48m.
- 10.1.3. This CPO will manage the process end to end from design, supply and installation through to operation and maintenance. Chargepoints will therefore be funded through a combination of private finance from the CPO and Government funding.
- 10.1.4. Overall, we want to see that the right charger is in the right place to service the needs of our community and therefore we require a CPO to be hardware agnostic. It is expected that this CPO will be the provider of this service for a 15-year period. The appointed operator will be required to finance all servicing and maintenance.
- 10.1.5. For the purpose of addressing EVCI to address properties without off-street parking, Worcestershire County Council will be requiring EVCI provision to be funded with a combination of Government grant funding and private CPO investment. WCC will not be allocating any funding to the installation of publicly accessible chargepoints. CPOs will also be required to assume all associated revenue risk with their associated EVCI.
- 10.1.6. Social Value and Environmental factors will be considered essential elements of this strategy and WCC will be looking to bring benefit to the local community, this will be an essential part of any CPO running the contract.
- 10.1.7. The project will be overseen internally WCC by the LEVI project Board where the progress of designated subgroups will be monitored and managed. The multi-skilled project team consists of WCC employees supported by consultants for expertise and guidance as required.
- 10.1.8. The next steps for implementation of this strategy will be ensuring stakeholder consultation and then following it through to appointing a CPO that will deliver our vision in our county as per Table 10.1.

¹⁴ After reviewing the strengths and weaknesses of commercial arrangements as explained in appendix 6

Table 10.1: Five-Year Action Plan

Ref	Theme	Action	Deadline
1	Strategy	Develop, consult on and publish a strategy to deliver on charging provision for communities (Phase 1 with a focus on residents without access to off-street parking) Ensuring EVCI is Environmentally Sustainable, Accessible, Reliable, Equitable & Integrated,	Summer 2024
2	Consultation	Engage with stakeholder and local community to ensure vision and overall strategic direction will deliver the outcomes in line with need	Summer 2024
3	Scoping	Engage with CPOs through soft market testing to understand commercial capabilities and to shape our procurement requirements	Spring 2024
4	Procurement and Enablement	Identify a procurement route to secure a CPO working with Midlands Connect and consortium partners to deliver circa 800 sockets funded through Government's LEVI Capital Grant funding. Award CPO and work with them to understand the required specification and requirements	2025
5	Final Site selection	Work with the CPO to establish the correct site location for EVCI Includes engagement with community to ensure the success of each specific location	2025
6	Delivery	Installation of EVCI	2025-2027
7	Communications and Engagement	<p>Promote benefits of EVs and other sustainable travel options where opportunities arise to support the transition to EVs.</p> <p>WCC communications team will devise and implement a communications plan. Full use of social media, websites, Press releases and face to face events to promote the EVCI and EVs in general will be detailed.</p> <p>Current webpage: Electric Vehicle charge points Worcestershire County Council will be further developed to include developments with LEVI funded project and in time hold details of the EVCI with potential links to usage, reliability KPIs etc. Also to be used to signpost to other relevant information including Government grant funding etc.</p> <p>The CPO will also be asked to ensure promotion of the EVCI and are registered to allow visibility and integration with relevant charging maps and tools.</p>	Ongoing
8	Other Miscellaneous	Work with CPOs to ensure that environmental messaging is a key part of their deliverables and that this is done with clarity and accuracy,	From contract initiation

Ref	Theme	Action	Deadline
		The CPO will also be asked to ensure promotion of the EVCI and are registered to allow visibility and integration with relevant charging maps and tools.	
9	Other Miscellaneous	In the development of local area action planning consider EV charging and the related infrastructure a key element of this process	Mid to Long term
10	Strategy Review	Review and update strategy to reflect changing landscape and national guidance and to remain relevant. Also look to widen scope and include for e.g., incentivising taxis to transition, private fleets etc.	2029
11	Monitoring & Review	Monitoring contract through KPIs to ensure deliverables	Ongoing from contract initiation
12	Other Miscellaneous	Explore future opportunities to access suitable funding to support or expand planned EVCI	Ongoing
13	Other Miscellaneous	Keep abreast of developing technologies and issues and trial outcomes in other locations for charging solutions including cable gullies, wireless charging, V2G and V2X. We will identify opportunities from developing technology to assist with innovative and developing charging solutions	Ongoing

Source: WCC

11. EVCI Strategy Risks

11.1. Key Risks

11.1.1. With any large-scale venture, there are associated risks. WCC will work to mitigate these as far as possible and identify solutions where they present. Table 11.1 sets out key risks that may arise when implementing EVCI.

Table 11.1: Key Risks

Risk	Mitigation
Grid connection costs could be significant rendering some locations unviable within the allocated budget	Engagement with DNO and scoping of sites in initial stages to gauge and understand constraints Potential clustering of chargepoints to reduce civil works (e.g. mini-charging hub) The impact of grid connection costs is now mitigated by Significant Code Review (April 2023). This review reduced the cost of making or upgrading connections to the electricity network, but in some cases, and particularly for high powered EVCPs, these costs may still be significant
Suitable site availability	Rigorous site selection process Engagement with partners
Residents not happy with the charging solution offered for their area.	Engagement and consultation Use of right charger right place logic Ensure CPO is hardware agnostic Clear communications to residents about limitations of funding
Insufficient funding	Rigorous site selection process Negotiations with CPO Clear communications to residents about limitations of funding
Impacts of technological advancements.	Procurement of strong provider with ability to reflect and implement advances in technology during the contract.
Impacts of increases in electricity pricing.	Agree strategy of pricing for EV drivers with no home charging provision
Less viable locations could get left behind without sufficient public funding.	Use government funding and leverage to identify key locations in less viable locations.

Source: WCC

12. Engagement

12.1. Background

12.1.1. A communications plan will be developed which will include our methods and frequency of engagement with the various stakeholders both in the development of this strategy and longer term.

12.2. Key Partners

12.2.1. We are working with Midlands Connect and a consortium of Midlands local authorities to collaborate on delivery of our LEVI funded projects. We believe this strengthens the opportunity for us to establish the best solution for our requirements whilst learning from each other and sharing knowledge and best practice methods.

12.2.2. Our District authorities are key allies in delivering this strategy and will be engaged with at every given opportunity. Particularly in the identification of suitable charging locations and integration with existing and planned EVCI. This is fundamental in planning nay network and will be key to the success of all parties involved.

12.3. Public & Stakeholders

12.3.1. Worcestershire County Council will consult the public and stakeholders on this strategy and any future reiterations of it. Continuous feedback will help to inform the next phase of strategy development. It is important that the views and thoughts of our community are taken into account and reflected in this document and in its delivery.

12.4. Industry

12.4.1. As a new and fast developing field delivery of EVCI will require close contact with both the EVCI industry, Government and early adopters of technology and pilot studies. We are working with other local authorities through LA forums and delivery bodies of the Government to make the best use of shared knowledge in this sector.

12.4.2. We will continue to engage with CPOs to monitor the changes in technology and keep up to date with industry advancements to understand new and innovative technologies that could be integrated into our existing or planned infrastructure.

12.4.3. Soft market testing early in our procurement process will be used to make sure we are delivering the ideal solution at any given point in time, and we are willing to learn and adapt our approach to deliver the best outcome possible.

13. Monitoring Progress and Outcomes

13.1. Progress and Outcomes of the Strategy

13.1.1. Worcestershire County Council in line with LEVI funding will monitor the delivery of infrastructure against the contract and strategy objectives to ensure the key objectives are being delivered (Table 13.1). We will require as part of any contract held that data is provide to us to identify recurrent issues, and guide plans for future network expansion and chargepoint speed decisions. We will also monitor the progress of EV take up and EVI utilisation to ensure that provision is meeting demand.

13.1.2. Any future opportunities to access suitable funding to support or expand existing and planned EVCI will be explored and discussed with partners and existing operators to ensure collaboration on future infrastructure.

Table 13.1: Key Performance Indicators to monitor progress towards the WCC Vision

Ref No.	Indicator	Measure	Data source
1	LEVI Capital Funding secured	Circa £3.5m of grant funding	Formal Grant offer
2	Number of chargepoints	Total number Number installed via WCC initiated contract. Number per 100,000 of population	WCC contract monitoring data DfT statistics
3	Geographical coverage of network	Percentage of settlement coverage	WCC GIS data
4	Utilisation of Chargepoints	Number of chargers registered. kWh of electricity drawn Utilisation rate for each charger	CPO back-office data
5	Reliability of Network	Percentage of availability per charger Chargepoint Network availability Fault Response times High, Medium & low Priority) Planned Inspection Maintenance Chargepoint Management System	CPO back-office data
6	Customer satisfaction	24/7 customer response helpline availability Response time to answer customer service line Number of compliments / complaints Response time to answer complaints Customer satisfaction survey	CPO back-office data WCC contract monitoring data Engagement survey
7	Contract Agreements	Data reporting and monitoring as per contract Any Agreed revenue payments paid as per contract Delivery of Social Value commitments	Financial accounts and invoicing process Project specific to be determined
8	Landowner satisfaction (where chargepoints have been installed on land other than WCC)	Landowner satisfaction survey	Engagement survey

Source: WCC

13.2.Chargepoint Operators

13.2.1. Good contract management is essential for a well delivered service. Regular meetings will be held from the outset with the contracted CPO/CPOs and we will monitor both the infrastructure and the service provided. Quantitative and qualitative outputs will be used in this process and feedback will be used to improve the service and shape future provision. A full table of indicative measures can be seen in Appendix 4.

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14. Future Development of EV Strategy

- 14.1.1. With EV adoption still in early stages it is important to recognise we will need to reassess and develop our approach to reflect UK government direction, changes in technology, services offered by the CPO/CPOs and opportunities this will bring and new legislation and guidance.
- 14.1.2. This Strategy will be reviewed to ensure it continues to reflect eth changing landscape and requirements of EV drivers in our community. It is envisaged we will produce subsequent strategy to account for other related EV scenarios and reflect this with the emerging Worcestershire LTP5.

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Appendices

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Appendix 1: Types of Chargers

There is a range of electric vehicle charging technology that delivers different speeds of charging. The different speed of charging suit different locations. Where cars are generally parked for longer periods (including at home and at workplaces), charging can be slower. Where drivers are stopping en-route on long journeys, a higher power faster charger will be more suitable.

Generally, higher powered charger cost more pence per kW when compared with lower powered units. Drivers will pay for the faster charge time and convenience of charge much like the higher prices of fuel at motorway service stations (See Table A.1.1). As with EV vehicles, charging technology is advancing quickly, the details below give an indication of the different powers of chargers and their application.

Table A.1.1: Types of Chargers

Charger Type	Power	Location	Details ¹⁵
Slow / Standard AC	0 - 7 kW	Homes with off street parking Some older destination car parks	12-5.5 hours for full charge Often used to charge overnight
Fast AC/DC	8-49kW	Homes with off street parking Destinations (car parks, shopping centres, leisure, workplaces etc)	1 – 5 hours for full charge Homeowners can often access lower tariffs
Rapid DC	50-149kW	Short Stay Destinations (motorway service stations and car parks)	15mins – 1hour for full charge Provide top-up facilities in the natural break time for those driving longer distances, or while making ‘pop-in’ visits to shops or businesses
Ultra-rapid DC	150kW+	En-Route destinations (larger cities & motorway services)	10mins – 1 hour Equivalent to existing filling stations with facilities alongside

Source: NEVIS/WCC

EVs are supplied with a charging cable to connect to slow and fast charge points. This cable has a plug specific to the vehicle on one end, and a suitable plug on the other end to connect to the charge points. This is typically referred to as a Type 2 connector.

Rapid and high-power chargers are fitted with tethered cables and connectors that plug directly into the vehicle due to the high power being delivered. Most vehicle manufacturers use the CCS DC socket/plug with the CHAdeMO still in use for older vehicles (see image on the right in Figure A.1.1).
Figure A.1.1: Type 2 socket and plugs for slow/fast and rapid charging in the UK

¹⁵ charging times depend on factors including car battery size, power rating of charger and miles between charges

Fast Charging Sockets and Plug

Type 2 – 7-22kW AC



Rapid Charging Sockets and Plugs

CHAdeMO – 50kW DC



CCS – 50kW DC



Type 2 – 43kW AC



Tesla Type 2-
120kW DC



Source: Zap Map

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Appendix 2: Site Selection

For LEVI funded sites all locations must support homes that do not have off street parking. Locations should be within a 5-minute walk and Prioritisation will be given to sites that are:

- WCC owned land where vehicles park nose to kerb;
- District Council owned land where vehicles park nose to kerb;
- WCC or district owned Car parks within a 5 -10-minute walk of housing that does not have off street parking;
- Rural locations where homes do not have access to off street parking; and
- On street locations where it complies with the Highways and equalities Act.

To ensure EVCI is located in the optimal position, numerous factors will need to come into play. Below outlines all the elements for consideration of a chargepoint location (Table A.2.1).

Table A.2.1: Criteria to Consider in Site location

Criteria for Consideration	Comment
Safety	-
Accessibility	Including width of footway
Security	-
Proximity to Point of connection	-
Proximity to residential off-street parking area	for on street chargers
Proximity to key destinations	for rapid and ultra rapid chargers
Proximity to main routes	for ultra rapid chargers
Proximity to facilities (food & drink and toilets)	for ultra rapid chargers
Proximity to other nearby chargers	-
Potential for grouping chargers and expansion	-
Statutory utilities and other road works	e.g. Section 50 & 38 requirements
Rurality of site	In rural locations compromise may be required
Environmental Considerations	Flooding, archaeological features
Ownership of land	In some instances, leasing will be considered
Dwell time	Length of stay under normal parking situations

Source: WCC

Appendix 3: WCC's Approach to Residential and Non-residential Chargepoints

Residential Chargepoints¹⁶

Worcestershire County Council are supportive of home charging for electric vehicles where vehicles are parked on a private driveway or in a garage.

Residents looking to install an electric vehicle charge point at a private residence, should consider the following points:

- Charging cables should not cross the footpath or road;
- Any cabling cannot obstruct a designated public highway (footpath, roadway);
- Chargepoints must only be installed by a qualified person and comply with part P of Building Regulations;
- The installer should ensure there is a suitable electricity supply to accept the charge point;
- If the property is a listed building or located in a conservation area, contact your Local Planning Authority prior to installation to check if permission/consent is required to install a chargepoint; and
- Building Regulations Approved Document S requires the installation of EV chargepoint for each home with allocated parking.

Non-residential Chargepoints

For non-residential developments (new development and refurbishment) with more 10 or more parking spaces there must be EVCI provision for 1 space per 10 parking spaces.

Accompanying this should be cabling for a further 1 in 5 spaces to have a chargepoints at a later date (passive provision)

Covered parking is not required to have a chargepoint installed but must have the cabling for a chargepoint to be installed at a later date.

¹⁶ Home charge points are private chargepoints connected to a domestic electricity supply

Appendix 4: Key KPIs to Manage CPO Contracts

Table A.4.1 below presents Key Performance Indicators (KPIs) for use in the management and monitoring of CPO Contracts.

Table A.4.1: Key KPIs for CPO contracts Management

Report	Aim	KPI
Utilisation of Chargepoints	To maximise utilisation of each chargepoint	Number of chargers registered. kWh of electricity drawn Utilisation rate for each charger
Reliability of Network	100% functionality of all chargepoints at all times	Percentage of availability per charger Chargepoint Network availability Fault Response times High, Medium & low Priority) Planned Inspection Maintenance
Faults / incident <i>(Type and duration of each incident for each charge-point)</i>	To keep frequency and duration of faults to a minimum	Number & duration of faults a) Overall per site b) Individual EVCP
Resolution of fault / incident	To ensure resolution in line with incident response times	Number of faults resolved within specified resolution times
Maintenance report	Mitigation / prevention of faults	The annual completion of inspections of each chargepoint within 15 days of anniversary of its installation.
Back-office function	To have fully functioning charge-points	Number of minutes lost connectivity per chargepoint
Telephone helpline	Rapid response to a 24 / 7 customer helpline	Number of calls taken Percentage of time helpline is fully functional Percentage of calls answered in 30 seconds
Compliments and Complaints <i>(All compliments and complaints regarding EV units to be logged and reported including resolution)</i>	To resolve complaints efficiently and promptly	Number of complaints received Number of compliments received Percentage acknowledged within twelve hours Percentage of complaints receiving formal response and steps to resolution within three working days
Contract Agreements	To ensure CPO is fully compliant with contract To ensure CPO supplies data required by OZEV funding agreement	Data reporting and monitoring as per contract Any Agreed revenue payments paid as per contract Delivery of Social Value commitments

Source: WCC

Appendix 5: Local Policy Drivers

Policy	Remarks/Link
Bromsgrove District Council Ultra Low Emissions Vehicles Strategy	https://www.bromsgrove.gov.uk/media/4929912/Bromsgrove-District-Council-Ultra-Low-Emissions-Vehicles-Strategy.pdf
Destination Zero.pdf (malvern hills.gov.uk)	Destination Zero Creating a greener, more sustainable Malvern Hills district
RBC ULEV Strategy (redditchbc.gov.uk)	Redditch Borough Council Ultra-Low Emission Vehicles Strategy
Worcester City Council Electric Vehicle Charging Strategy.pdf	Electric Vehicle Charging Strategy 2023 – 2025 for Worcestershire City Council
Wychavon Intelligently Green Plan	Wychavon Intelligently Green Plan 2020-2030
Corporate plan Wyre Forest District Council (wyreforestdc.gov.uk)	https://www.wyreforestdc.gov.uk/your-council/transparency-and-freedom-of-information/freedom-of-information-publication-scheme/what-our-priorities-are-and-how-we-are-doing/corporate-plan/
Worcestershire Energy Strategy	https://www.wlep.co.uk/wp-content/uploads/P3695-Worcestershire-Energy-Strategy-Strategy-with-glossary.pdf
Midlands Connect - Supercharging the Midlands	https://www.midlandsconnect.uk/publications/supercharging-the-midlands/

Source: WCC

Appendix 6: Commercial Arrangements and Associated Risks

Category	Own & Operate	(External Contractor)	PPCP (Concession)	Joint Venture	Land Lease
Who Invests?					
CAPEX	LA	LA	LA or Supplier or Shared	JV	Supplier
OPEX	LA	Shared	Supplier	JV	Supplier
Who Owns?					
Distribution assets	DNO	DNO	DNO	DNO	DNO
Local connection assets	LA	LA	Supplier	JV	Supplier
Charging assets	LA	LA	Supplier	JV	Supplier
Who Controls?					
Technical specification	LA	LA	LA or Shared	JV	Supplier
Location choices	LA	LA	LA or Supplier or Shared	JV	LA
End user tariff	LA	Supplier	LA or Supplier or Shared	JV	Supplier
Who is Responsible?					
Planning approvals	LA	LA	Supplier	JV	Supplier
Distribution assets	DNO	DNO	DNO	DNO	DNO
Local connection assets	LA*	LA	Supplier	JV*	Supplier
Chargepoint installations	LA*	LA	Supplier	JV*	Supplier
Operations	LA*	Supplier	Supplier	JV*	Supplier
Insurance	LA*	Supplier	Supplier	JV*	Supplier
Customer services	LA*	Supplier	Supplier	JV*	Supplier
Electricity purchase	LA*	LA or Supplier	LA or Supplier	JV*	Supplier
Decommissioning	LA*	LA	LA or Supplier	JV*	Supplier
Who Owns the Risk?					
Technology obsolescence	LA	LA	Supplier	JV	Supplier
Regulatory change	LA	Shared	Supplier	JV	Supplier
Electricity prices	LA	LA or Supplier	LA or Supplier	JV	Supplier
Utilisation	LA	Supplier	Supplier	JV	Supplier
Who Takes Revenue?					
EV charging income	LA	Shared**	Shared***	JV	Supplier
Ground rent	N/A	NA	N/A	N/A	LA

*may be subcontracted

** Operator retains smaller share

*** Operator retains larger share

*may be subcontracted

Key:	Scale
	Most favourable to LA
	Least favourable to LA

Source: CENEX, National EV Insight and Support-NEVIS

End Notes

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- i [State of the UK Climate - Met Office](#)
 - ii [2023 was second warmest year on record for UK - Met Office](#)
 - iii [Health matters: air pollution - GOV.UK \(www.gov.uk\)](#)
 - iv [Local Air Quality Reporting | Worcestershire Regulatory Services \(worcestershire.gov.uk\)](#)
 - v [UK electric vehicle infrastructure strategy - GOV.UK \(www.gov.uk\)](#)
 - vi [Transport decarbonisation plan - GOV.UK \(www.gov.uk\)](#)
 - vii [Transport Act 2000 \(legislation.gov.uk\)](#)
 - viii [The Road to Zero \(publishing.service.gov.uk\)](#)
 - ix [The Carbon Plan - reducing greenhouse gas emissions - GOV.UK \(www.gov.uk\)](#)
 - x [Clean Growth Strategy - GOV.UK \(www.gov.uk\)](#)
 - xi [Industrial Strategy: building a Britain fit for the future \(publishing.service.gov.uk\)](#)
 - xii [Climate Change Act 2008 \(legislation.gov.uk\)](#)
 - xiii [Air quality plan for nitrogen dioxide \(NO2\) in UK \(2017\) - GOV.UK \(www.gov.uk\)](#)
 - xiv [Automated and Electric Vehicles Act 2018 regulatory report 2022 - GOV.UK \(www.gov.uk\)](#)
 - xv [ADOPTION OF THE PARIS AGREEMENT - Paris Agreement text English \(unfccc.int\)](#)
 - xvi *CENEX, National EV Insight and Support-NEVIS and Government Statistics*
 - xvii *Accelerated Insights Platform*
 - xviii *Current Status Report - National EV Insight & Support | Delivered by Cenex , March 2024*
 - xix [Electric vehicle charging device grant scheme statistics: July 2023 - GOV.UK \(www.gov.uk\)](#), July 2023
 - xx *2022 UK Greenhouse Gas Emissions, Provisional figures, Department for Energy Security & Net Zero, 2023*
 - xxi *CENEX, National EV Insight and Support-NEVIS*
 - xxii *CENEX, National EV Insight and Support-NEVIS*
 - xxiii *CENEX, National EV Insight and Support-NEVIS*
 - xxiv [Transport decarbonisation plan - GOV.UK \(www.gov.uk\)](#)