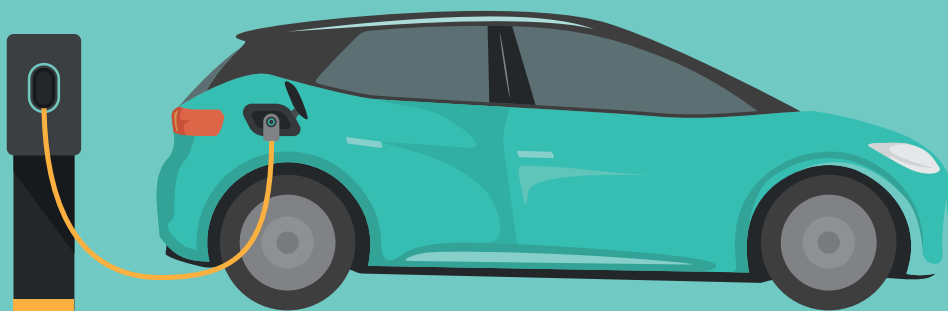
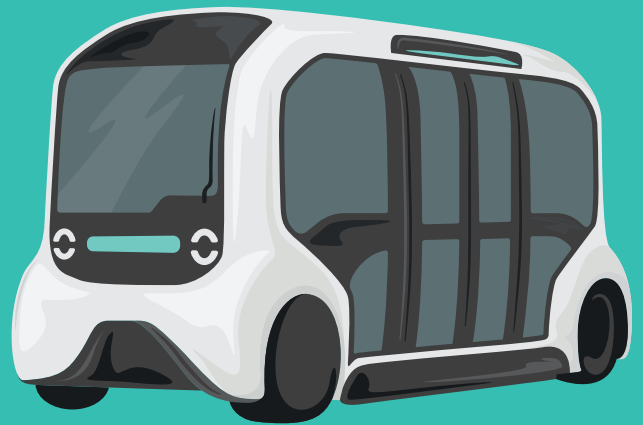


Solihull's Electric Vehicle Strategy

Going Electric



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1. Introduction

This strategy has been developed with the central aim of ensuring that when any existing petrol or diesel powered vehicle owned or operated in the borough is sold or scrapped, should it require replacement, it is replaced with an electric vehicle (EV), achieving the twin aims of reductions in carbon emissions and improvements in air quality. To achieve this aim we need to overcome the key barriers preventing widespread EV adoption. In developing this strategy it has been acknowledged that the EV market is still very much in development, which brings with it many uncertainties as to the future direction and trajectory for market growth and also as to the role local authorities could and should play in the short, medium and long term: the market is dependent on changing external influences such as technology development, economies of scale and government policy. In addition, there is not yet an established roadmap of best-practice for local authorities in encouraging the switch from polluting vehicles to EVs. The most effective interventions will evolve over time as EVs become mainstream and are adopted by different groups in society with varied travel patterns and requirements.

The strategy seeks to address the spectrum of issues that are currently restricting further EV adoption and which are within the Council's ability to influence. Challenges currently experienced include under-communication, insufficient charging infrastructure and the need for further incentives to improve cost-competitiveness and attractiveness of EV ownership. These initial measures have been identified through extensive consultation and input from a number of local authorities across the UK (see Appendix 4) as well as a range of other organisations including Transport for West Midlands, local businesses (see Appendix 5) and the NHS. The measures set out in this strategy are initial steps identified to support EV adoption, which is growing from a relatively low base. It is expected that these measures will evolve over time as the electric vehicle market develops. A long term approach and continued commitment from SMBC will be required to successfully support the development of the local electric vehicle market. While there are challenges and risk associated with involvement in an emerging market that is still developing, delaying any action will risk missing out on the significant opportunities that electric vehicles offer to Solihull.

2. Background

Private vehicle usage represents the primary mode of travel across Solihull and accounts for a significantly higher proportion of travel than the average for the United Kingdom, with more than 75 per cent of journeys to work being undertaken using single-occupancy vehicles in 2011. This poses several challenges for Solihull, including: high levels of greenhouse gas emissions (GHGs), increased air pollution, increasing levels of congestion and negative impacts on physical activity. Furthermore, the population of Solihull is expected to increase substantially over the coming years, with the emerging Solihull Local Plan allocating sites for significant commercial and residential development. This growth is expected to increase the demands on the transport network. The Council expects to meet these demands through the adoption of a range of approaches as part of a wider sustainable travel strategy, as set out in Solihull Connected, including through improved travel planning for businesses and increased emphasis on active travel measures such as walking and cycling.

Whilst an increased focus on other modes of transport aims to limit any increases in the use of private vehicle usage across the borough, car use is still expected to continue to account for a significant proportion of travel going forward. This usage creates clear challenges with regard to air

quality and carbon emissions, for which vehicle use accounted for 46 per cent of total carbon emissions in Solihull in 2017ⁱ. In recent years, ultra-low emission vehicles (ULEV) have increasingly emerged as a solution to these two challenges since they emit zero or very low tailpipe emissions compared to conventional combustion engines. It is acknowledged that whilst electric vehicles do not emit NO₂, they are responsible for some particulate matter emissions from the wear and tear of brake discs and tyres. In addition, unless the electricity that is produced to charge the vehicles is solely derived from renewable energy, they indirectly emit air pollution, including CO₂, from fossil fuel based power stations. Nevertheless, electric vehicles have emerged as the dominant form of ULEV globally, using electric motors for propulsion and incorporating batteries to store power.

The increase in EV adoption since the early 2000s has been pronounced. In 2009, there were as few as 5,890 electric cars globally, of which just 190 were in the UKⁱⁱ. Since then the global stock of EVs has risen exponentially as electric vehicle technology has developed and has been increasingly supported through government policy. In 2018 the stock of electric cars stood at more than 5.1 million vehicles globally, with more than 2 million sales in 2018 aloneⁱⁱⁱ, representing a 63 per cent increase on the previous year. In the UK, there are now more than 220,000 electric vehicles, accounting for around 2 per cent of all new vehicle registrations^{iv}. Effective policy support continues to be necessary for countries looking to develop a strong domestic EV market, with EV adoption currently limited to a small number of countries who have implemented a range of policies supporting EV adoption including China, the United States and a handful of European countries.

Policy support for EVs was initially established as a means for combating climate change, with transport accounting for 23 per cent of global energy-related greenhouse gas (GHG) emissions in 2017^v. To meet the objectives for the 21st Conference of the Parties of the UNFCCC (United Nations Framework Convention on Climate Change) agreement on climate change made in Paris in 2015 by 196 countries, the International Energy Agency (IEA) projects that by 2060 there will need to be a global stock of 1.2 billion electric cars^{vi}. More recently, air quality has emerged as the primary driver for supporting increased adoption of EVs due to the significant impact of NO₂ on human health. Whilst there remains a relatively small proportion of EVs as a proportion of the total vehicle market compared to conventional combustion engines, electric vehicles are expected to play a crucial role over the coming decades to tackle these air pollution challenges. The potential economic benefits of an emerging EV market are also wide-ranging, offering the potential for the development of new industries and contributing to a region's image and reputation for innovative technology and infrastructure.

Current forecasts for future EV adoption vary widely, both globally and within the UK. National Grid forecast that 90 per cent of new cars will be electric by 2050^{vii} whilst Bloomberg New Energy Finance (BNEF) expects 54 per cent of new car sales to be electric by 2040^{viii}. The real trajectory of growth in the EV market will be dependent on a combination of increasing economies of scale, falling technology costs (particularly battery costs) and continued policy support by government. The upfront cost of purchasing an EV remains significantly higher than for an equivalent conventional petrol or diesel powered vehicle. However, this difference is expected to change by 2025 according to McKinsey^{ix} owing to a reduction in battery prices, which have already fallen by more than 65 per cent since 2010^x and represent a large proportion of the cost of vehicle production.

The UK government has established several policy measures to support the development of the domestic EV market, including grants towards the cost of purchasing an electric vehicle and installation of charging infrastructure as well as exemptions in road tax and vehicle excise duty. The UK Government has also set a target to ban the sale of conventional petrol and diesel cars and vans by 2035, with the majority of new cars and vans to be 100 per cent zero emission by this time.

3. Definition of Electric Vehicles and Scope of Strategy



This strategy focusses specifically on electric vehicles, rather than incorporating the wider family of ultra-low emission vehicle technologies, such as hydrogen vehicles. Whilst it is acknowledged that other forms of ultra low-emission vehicle (ULEV) are expected have an important role in improving air quality and reducing carbon emissions in the future, these technologies are not yet at a sufficient level of development that enables widespread use and, in the short term, would therefore only have a small impact on air quality and carbon emissions. Therefore, although they are believed to have significant long-term potential in terms of reducing transport emissions, particularly for larger vehicles, fuel-cell electric vehicles (FCEV) are excluded from this strategy. Within the scope of this report, the term electric vehicle includes battery-electric, plug-in hybrid and extended-range electric vehicles (see Appendix 2). Much of the focus of this report is on electric cars, although electric buses are expected to form an increasingly significant strand of the development of this strategy in future. Electric bikes will be referred to in more detail in Solihull's upcoming walking and cycling strategy.

4. Policy Context

National Policy

In 2008, the **Climate Change Act** came into force, making the UK the first country in the world to establish a legally binding target for an 80 per cent reduction in greenhouse gas emissions by 2050. In 2019, this target was amended to a 100 per cent reduction in carbon emissions by 2050. This will require significant reductions in the use of fossil fuels in the transport sector, with electric vehicles represent a key pillar for achieving this goal. As part of this effort to achieving this target, one of the key proposals of the government's **Clean Growth Strategy** is accelerating the shift to low-carbon transport. In 2019, the government launched **Road to Zero Strategy** which set an ambition for the sale of new conventional petrol and diesel cars and vans to end by 2040, and includes several measures to achieve its ambition for the majority of new cars and vans to be 100 per cent zero

emission by 2040. Proposals have since been to strengthen this target, meaning the sale of new petrol and diesel cars will end by 2035, which also now includes the sale of hybrid vehicles.

The **Industrial Strategy** launched in 2018, identifies Clean Growth as one of its Grand Challenges, incorporating measures to support the uptake of electric vehicles as part of UK efforts to become a world leader in the development, manufacture and use of low-carbon technologies.

The **National Clean Air Strategy 2019** outlines proposals to tackle all sources of air pollution, “making our air healthier to breathe, protecting nature and boosting the economy”. This strategy builds on the **UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations**, launched by the Government in 2017. The plan directed five cities and 23 local authorities with the worst NO2 concentrations to produce air quality plans to achieve compliance with the national air quality objectives in the shortest possible time. In 2018, the UK government directed a further 33 local authorities which have short term NO2 problems to submit studies identifying measures that will achieve compliance in the shortest possible time. SMBC was included within this group of local authorities.

In March 2020 the government published the **Transport Decarbonisation Plan** green paper, which details the government’s intended strategic direction for decarbonising the transport sector. The paper details the intention to move mobility away from motor vehicles (irrespective of fuel propulsion system) firstly to active travel (e.g. cycling and walking) and secondly public mass transit (e.g. bus, train and tram). Any remaining journeys not reasonably substituted by active or mass travel are to be undertaken in zero emission vehicles. This Electric Vehicle Strategy will sit within this emerging policy context.

Regional Policy

Movement for Growth, The West Midlands strategic transport plan includes objectives to improve air quality and reduce carbon emissions from the West Midlands wide transport system. Its approach includes the adoption of low-carbon technologies. The **2026 Delivery Plan for Transport** specifically references the role of electric vehicles in achieving the desired improvements in air quality. The WMCA has also commissioned the development of a **WM ULEV strategy** and action plan for the West Midlands, acknowledging the necessity for a regional approach to encourage EVs and other forms of ultra-low emissions vehicles alongside the actions undertaken by individual Councils. The strategy provides an evidence base from which TfWM can make informed decisions on future electric vehicle interventions.

In July 2019, the West Midlands Combined Authority agreed a target to achieve net-zero carbon emissions by 2041 for the West Midlands region, with interim targets of a 36 per cent reduction by 2022 and 69 per cent reduction by 2027. An action plan is subsequently being developed to increase the annual rate of emissions reductions from the current rate of 4 per cent to the required 13 per cent annual reductions. Decarbonising the region’s transport network represents a crucial aspect of achieving this target.

Local Policy

Solihull is a key economic contributor for the West Midlands, being home to several major economic assets as well as offering a central location and high quality environment. A key challenge for Solihull’s future economic success is therefore ensuring future economic growth is managed in a way

that minimises any negative aspects of this growth and respects the character of Solihull. With this in mind, a key priority of the **Council Plan 2018-2020** is to plan and deliver Solihull's low-carbon future. This Electric Vehicle Strategy is a key pillar of achieving this priority. Another key priority of the Council Plan is to deliver **inclusive growth** for Solihull. Due to the current high capital costs associated with electric vehicles and the need for access to appropriate charging infrastructure, it is important that this strategy enables all residents to benefit from electric vehicles irrespective of where in the borough they may be based or what their financial circumstances are.

Solihull Connected, the Council's transport strategy for Solihull, sets out the vision for how Solihull will deliver transport across the borough in the future. It identifies the clear need to reduce carbon emissions from transport through several measures including supporting the market for low-carbon vehicles to achieve significant take-up of ULEV emission vehicles.

Solihull has been assessed as exceeding threshold levels stated in the national air quality objectives in two locations along the A45, and as such is under legal obligation to develop and deliver a Local Air Quality Action Plan. It is recognised that improvements in air quality across the Borough as a whole will benefit the health and economy of Solihull, which is also acknowledged within the current Council Plan. The **Solihull Clean Air Strategy**, which was adopted in early 2019, ensures there is a process in place to continually improve air quality across the borough. The strategy sets out Solihull's commitment to improve air quality and includes specific actions to fulfil that commitment, including promoting the installation of more EV charging points at workplaces and car parks. This EV strategy will therefore form a component of fulfilling the aims of the Clean Air Strategy.

The **Green Prospectus** identifies the portfolio of projects being adopted by the Council to enable improved environmental sustainability across the borough, including the emerging **Low Carbon Energy Framework** which will look to address the greenhouse gas emissions from various sources across the borough. The EV Strategy will form a key pillar to the transport component of this framework.

In October 2019, the Council agreed a target to achieve net-zero carbon emissions from the Council's own activities, buildings, transport, resources and waste by 2030. To achieve this target, the Council will develop a Low Carbon Energy Framework and establish a Climate Change Commission to make recommendations on achieving carbon reductions. Solihull Council has also committed to support and collaborate with the WMCA in achieving its net-zero carbon emission target for the West Midlands region by 2041.

5. Electric Vehicle Adoption in Solihull

Solihull has potential for high levels of electric vehicle adoption, with a significant proportion of residents earning above average salaries and many properties having off-street parking provision which is suited to domestic electric vehicle charging. This potential is reflected in the relatively high levels of EV uptake across the borough to date. At the end of the third quarter of 2019 there were 2,296 ULEVs registered to Solihull residents, the 13th highest local authority area in the UK. This compares with around 150,000 cars registered in the borough overall. The vast majority of ULEVs sold in the UK are either plug-in hybrid electric vehicles (56 per cent), battery electric vehicles (35 per cent) or range-extended electric vehicles (5 per cent)^{xi}. Whilst the UK data is broken down by

local authority area based on the location of the registered keeper, and does not necessarily reflect where the vehicle is kept, it does provide an indication of adoption rates and further potential uptake.

6. Current Barriers to Increased EV Adoption

Several barriers to purchasing and running an electric vehicle remain before widespread adoption can take place in the UK (Figure 1). A range of surveys have been undertaken to fully understand the key barriers that are inhibiting more rapid EV adoption. Some of these barriers, such as the upfront cost of electric vehicles, are largely out of the Council's ability to influence and will be addressed by external influences.

The upfront cost associated with purchasing an electric vehicle is currently higher than for an equivalent petrol or diesel powered vehicle. It represents a key barrier to EV adoption, deterring a large proportion of drivers despite the lower costs of running an electric vehicle. Continuing rapid reductions in battery costs, which represent the most significant cost element of an EV, are expected to make EVs cost-competitive with standard combustion engines in the 2020s, whilst, the grants available by the UK Government on many electric vehicles further help to address the upfront purchase cost. Another significant perceived barrier is the perceived limited range of electric vehicles, with a typical EV having a range of between 100 and 200 miles. On-going technological development will improve battery densities and allow vehicles to travel further on a single charge, whilst falling battery costs will further improve cost-competitiveness.

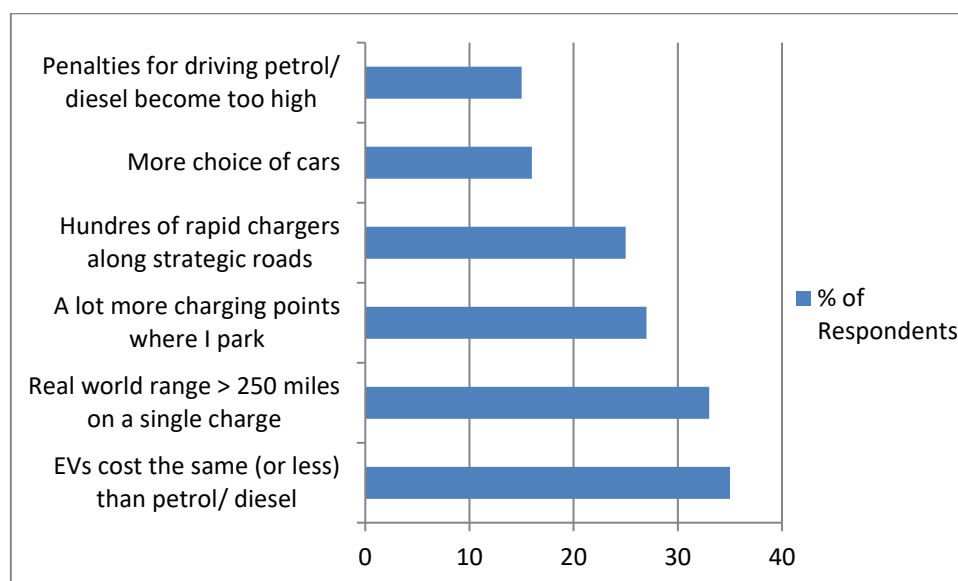


Figure 1: What would it take for respondents to choose a battery electric vehicle¹

Insufficient number, quality and location of EV charging points are consistently found to be key issues preventing wider uptake of electric vehicles. The number of charging points in the UK has increased significantly in recent years, although these have in some instances been of poor quality, poorly maintained and placed in areas of poor visibility. In Solihull there remains only a small

¹ Responses from an AA Populus poll of 19,350 drivers when asked 'What would it take for you to choose a battery electric vehicle? (multiple selections possible)

number of public electric vehicle charging points installed across the borough, with around 66 electric vehicles to each public charge point. These charge points are largely concentrated around Solihull town centre as well as the UK Central Hub area (see Appendix 6).

A lack of understanding and poor perceptions of electric vehicles is another area that limits further EV uptake and an area that this strategy will look to address. A lack of familiarity with the technology is a key reason for this, with only around three per cent of Britons having ever driven an electric vehicle and only seven per cent having experienced being in an EV at all.

7. Aims and Objectives of the Strategy

As stated earlier in this document, through reducing barriers to increased EV uptake, this strategy intends to contribute to the following three aims:

- **Air Quality** – reduce hazardous pollutants originating from road vehicles that have severe impacts on residents’ health
- **Carbon Emissions** - reduce carbon emissions from road vehicles that are contributing to climate change
- **Economic Development** – supporting local economic growth through job creation, reduced transportation costs and increased disposable income for residents as well as advancing the image and reputation of Solihull.

This strategy intends to facilitate and encourage increased uptake in electric vehicles across Solihull by addressing current barriers preventing accelerated EV uptake. Electric vehicles are very much an emerging technology and there are significant difficulties around anticipating how the EV market will develop, including what the future requirements for charging infrastructure will be as different segments of the population, with different travel patterns and requirements increasingly adopt electric vehicles. It is also expected that the commercial sector will lead the rollout of much of the required charging infrastructure in the long term, to which the Council has little control. In this context, it will be important to understand emerging trends in the EV market to enable specific targets to be identified for charging infrastructure and other performance indicators.

This strategy has the following overarching objectives:

- **Objective 1:** Enable all residents, businesses and visitors to Solihull to have access to EV charging infrastructure that is reliable, convenient to use and competitively priced;
- **Objective 2:** Ensure residents and local businesses understand the benefits of EVs and are aware of the availability of charging infrastructure and related services in Solihull;
- **Objective 3:** Engage with residents and all local stakeholders to understand their challenges and concerns and support them in achieving increased adoption of EVs;
- **Objective 4:** For the Council to lead by example in the borough-wide transition to electric vehicles.

8. Solihull’s Wider Approach to Low-Carbon Transport

Significant residential and commercial development is expected in Solihull in the coming years. This development will add to the transport pressures already facing the borough, including air quality,

carbon emissions and congestion. The local transport strategy, Solihull Connected, will begin to be refreshed this year. This refreshment will help ensure the range of measures required to overcome these challenges - including optimised travel demand, increased proportion of journeys achieved through active travel, and increased use of public transport – are incorporated as part of a wider approach to sustainable travel. Nevertheless, the current and future transport strategy acknowledges that a significant number of journeys will still be undertaken using private vehicles. This EV strategy therefore intends to enable increased uptake of electric vehicles to ensure that these private vehicles, along with vehicles used for public transport and taxis, are ultra-low-emission.

9. Key Focus Areas

This EV strategy identifies key areas where the Council will focus its efforts to encourage uptake of electric vehicles. The approach is based on helping to overcome identified barriers to EV uptake based on an understanding of the areas where the Council can achieve maximum impact. Key focus areas identified are:

- Electric vehicle charging infrastructure
- Council operations and resources
- Communication, advocacy and outreach
- Taxis and private hire vehicles (TPH)
- Electric buses
- Car clubs
- Preferential parking and access for EVs
- Planning, regulations and guidance

This strategy will address each of the above focus areas in the following sections.

EV Charging Infrastructure

The Road to Zero strategy launched by the government in 2018 made it clear that the long-term provision and operation of EV charging infrastructure is expected to be undertaken by the commercial sector. However, with electric vehicles currently representing a very small share of the overall UK vehicle market at around two per cent, it is not yet attractive for commercial operators to provide the scale of charging infrastructure that is required for mass EV adoption. Local authorities have an important role to play in encouraging and accelerating further deployment of EV charging infrastructure in the initial phases of market development.

EV drivers need to be assured that they have a range of charging options whatever their location and circumstances, whether they are charging at home, in the workplace, at key destinations around Solihull or during long-distance journeys. Different circumstances will likely require different charging solutions. For instance, slow charging points tend to be suitable during night time charging over several hours, whereas rapid chargers are more suited to scenarios when a charge is required in a short space of time, perhaps during a longer journey. (For more information on charging point formats, see Appendix 3.) Through ensuring a convenient and reliable means to charge EVs, the development of a comprehensive national charging infrastructure is likely to contribute to a reduction in range anxiety, in addition to the direct benefits such as convenience. The optimum

approach for charging infrastructure provision is also likely to evolve over the coming years as the market develops and new customer segments enter the market with different travel characteristics.

Installing and operating electric vehicle charging points is an emerging market, with continually evolving business cases, technology and user-preference. In addition, the installation, ownership and management of charging points is likely to be undertaken by different organisations, with it taking several months from initial project design to operation of the charging point. The complexity of the project management involved in designing and establishing well-located and fit for purpose new charge points is a challenge for the Council. It will require strong partnership-working with a range of internal and external stakeholders, including several different teams within the Council.

Suitability of Charging Locations

A key requirement of charging points is that they are installed in locations for which there is either a high demand of expected future demand, especially due to the relatively high upfront capital costs associated with their installation and the risk of under-utilisation. Initial deployment is likely to be at key destinations with high visitor numbers across the borough and in neighbourhoods where there is already high EV adoption amongst residents or a strong interest in purchasing an EV in the near future, but where there is limited off-street parking. Ensuring installation in areas of high demand is particularly important because SMBC will look to develop partnerships with commercial operators to bring forward charging infrastructure. EV charging points are therefore likely to need to offer a sufficient financial return to be commercially viable. A further consideration when identifying charge-point locations is ensuring that drivers are able to charge their electric vehicle in safe surroundings. They should be well lit and clearly visible to other residents in areas with sufficient numbers of people passing by to provide passive security.

Based on the Council's recent experience of identifying locations for potential charge-point installations, smaller settlements and other rural locations may be less suited to some of the formats of charging infrastructure detailed later in the section, such as on-street charging and charging hubs. In Solihull, many rural dwellings have off-street parking provision and there is more likely to be a scarcity of pavements and available land to install infrastructure on rural roads. The Council will therefore support residents and local organisations in identifying alternate suitable opportunities to address gaps in charging availability. Such potential locations include parish council land and public house car parks.

Cost of Charging

A key component of effective EV charging infrastructure is ensuring that the cost of charging is appropriately priced. Whilst ensuring commercial viability of EV charging point is important, one of the key benefits associated with running an EV is their low running costs compared with conventional combustion engines. It is important that this benefit is not diluted through excessively high charging costs. The pricing will however be likely to reflect the level of convenience of the charging point, with rapid chargers offering a quicker charge at a greater cost compared to slow chargers that offer better value but with a longer charge period.

Charging Availability



Another important aspect of EV charging infrastructure, is ensuring that charging points are highly visible: a lack of visibility increases the perception there are insufficient charging points across the borough. Increasing visibility can be achieved through use of appropriate signage and grouping charging points together. However, such grouping must be balanced with the aim of ensuring as widespread coverage of the borough as possible. Charging points should consistently perform to a high standard and be well maintained. A process of regular checks, combined with a robust process for reporting problems, should be established.

Good availability of parking for electric vehicles next to charging points is an important element to reduce the risk of under-utilisation. The merits of putting in place Traffic Regulation Orders (TRO) to reserve parking spaces next to EV charging points and to ensure that vehicles do not occupy such spaces for excessively long periods should therefore be explored. Enforcing such restrictions will require significant Council resources for monitoring and control but will likely become increasingly necessary in the future, particularly in areas with already high levels of on-street parking.

On-Street Charging



It is widely acknowledged that the majority of people in the UK would prefer to charge their electric vehicle at home: it is generally cheaper and more convenient to do so than using third party-owned charge points. A key barrier to such domestic charging is that around a third of homes in England have no off-street parking provision, making it currently difficult to charge from home for a large proportion of the population. Indications are that 25 per cent of all cars are parked on the street at night. Widespread provision of on-street charging is therefore an important aspect of developing a comprehensive EV charging network.

Progress on developing on-street charging infrastructure will initially be dependent on successfully identifying and utilising available external funding. The Government has recently confirmed funding

for the On Street Residential Charge-point Scheme has been doubled to £10 million for 2020/21 to install on-street charging points, up to a maximum of £100,000 per local authority and 75 per cent of the capital cost of installation. Funding for the remaining 25 per cent cost needs to be identified by the Council through other sources, which, in many cases, is likely to be achieved through entering into partnerships with commercial operators, due to the high up-front capital cost associated with EV charging infrastructure. Commercial partnerships will also help to offset the risk of under-utilisation and performance issues. Partnerships will need to include clear provision of operation and maintenance responsibilities, including repair, future removal and replacement of the charging point. A share of revenue returned to the Council could be used to recover costs accruing to the Council or could potentially be used to discount the cost of using some charging points.

A further element of the Government's 'Road to Zero' strategy was the announcement that all future street-lighting columns, where appropriate, will be fitted with charging points built into the lighting column. An analysis of existing street-lighting columns will therefore need to be undertaken to understand the locations where charging points could be provided.

As stated earlier, a key stage in developing effective on-street charging provision is placing charging points in locations where there is high demand for charging. There are several methods available to assist in achieving such appropriate placement. Working with WMCA, an initial step will be to utilise Experian's Mosaic system for classifying UK households. This system uses various indicators to identify segments of the population and geographical areas across the borough with high potential levels of EV demand. This initial analysis can then be combined with more focussed surveys and other inputs and recommendations from residents on suitable charging locations. It is expected that layering different data types will provide the most accurate indication of the most appropriate locations for charging points. Several Councils now promote websites and other communications through which citizens can request charging points to be installed at locations near their homes if they can demonstrate strong interest in EV ownership. This information helps to build a picture of the areas with a high level of demand for charging infrastructure, which can then be reviewed in more detail for suitability.

Destination Charging



There are several locations across Solihull that are significant trip attractors, including Birmingham Airport, the National Exhibition Centre, Blythe Valley and Birmingham Business Parks, Touchwood Shopping Centre, as well as various private and Council-owned car parks at the town centre and elsewhere in the borough. Such major destinations should offer visitors convenient potential

charging opportunities during their visit and thereby act as a catalyst for EV adoption across the whole West Midlands region. For many of these major destinations in Solihull, drivers have often travelled a significant distance; in many cases travelling from outside of the borough. It will be important to communicate the provision of such charging infrastructure at these locations to potential EV users and to collaborate with neighbouring Councils and other stakeholders.

The availability of EV charging infrastructure at many destinations is not something that is under direct Council control. SMBC will however endeavour to work in partnership with appropriate organisations, such as the Energy Savings Trust; facilitate new practical initiatives and disseminate information and best-practice. The Council can also facilitate support group to offer expert technical assistance on effective charging infrastructure provision at specific locations.

Charging on-the-Go



In addition to charging at home, at work or another destination, ensuring the availability of convenient charging options for EVs as part of an on-going journey forms an important element of an effective charging infrastructure. Whilst longer journeys only represent a small proportion of trips for the majority of drivers, it is crucial that drivers can charge over a short period of time during a longer journey. Highways England has already committed to ensure all users are always within 20 miles of a rapid charging point along 95 per cent of its network by 2020, whilst the Autonomous and Electric Vehicles Act will enable mayors to designate locations and require installation of charging infrastructure in their areas, such as at conventional re-fuelling stations. Such charging points will need to be in the form of rapid chargers to ensure comparable convenience to refuelling petrol or diesel cars. Charging hubs are emerging as a popular format for catering for on-the-go charging, since they offer familiarity through largely mirroring conventional re-fuelling stations and provide a highly-visible charging option for drivers. They also remove the problem of EV drivers parking in spaces with charging points for longer than required. SMBC will look at the potential for facilitating the installation of charging hubs across the borough and undertake a mapping exercise, taking into account areas of high demand for charging with the potential for utilising available Council-owned land.

Council Operations and Resources

Councils across the UK are transitioning to operating electric vehicles in increasing proportions of their Council vehicle fleet. This is also the case with the vehicle fleet operated by central government which, as the Road to Zero strategy outlined, now procure ULEV by default, with a target for 25 per cent of the central government fleet to be ULEV by 2025.

Council Vehicle Fleet



In October 2019 the Council established a target to achieve net-zero carbon emissions from Council operations by 2030 as part of its commitment to combat climate change. Carbon emissions from the Council’s vehicle fleet are measured and regularly reported to the Council’s Carbon Board as part of the Council’s wider carbon reporting process. There are currently 53 vehicles in the Council fleet, made up of a range of vehicle sizes and types. As Figure 2 demonstrates, the Council’s vehicle fleet operates across several departments, with each department having a different emissions profile due to the type of vehicle used and the operations being undertaken. In the second quarter of 2019, the Council’s vehicle fleet travelled 104,736 miles, consuming 27,202 litres of fuel and resulting in 72 tonnes of carbon emissions. There has been a reduction on carbon emissions from the vehicle fleet of around 10 per cent since 2016, largely reflecting an improvement of vehicle fuel efficiency.

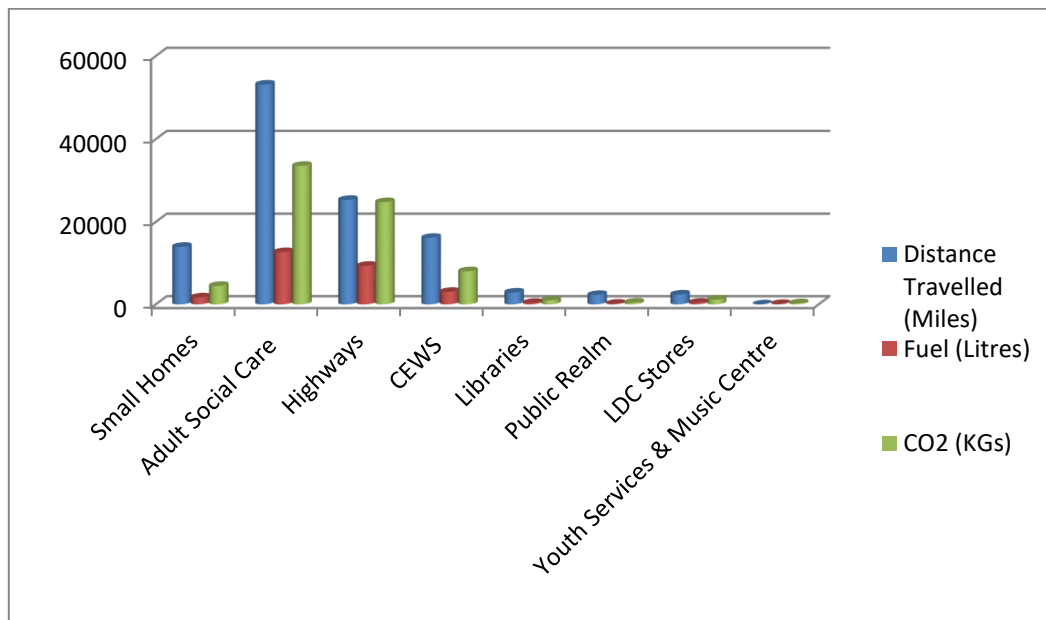


Figure 2: Council Fleet Mileage, Fuel Consumption and Carbon Emissions in Q2 2019

To achieve the Council’s 2030 emissions target, the Council’s vehicle fleet will need to transition entirely away from petrol and diesel combustion engines towards ultra-low emission vehicles, including a large number of electric vehicles. Increasing adoption of electric vehicles within the Council fleet has several benefits in addition to the direct reduction in carbon emissions. Not only

will increased EV use result in lower running costs of the Council vehicle fleet but it also provides strong and highly visible advocacy, through association with a trusted organisation such as the Council. To this end, SMBC has already made progress. In March 2017, the Mayor's car was updated to a plug-in hybrid Range Rover, which is capable of operating for 24-26 miles between charges on stand-alone battery power. This has resulted in a fall in carbon emissions from 250g/km to 69g/km, a reduction in emissions of more than 70 per cent. In 2017, two Renault Zoes were made available for use as pool cars for Council Highways Services staff. In 2019, these were replaced with three Nissan Leafs, which have been highly successful (see Box 1). The highways team hopes to expand the fleet depending on utilisation levels across the directorate. This expansion will play an important role in improving familiarity of EVs amongst Council staff and help to improve air quality and reduce carbon emissions in urban areas of Solihull. It is also recognised that increasing the proportion of electric vehicles in the Council fleet will require additional charging infrastructure. The Council will therefore look to develop an additional implementation plan to enable installation of required charging infrastructure to support the increased adoption of electric vehicles as part of the Council's vehicle fleet. Since the majority of Council fleet vehicles are likely to be charged at night, the potential for making Council charging infrastructure available to the public should be explored and encouraged going forward.

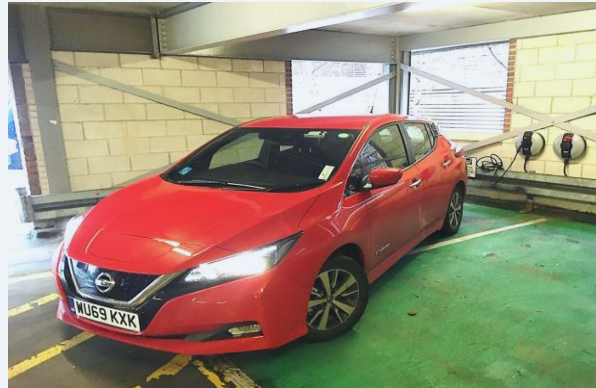
Strategic Contracts



The Council provides several services for the borough through the strategic contracts established with delivery partners such as Amey and Balfour Beatty, which operate their own extensive vehicle fleets to undertake local work. Upon renewal of these contracts, the Council will endeavour to ensure future vehicle fleets operated by delivery partners are aligned to the Council's commitments to be zero-carbon by 2030. Whilst it is expected that electric vehicles will be a dominant form of ULEV going forward, this strategy recognises that some vehicles in both the Council's vehicle fleet and those of our delivery partners are not well suited to battery power. This is particularly true of very heavy vehicles such as refuse trucks (which can weigh 26 tonnes), where the additional substantial weight associated with batteries is unviable. As part of its Future Mobility programme of works, the Council will therefore explore alternate forms of ULEV, such as hydrogen power, where battery electric vehicles are not viable.

Box 1: Council EV Pool Car Fleet – Case Study

In May 2019, the Council's Highways Services procured three electric vehicles for Highways staff to use for work purposes, as well as to enable the Council to better understand the benefits and challenges around adopting electric vehicles as part of the Council's fleet. These three vehicles were a direct replacement for the two previous EVs that were previously being used by Highways Services. Located at Churchill Car Park, where PodPoint chargepoints have been installed to enable their use, the three electric vehicles have been highly successful.



Key statistics since their adoption in May 2019:

- Total number of bookings: **2,493**
- Miles travelled: **34,971**
- No. of registered users: **72**
- Average journey length: **19.26 miles**
- Utilisation rate: **70%**

As a result of the availability of these vehicles for Council staff use, several colleagues have now changed their approach to commuting from private transport to active travel and public transport due to the assurance of availability of appropriate transport for attending external meetings and engagements.

Other key recommendations and lessons learnt:

- Use a formal booking system with keyless entry to avoid hassle and confusion.
- An initial induction session is recommended for staff who have never used an electric vehicle before to provide reassurance and smooth operation.
- Ensure that a procedure is in place to ensure the cars are kept clean so the vehicles remain a preferred mode of travel compared to private vehicles.
- Ensure that any chargepoints installed are easy to operate.
- Discourage the use of EVs for short distances if it means they will be out of use for several hours as a result of an external engagement. This reduces the vehicle utilization rate.
- When the fleet of Council EVs is expanded, the expanded fleet should be located across multiple sites to ensure all staff have access to the vehicles and enable staff to use the pool cars to travel between Council sites rather than using their own private transport.
- The staff travel policy could be updated to encourage staff to use EV pool cars instead of private vehicles

The performance of the pool car fleet will continue to be reviewed to understand key challenges and ensure optimal utilisation is achieved as the Council vehicle fleet expands to include additional service areas and an increasing range of operations.

Staff Travel Plan

The Council recognises the role of staff travel in achieving its commitment on achieving carbon neutrality by 2030. It will therefore develop a new staff travel plan to promote sustainable travel and reduce the reliance on single occupancy car journeys for commuting and business journeys. A travel survey for staff will be undertaken in 2021. It is expected that the Council's encouragement of electric vehicle use will play a significant role in achieving zero-carbon staff travel, alongside other low-carbon solutions such as rationalising travel demand, public transport and active travel.

Procurement and Social Value

As part of the implementation of the Solihull Clean Air Strategy, the Council has already taken measures to drive uptake of ULEVs (including electric vehicles) through its wider procurement activities. For instance, within the Council's tender documents, the Council's Clean Air Strategy is scheduled as a condition of tender to ensure tender specifications are developed in line with the Clean Air Strategy objectives. The below statement has also been incorporated into the Council's procurement templates to ensure contractors are able to provide services in line with the Council's zero carbon emission commitments:

"The Council has a vision to eliminate or minimise air pollution and accordingly, if applicable, is interested in exploring all possible environmentally friendly vehicle options as part of this tender exercise and will be looking to forge a partnership with the successful tenderer to receive on-going advice and support in this matter. The Contractor shall comply with the Council's Clean Air Strategy, which is to conserve energy, reduce waste and minimise the release of greenhouse gases and other substances that are damaging to health and the environment. The contractor shall therefore ensure that the most modern, up to date and cost effective Ultra Low Emission Vehicles (ULEV) are provided from the outset of the contract in order to facilitate and accelerate a sustainable shift to lower carbon and cleaner vehicles in line with the Government's Low Carbon fuels Strategy for Transport."

In June 2019, the Council updated its Social Value Policy, requiring contractors to consider where and how their activities can have a positive impact on the Council's priority social value outcomes. A key priority social value theme included within the policy is for the 'Planning and Delivery of Solihull's low carbon future', through which the Council encourages contractors to reduce carbon emissions from transport in several ways, including through reducing fuel consumption, improving air quality and transitioning to low carbon technologies including electric vehicles.

Council-owned Land

A key challenge in implementing the required charging infrastructure to support an accelerated uptake in electric vehicles is the availability of suitable land, which is often particularly constrained in central urban areas where the demand for charging infrastructure is often greatest. Where appropriate, the Council will make available highways land for installation of on-street chargepoints and evaluate the suitability of land under its control for charging hubs and other potential charging formats.

Communication, Advocacy and Outreach

There is a clear information failure with regard to electric vehicles, leading to inaccurate public perceptions regarding performance, suitability, safety and a general lack of awareness of the benefits of electric vehicle ownership. Accurate and high-profile communication, advocacy and

outreach are therefore important elements of the electric vehicle strategy. These activities can be achieved through several means as follows.

Website and Social Media

The development of an information platform in the form of a high quality, regularly updated website will provide citizens with a reliable and trusted source of information including current and upcoming charging point availability across the borough, accurate information on the benefits and grants available for electric vehicles and associated charging infrastructure. This communication should be promoted through a regular and targeted social media campaign for Solihull's residents, raising awareness of initiatives taking place and giving updated information. The website and complementary social media are also important channels through which residents and organisations can alert the Council as to required charge-point locations.

Engagement with Local Organisations and Residents

The Council has already engaged with several local businesses in developing its approach to ULEVs (See Appendix 5) and it will be crucial to maintain and expand this engagement to bring about widespread uptake of electric vehicles across Solihull. SMBC already has numerous other channels of communication and forums with which it exchanges information with local citizens, business, charities, interest groups and other stakeholders. These channels and forums will be utilised through a communication plan ensuring coordinated dissemination of information and updates on electric vehicles, including initiatives across the borough that promote and incentivise the adoption of electric vehicles. In some cases, new forums or other communication channels will be required to target specific groups and segments of the population; for instance through the formulation of the taxi liaison group, which will be focussed specifically on the taxi and private hire (TPH) trade. High-profile signage incorporated onto Council owned and operated assets, such as lamp posts, is another potential opportunity for conveying the benefits of electric vehicles to citizens.

Electric Vehicle Demonstrators

A key barrier to increased adoption of electric vehicles is the lack of familiarity that many citizens have with them, with a very small proportion of the population having driven or been a passenger in one. The opportunity to test drive an electric vehicle prior to purchase provides the reassurance to potential owners on the benefits of EV technology. The potential to facilitate the use of a fleet of electric vehicles made up of a range of models from different manufacturers to serve as demonstration vehicles for prospective EV drivers will be explored, allowing the public to borrow or lease such a vehicle for a defined period of time. This offer is likely to be delivered through a range of partnerships, including those with commercial operators such as automotive manufacturers and public sector bodies. Such a demonstration fleet would ideally include a range of different models to reflect the significant and growing choice already available to prospective electric vehicle drivers.

Outreach Events and Workshops

A further potential opportunity to address the lack of familiarity and awareness that many people have of electric vehicles would be through the organisation of event days, workshops and pop-up events that feature demonstration vehicles with associated staff members providing accurate and impartial information on the benefits, costs and operation of electric vehicles. Holding such events at locations such as shopping centres which have high footfall will ensure the service is available to a wide range of people. The potential for working with vehicle manufacturers and other commercial

partners to deliver these events will therefore be explored. In the long term, the development of a permanent centre providing this service should be considered, such as has been achieved with the Milton Keynes Experience Centre, which is located in a central shopping centre for maximum accessibility and visibility.

Taxis and Private Hire Vehicles (TPH)



Taxis and private hire vehicles are typically used more intensively than private cars. They contribute considerably to urban air pollution in areas of high footfall, resulting in a significant negative impact on citizen's health. This problem is compounded by the fact there are a significant number of older and more polluting taxis operating in Solihull.

Despite the challenges they currently pose, taxis and private hire vehicles have the potential to play a significant role in the development of a comprehensive charging network by providing a base-level of demand for EV charging points, thus reducing the risk of low-utilisation of charging points and improving their commercial viability. In addition, because a key challenge with electric vehicles is very limited exposure with the wider public, TPH vehicles have the potential to offer a large number of residents and local employees a positive first experience of travelling in an electric vehicle, helping to improve public familiarity with the technology.

A first step to realising the potential of TPH vehicles in driving uptake of EVs in Solihull is to establish effective channels of communication with the taxi trade to improve awareness and close knowledge gaps on the benefits of EVs, whilst gauging the industry's perceptions of the benefits of EVs.

Understanding travel patterns, including key routes, stopping and waiting areas and popular pick-up and drop-off destinations of the taxi private hire vehicles will enable the identification of suitable potential locations for charging infrastructure that can be used by the taxi trade and therefore guaranteeing a consistent level of use. There are several possible methods for understanding the travel patterns of the taxi trade including analysis of taxi GIS data, conducting taxi-rank surveys and using tracking equipment placed in taxis and private hire vehicles. Any charging points that would be used by the taxi trade would likely need to be rapid chargers due to the time constraints on charging during a shift. Taxi drivers would also need to have guaranteed ability to charge immediately for this same reason. A booking system that is compatible with neighbouring areas would allow this, the potential for which will be explored in more detail.

Various potential incentives exist to encourage TPH take-up, particularly for hackney carriages through the Council's licensing powers, including licenses being issued at a reduced cost for electric vehicles. In the future, as electric vehicles become more popular for the taxi trade, a requirement for all new Taxis to be ULEV is likely for future hackney carriages. The government is currently working to revise the best-practice guidance to local taxi and private hire vehicle licensing authorities in England.

An electric taxi policy is currently under development alongside this strategy, which will provide guidelines on future requirements for EVs when being used as a taxi, as well as streamline the process for licensing EV Taxis.

The availability of EV Taxis for test drives and trial runs would help promote trust in electric vehicle technology, helping to remove a key barrier to the adoption of electric TPH vehicles. The potential for establishing a taxi leasing programme, whereby prospective TPH vehicle drivers can test drive an EV taxi for a defined period of time will be explored.

Electric Buses



Whilst public transport helps to significantly reduce private vehicle use with subsequent benefits to air quality and reduced carbon emissions, bus widespread use in urban areas still contributes to Solihull's air quality problems, especially since their predominant use is in urban areas with high footfall. To help address this challenge, the Advanced Quality Bus Partnership (AQBP) was launched with bus operators in 2017, helping to improve emission standards and encouraging more efficient operation of bus services. Electric buses have the potential to give significant further improvements to emission standards. The long duration which many buses are in operation for on a daily basis increases the benefits of low operating costs associated with EVs with reduced marginal operating costs. However, the operating challenges of operating an EV bus should also be considered: commercially available vehicles have less range than their diesel counterparts and, for most bus operating cycles, need topping up with charge during the day.

The Sprint Rapid Bus Service is proposed to connect central Birmingham and Solihull rail station with Birmingham International/NEC. The Sprint service will run along the A45 and Lode Lane/Hobs Moat Road. The Sprint scheme is being led by Transport for West Midlands (TfWM). As the Local Highway Authority, the Council is a key partner in the Sprint scheme. A key consideration is determining the most appropriate propulsion technology of the new Sprint buses. TfWM is considering both battery electric and hydrogen powered buses – which will use sustainably produced hydrogen from the new

plant on the A45 in Tyseley. During, or soon after, July 2020, the Council will have the opportunity to consider a new Enhanced Bus Partnership agreement for the region, which will include details of the proposed Sprint vehicle propulsion technology.

EV Car Clubs



Ownership of an electric vehicle is prohibitively expensive for many people and often an unattractive proposition for many people who only require use of a private vehicle occasionally. Car clubs offer the advantage to local residents and business in offering availability of access to a vehicle on-demand in return for a regular subscription and an hourly rate for renting the vehicle. An EV car club, where the vehicles in the fleet are EVs offers several potential benefits and can also provide base load demand for EV charging infrastructure whilst exposing a wider range of residents who may not otherwise have the opportunity to experience an electric vehicle.

Building on the experience gained from previous car club trials, the Council is continuing to explore opportunities to implement EV car club schemes across the borough. One potential area for deployment may be in new developments with limited dedicated parking. In such circumstances, a car club offers residents the availability of a car whilst removing the need for private vehicle ownership. Since car clubs themselves are a relatively new concept, in some cases it may be necessary to incorporate EVs once an initial car club trial based on standard combustion engines has demonstrated its success.

Preferential Parking and Access for EVs



Offering EV drivers guaranteed availability of parking spaces and reduced parking charges provides a highly attractive visible benefit to EV ownership and helps to offset the overall cost of EV ownership. The Council owns and operates significant car park capacity across the borough, particularly around Solihull Town Centre. The Council will therefore consider the opportunity to provide reduced cost

parking for EVs in Council operated car parks, as well as the potential for establishing reserved parking spaces for electric vehicles in highly visible areas, thereby further encouraging the use of electric vehicles to pedestrians and other motorists. The role of sponsorship in providing free parking will also be explored. Businesses and other organisations across the borough with significant car parking capacity will also be encouraged to incorporate a similar approach to EVs in their operations.

The development of Phase 2 of the Sprint bus rapid transit network in Solihull is expected to lead to an increase in the number of bus lanes across the borough. The Council will consider the possibility of permitting electric vehicles to use bus lanes for a period of time to further enhance the experience of EV drivers.

Planning Regulations and Guidance

Significant development is expected across Solihull over the coming years, with the subsequent potential for significantly increased vehicle use and associated impacts on air quality and carbon emissions. It is therefore important to ensure that, as far as possible, new residential and commercial developments incorporate appropriate charging infrastructure to offset these negative impacts. This will be a more cost-effective approach than incorporating charging facilities through retro-fitting at a later date.

The National Planning Policy Framework set out the government's planning policies for England and how these are expected to be applied. When considering development proposals, the framework states that developments should be "designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations" to promote sustainable transport.

The Local Plan for Solihull is currently being reviewed. This review provides the opportunity to amend relevant policies within the Local Plan to support increased provision of charging infrastructure in new residential and commercial dwellings identified as part of the plan. A Supplementary Planning Document (SPD) is being developed concurrently to provide further guidance and context, allowing conditions to be placed on developers to install charge points in new developments. Information will then be provided to direct developers to a technical specification guidance document to support them in implementing any required measures.

Power supply, Grid availability and Balancing

Electricity demand in the UK has been falling in the UK for several years, largely due to improving appliance efficiencies. This fall is however expected to be reversed in the coming years as EVs account for an increasing share of vehicles. Whilst much of the borough has not yet encountered significant issues with regards to power provision, power availability is already constrained around the hub area (including Birmingham Airport and the NEC). This is likely to be an increasing challenge going forward, because significant new development is expected at this location in the coming years. Capacity issues across the rest of the borough may also arise, depending on the nature of expansion of the charging infrastructure, such as the location of the charging point, the type of charging point installed, (with rapid charging units placing higher demands on the electricity grid) and the number of charging points that are located in close proximity. Through engaging with the distribution network operator (DNO) at an early stage, and working in close partnership with them, supply problems can be identified and solutions developed where necessary. Solutions might include, for

example, reinforcement of the electricity grid to provide more power to charging-points with new cable connections to a primary sub-station. Such new infrastructure can be expensive, however.

10. Future-proofing and Emerging Areas of Focus

With significant residential and commercial developments expected across the borough in the coming years, it is important that they are equipped with suitable infrastructure to enable use of electric vehicles. The Council should ensure future developments are aligned with the Council's low-carbon targets. The amendments to the Local Plan outlined earlier in the document, along with expected changes to government regulation on EV charging infrastructure, will also be important factors in ensuring new developments are future proofed.

The measures outlined in this strategy are initial steps intended to enable, facilitate and encourage the use of electric vehicles across Solihull. It is acknowledged that the market and technology associated with electric vehicles is continually evolving and will become more complex as electric vehicles are adopted in greater numbers. It is therefore important that the Council continues to build on its engagement with local expertise and key specialist organisations, such as Warwick Manufacturing Group and Jaguar Land Rover, to ensure the Council's approach to EVs is aligned with expert projections on emerging technology and market trends. There is also significant scope for establishing pilot and demonstrator projects to develop understanding and the potential of upcoming technologies and concepts. Such projects will also serve to enhance Solihull's image as a forward-looking borough. Future measures and technologies that can be anticipated include:

- **Vehicle to Grid** – as the number of electric vehicles across the country increases, there is expected to be an increased impact on the electricity grid, leading to supply constraints and imbalances requiring reinforcement of the distribution network. Vehicle to grid technology can help balance the grid to some extent. It uses the aggregated battery capacity of several electric vehicles to provide grid-balancing services to the network in the form of either additional power supply or demand reduction.
- **Inductive Charging** – wireless charging of electric vehicles using an electromagnetic field to transfer energy between two objects through electromagnetic induction is technically possible. It has several benefits, including no requirement for hooking up a power cable and also offers the potential for electric vehicles to charge during a journey whilst moving. Although the technology is currently prohibitively expensive and the vast majority of electric vehicles aren't yet equipped with the required technology, there are trials being conducted which suggest it may become mainstream in due course. For example, Coventry City Council is engaged in an ambitious pilot study for charging EVs 'on the move' by installing inductor loops along highways.
- **Intelligent Mobility** – electrification of transport is considered an essential component of enabling emerging intelligent mobility technologies, such as demand-responsive transport and connected and autonomous vehicles. The Council's intelligent mobility and electric vehicle work-streams are expected to become increasingly interlinked as they develop over time.

11. Evaluation of Progress

A formal review process will be established to ensure the actions and measures identified within this strategy are fully implemented. A steering group will be established to coordinate and guide the implementation of the range of individual projects included as part of the Council's electric vehicle action plan. Progress updates on implementation will be made through annual reporting to the Sustainability Board and will also be included as a regular item at future Economic Development and Managed Growth Scrutiny Board meetings.

12. Summary

In recent years, electric vehicles have emerged as a key element in global efforts to combat both climate change and poor air quality that has serious negative impacts on citizens' health. Electric vehicles will form part of a wider sustainable travel strategy that will address the range of transport related challenges, including congestion, active travel and affordability of travel.

Whilst currently constituting a relatively small proportion of the current vehicle market, both in the UK and globally, EVs are expected to become widespread over the coming years as they become increasingly cost competitive with conventional petrol and diesel powered vehicles and offer a range of additional benefits. Several barriers currently remain before widespread adoption of EVs becomes possible. This strategy identifies initial measures that will address these barriers, including improving provision of effective charging infrastructure, supporting and encouraging the taxi and private hire trade in transitioning to EVs, as well as effective communication, advocacy and outreach. The optimum approach to addressing the barriers to EV adoption is likely to evolve over time as both the market and technology develops. Regular progress reviews will evaluate progress achieved and identify further required measures as they emerge. A crucial element to successfully implementing this strategy will be the early identification of resource within the Council with clear responsibility for driving forward this programme of measures. This resource will need to form part of a long-term focus by SMBC in supporting the EV market in Solihull.

Some of the measures identified in this strategy will require significant funding for implementation, particularly the development and establishment of comprehensive charging infrastructure. This strategy has not been allocated direct capital funding. Such funds will be sought through the establishment of commercial partnerships and through taking advantage of various funding bid opportunities as proposals are developed.

Appendices are as follows:

Appendix 1: Electric Vehicle Action Plan

Action No.	Action	Lead Responsibility	Timeframe
General Actions			
1	Recruit EV Programme Officer	UKC Team Leader	In place Aug 2020
2	Regularly review funding opportunities to support various EV initiatives	ULEV Programme Officer	Ongoing once in post
3	Establish formal review process, regularly evaluating progress on actions identified in this strategy	ULEV Programme Officer	Aug 2020
EV Charging Infrastructure			
4	Bring forward opportunities to develop on-street charging infrastructure across the borough, charging hubs in the Town Centre and hub area and other key transport hotspots, utilising Council land where appropriate	UKC Project Manager	Initial infrastructure to be installed by Sept 2020
5	Work with WMCA and commercial operators to bring forward charging hubs at strategic locations across Solihull and the wider region	ULEV Programme Officer	March 2022
6	Work with businesses and other local organisations to expand destination charging infrastructure, including in rural locations	ULEV Programme Officer	March 2021
7	Review process of error reporting and system checks for all EV charging infrastructure across Solihull	ULEV Programme Officer	March 2021
8	Review signage for charging points to ensure infrastructure is highly visible and promotes electric vehicles	ULEV Programme Officer	March 2021
9	Carry out review of the	Highways	March 2021

	potential of street lighting columns to contribute to on-street charging provision		
10	Install EV charging provision for visitors to the Council House	Corporate Facilities Manager	Dec 2020
11	Install EV charging provision for staff at the Council House	Corporate Facilities Manager	Dec 2020
Council Operations and Resources			
12	Upon renewal of the Council vehicle fleet, ensure fleet transitions towards electric vehicles (and other ULEVs) and aligned to the Councils carbon emission reduction commitments	Corporate Facilities Manager	Dec 2020
13	Develop EV Charging Point Implementation Plan to support staff, visitor and wider Council EV fleet rollout	Corporate Facilities Manager	Dec 2020
14	Renew Staff Travel Plan to incentivise EVs where there is no alternative to private vehicles	Business Support Officer (Sustainable Travel Team)	March 2021
15	Upon renewal of the Council's Strategic Contracts, ensure associated vehicle fleet includes increasing proportions of EV/ ULEV and is aligned with the Council's carbon emission reduction commitments	Head of Service - Public Realm/ Highways	March 2022
16	Support Solihull Community Housing in transitioning to electric vehicles	ULEV Programme Officer	March 2021
17	Support Solihull Community Housing in scoping, financing and installing residential charging infrastructure	ULEV Programme Officer	Dec 2021
Communication, Advocacy and Outreach			
18	Utilise travel planning team to promote electric vehicle and understand	ULEV Programme Officer	Ongoing

	barriers to adoption for local organisations		
19	Produce communications plan to utilise available communication channels and media opportunities for regular promotion of electric vehicles initiatives	Communications Team	Sept 2020
20	Develop information platform (website), including means for citizens to suggest/ propose/ request locations for charging points	ULEV Programme Officer	Dec 2020
21	Establish regular events, pop-ups and workshops promoting EVs across Solihull	ULEV Programme Officer	March 2021
22	Implement an EV demonstrator fleet in Solihull	ULEV Programme Officer	March 2022
23	Work with appropriate stakeholders to explore opportunities for establishing a Solihull Net Carbon Zero Experience Centre that features new ULEV technology	ULEV Programme Officer	March 2022
Taxis and Private Hire Vehicles			
24	Develop an electric taxi policy	Regulatory Services Manager	March 2021
25	Explore the potential of licensing incentives, such as reduced license fee for EV Taxis	Regulatory Services Manager	March 2021
26	Engage with taxi trade to understand perceptions and barriers for EV use, as well as travel patterns	Regulatory Services Manager	March 2021
27	Explore the potential of EV taxi demonstrators for leasing and test-driving	Regulatory Services Manager	March 2022
28	Explore potential approaches to ensure availability of charge points for taxis, such as a charge point booking	Regulatory Services Manager	March 2022

	system		
Electric Buses			
29	Work with TfWM to bring forward ULEV alternative for Solihull Sprint Scheme	Head of Growth Programmes UKC	March 2021
30	Liaise with TfWM, the West Midlands Bus Alliance members and other key stakeholders to understand the potential for electric buses and current barriers preventing their use	UKC Project Manager (Future Mobility)	March 2022
31	Evaluate the future use of bus lanes by electric vehicle drivers	ULEV Programme Officer	March 2022
EV Car Clubs			
32	Identify opportunities to implement EV Car Clubs across the borough	ULEV Programme Officer	Ongoing
Preferential Parking and Access for EVs			
33	Explore the potential of preferential parking for EVs in Council car parks, including preferential/free pricing and reserved EV spaces	ULEV Programme Officer	March 2021
Planning, Regulations and Guidance			
34	Review Local Plan policies to support increased provision of charging infrastructure in new developments	Senior Development Officer – Planning and Policy	March 2021
35	Develop supporting technical guidance document to assist developers fulfilling requirements to install charge points in new developments	Public Health Specialist (Place)	March 2022
Future Proofing			
36	Identify opportunities for EV-related pilots across Solihull to develop understanding of emerging technologies and concepts	UKC Future Mobility Project Manager	Ongoing
37	Continue to develop relationships with	UKC Future Mobility Project Manager	Ongoing

	national and local stakeholders with expertise in ULEVs to understand future EV trends		
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Appendix 2 – Electric Vehicles types

Battery Electric Vehicle (BEV): The vehicle is powered solely by an electric motor from energy stored in rechargeable batteries

Plug-in hybrid Electric Vehicle (PHEV): The vehicle can be powered by either an electric motor or a combustion engine.

Extended Range Electric Vehicle (E-REV): The vehicle is powered by an electric motor, with an additional petrol/ diesel generator on-board to extend the range of the vehicle. E-REVs typically have a much larger capacity battery than a PHEV.

Appendix 3 – Indicative car charging point formats and charging times

There are three main categories of charge point for electric vehicles, representing different power outputs:

Slow chargers: Up to 3kW power output. Typically charges a battery electric vehicle in up to 12 hours. Slow chargers are typically used at home or the workplace where cars are parked for longer periods.

Fast chargers: 7-22kW power output, charging a BEV in up to 4 hours. Often found at supermarkets and other destinations such as shopping centres.

Rapid chargers: These can be either AC or DC with typical power outputs of 50kW, but can be significantly higher, Tesla super chargers charge at around 120kW. Current charging times are up to 30 minutes to charge 80 per cent of the battery.

Appendix 4 – Local Authority Engagement on Electric Vehicles

Extensive engagement has taken place with the following local authorities for the development of this strategy:

- Brighton City Council
- Bromsgrove and Redditch Council
- Coventry City Council
- Dundee City Council
- Oxford City Council
- Milton Keynes Council
- Nottingham City Council

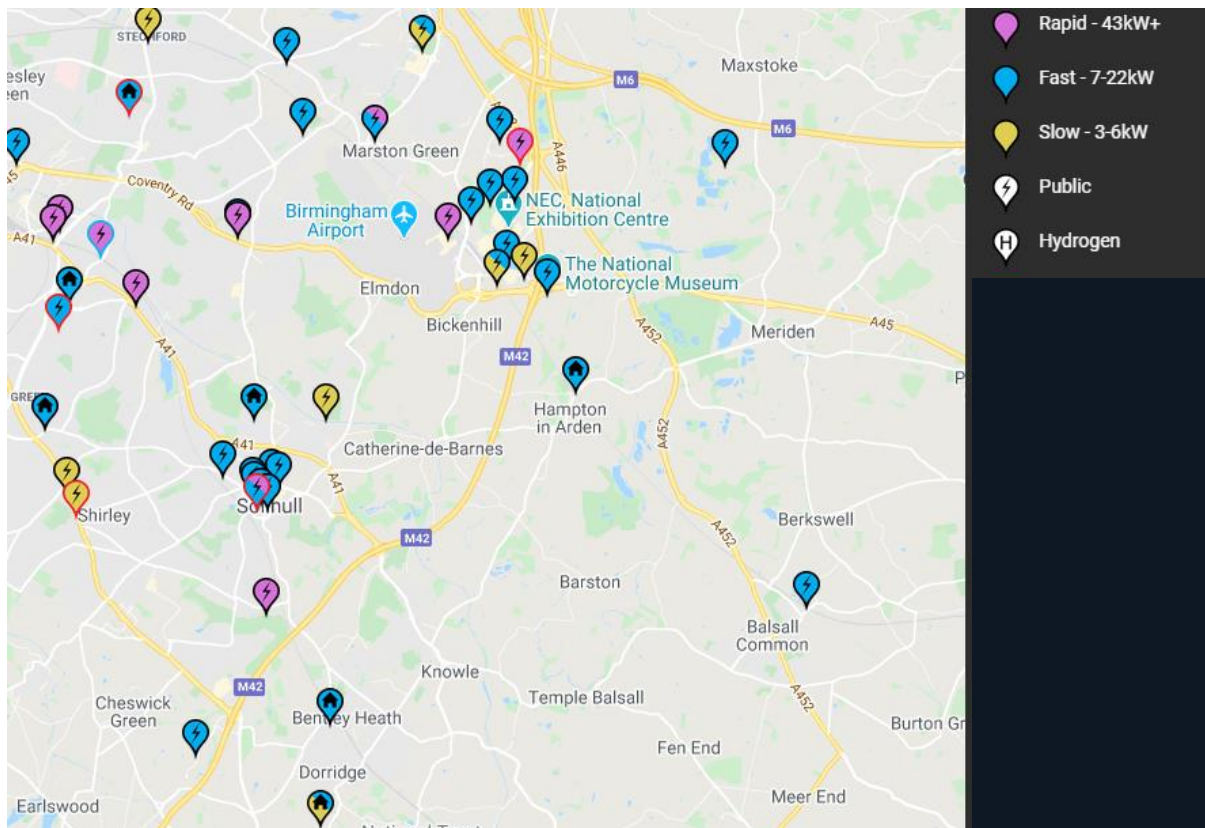
Appendix 5 – Business Engaged on Electric Vehicles

Engagement has taken place with the following businesses in the development of this strategy:

- Arup

- Birmingham Business Park
- Ecuity
- Elmdon Trading Estate
- Gateway Park
- International Synergies
- Interserve
- Jaguar Land Rover
- National Exhibition Centre
- Resorts World
- Touchwood Shopping Centre
- Westfield Sportscars

Appendix 6 – Public Charge Points Installed across Solihull



References

ⁱ BEIS <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017>

ⁱⁱ IEA Global EV Outlook 2016: <https://www.iea.org/reports/global-ev-outlook-2016>

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- iii IEA Global EV Outlook 2019: <https://www.iea.org/reports/global-ev-outlook-2019>
- iv Gov.uk Statistical Data Set: <https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01>
- v IEA Global EV Outlook 2016: <https://www.iea.org/reports/global-ev-outlook-2016>
- vi IEA Global EV Outlook 2016: <https://www.iea.org/reports/global-ev-outlook-2016>
- vii National Grid, <https://www.nationalgrid.com/group/case-studies/electric-dreams-future-evs>
- viii Bloomberg New Energy Finance: <https://about.bnef.com/blog/electric-vehicles-accelerate-54-new-car-sales-2040/>
- ix McKinsey: <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/making-electric-vehicles-profitable>
- x Bloomberg: <https://www.bloomberg.com/news/articles/2016-10-11/battery-cost-plunge-seen-changing-automakers-most-in-100-years>
- xi Vehicle Licensing Statistics Annual 2018:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800502/vehicle-licensing-statistics-2018.pdf



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