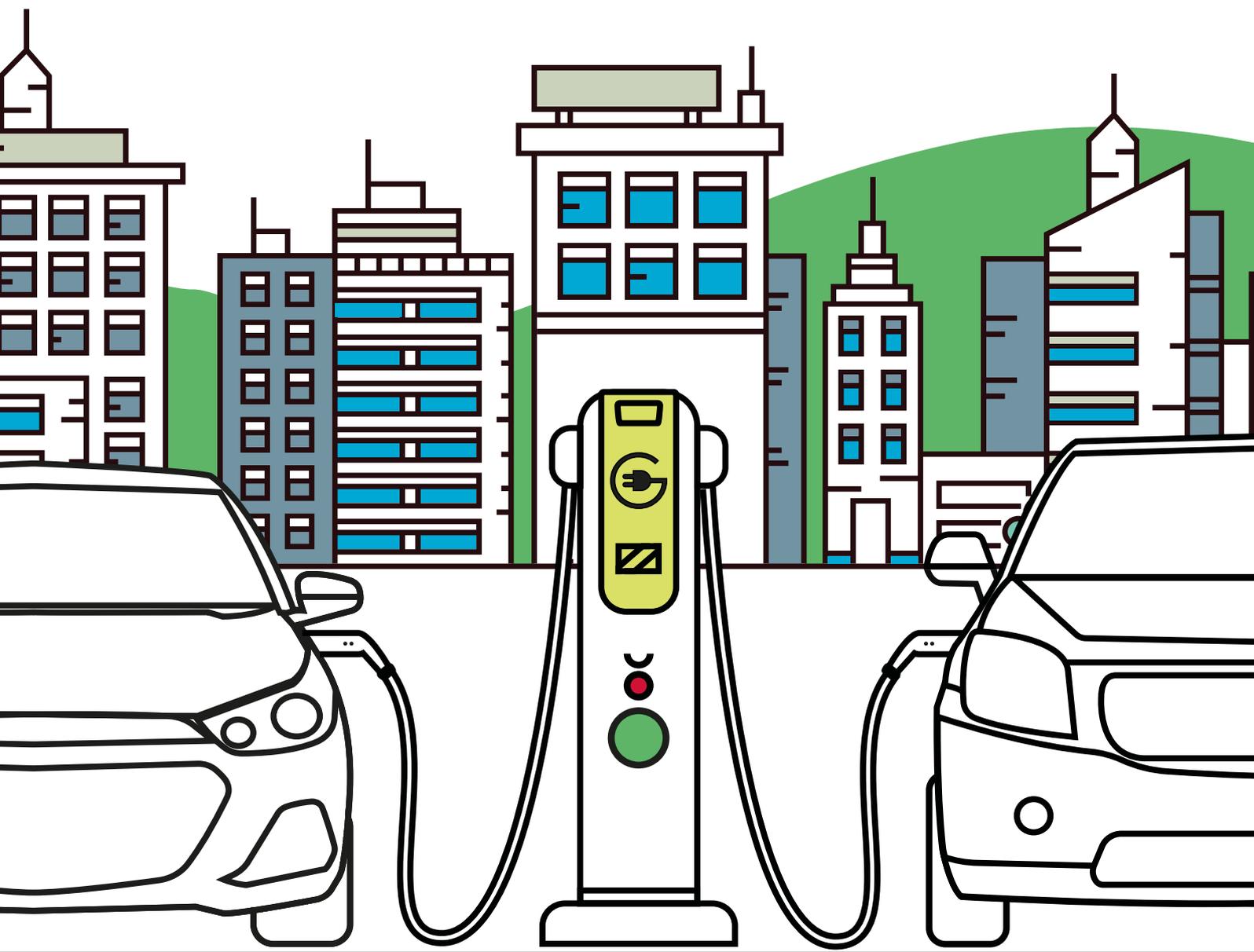


Procuring electric vehicle charging infrastructure as a local authority

A report by the Energy Saving Trust
September 2019



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

Abstract

Government grant funding has enabled many local authorities to install public charging infrastructure across the country. As the electric vehicle (EV) charging infrastructure market has grown, collaborations and partnerships with the private sector have become increasingly common.

This guide describes the increasing range of options open to local authorities to fund and manage public chargepoints, illustrated by extensive case studies. It concludes with procurement 'top tips'.

This guide covers:

- ▶ investing public funding in charging infrastructure and the 'Own & Operate' model
- ▶ securing private sector investment, including concession frameworks and low upfront cost options
- ▶ case studies
- ▶ 'top tips' for procuring public charging infrastructure.

Acknowledgments

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About the Energy Saving Trust

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

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1. Introduction

To date, a high proportion of public chargepoints have been installed through UK and devolved government-funded grant schemes, and local authority match-funding. As the electric vehicle (EV) charging infrastructure market has matured, so has the variety of procurement models and funding options available to public sector bodies. Private sector partnerships and revenue share arrangements are becoming increasingly common and a good choice for some local authorities, depending on the circumstances.

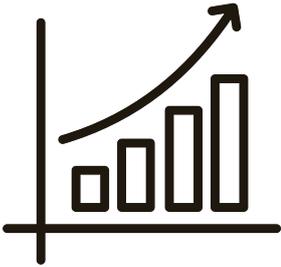
In the Road to Zero strategy, published in July 2018, the Government stated its ambition “to encourage and leverage private sector investment to build and operate a thriving, self-sustaining public network”.¹ With the right policy framework and more EVs on the road, the Government expects the market to deliver the public infrastructure needed in the long-term. The Government will monitor gaps in provision and assess the need for direct central government support in areas of market failure.

Moving forward, procurement decisions by local authorities will therefore vary depending on the availability of government or private sector funding, where market failures emerge, the potential profitability of the charging network, and the level of risk that the local authority wishes to carry.

This guide describes the wide range of options open to local authorities to fund and manage public chargepoints, illustrated by case studies.

¹ HM Government, 2018. The Road to Zero, p90 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

2. Investing public funding in charging infrastructure



In recent years, significant central and local government funding has been invested in charging infrastructure across the UK through initiatives such as the Go Ultra Low City Scheme, the On-Street Residential Chargepoint Scheme and the Switched on Towns and Cities Challenge Fund.

2.1 Why invest in charging infrastructure as a local authority?

Increasingly, direct capital investment from local authorities is not required to install EV charging infrastructure. However, where grant funding or similar is available, a local authority may choose to strategically and proactively invest in charging infrastructure. Reasons for this include:

- ▶ EV charging infrastructure is provided as a consistent, affordable and high-quality service to residents, including those without off-street parking
- ▶ chargepoints in prime public-owned locations can be an ongoing revenue stream
- ▶ profitable public chargepoints can subsidise those that are less-utilised but provide an important service to residents
- ▶ chargepoints in highly visible locations, such as town centre car parks, can draw attention to electric vehicles, supporting EV uptake and local air quality initiatives
- ▶ chargepoints at Council-owned facilities or attractions, such as shopping or leisure centres, can help to increase footfall from residents and visitors.

A local authority may decide to invest capital where user demand and profit from the chargepoint is likely to remain low but where network integrity, chargepoint accessibility and affordability for residents is important, constituting a market failure. For example, slow chargepoints in rural, on-street locations are likely to serve fewer customers per day and be less profitable than a city centre rapid chargepoint.

However, without the slower chargepoints, EV ownership would remain unviable for a proportion of residents, especially where off-street parking is unavailable. A local authority may wish to ensure that chargepoints are available in all neighbourhoods irrespective of wealth to ensure that the benefits of electric mobility are available to all.

2.2 'Own & Operate' model

'Own & Operate' describes a commonly-used approach to date where the contracting local authority or other public body publish a tender inviting suppliers to submit a competitive offer to provide and install the chargepoint equipment, and manage the network for a set period. The capital costs are funded by the local authority, potentially with a capital contribution from a central or devolved government grant. Following procurement, the charging infrastructure is owned by the authority, which receives all revenue and typically pays a monthly fee to a supplier for operation and maintenance. Table 1 summarises the advantages and disadvantages of this approach.

Various national frameworks are available to simplify chargepoint procurement for public sector bodies and ensure that the procurement process is compliant with UK/EU legislation. The main examples are the ESPO Framework 636 Vehicle Charging Infrastructure² and the Crown Commercial Service Traffic Management Technology 2, Lot 10 Sustainable Transport Infrastructure.³ The ESPO Framework allows both the purchase and lease of chargepoints.

The UK and Scottish Governments provide some grant funding for charging infrastructure, see Appendix A. Across the UK, the On-street Residential Chargepoint Scheme provides funding specifically for areas without off-street parking. In Scotland, ChargePlace Scotland funding and Switched On Towns and Cities funding is available. Other funding sources include the Defra Air Quality Early Measures Fund and Innovate UK.

² ESPO Vehicle Charging Infrastructure. <https://www.espo.org/Frameworks/Fleet-Highways/636-Vehicle-Charging-Infrastructure>

³ Crown Commercial Service Traffic Management Technology 2 <https://ccs-agreements.cabinetoffice.gov.uk/contracts/rm1089>

Table 1: Evaluation of the ‘Own & Operate’ model from the perspective of local authorities. Adapted with permission from a presentation given by Go Ultra Low Nottingham.

Advantages	Disadvantages
<ul style="list-style-type: none"> ➤ local authority retains full ownership of the charging network and collects revenues ➤ local authority can determine locations, irrespective of commercial viability, ensuring equity of access for residents and businesses ➤ easier procurement route as more familiar and requires less involvement from legal, procurement and property teams ➤ likely to be a quicker process, leading to faster network growth ➤ national procurement frameworks available to streamline process and ensure confidence in suppliers. 	<ul style="list-style-type: none"> ➤ limited central government and local authority funds available ➤ use of public funds comes with accountability to taxpayer and therefore political risk ➤ requirement for local authority to cover costs for ongoing operation, maintenance and upgrade ➤ local authority may become the owners of low value or redundant equipment as charging infrastructure market and technology is developing rapidly ➤ local authority carries the risks of unexpected costs and the reputational risk if the network is unreliable ➤ chargepoint operator less incentivised to repair faults, although a service level agreement (CSLA) should be in place ➤ missed KPIs/SLAs may be more difficult to enforce.

Figure 1



3. Securing private investment and transferring risk



Central government funding is limited, often competitively awarded, tied to certain schemes and excludes ongoing operating costs. As demand for public chargepoints grows year-on-year and chargepoint unit costs reduce, the commercial attractiveness of charging infrastructure has increased. Local authorities therefore have an increasing range of options, with different degrees of private sector involvement and varied contractual terms.

By pursuing this route, some local authorities have transferred some cost and risk liabilities to the private sector, enabling the authority to overcome capital constraints and accelerate the growth of the local chargepoint network.

The private investment approach suits some situations better than others. Broadly, the private sector is more likely to invest where they have greater confidence that a chargepoint will be in demand and therefore profitable. Factors increasing this likelihood include selecting good locations (visible, convenient, with facilities/amenities nearby), low installation costs (i.e. no expensive grid upgrades required) and a good uptake of EVs locally (for example, encouraged by local air quality initiatives or EV parking incentives). Chargepoint operators are likely to reduce their risk by predominately funding fast and rapid chargepoints, negotiating longer contracts and a proportional revenue share.

The case studies later in this guide illustrate how different local authorities worked with the private sector to balance these factors in practice.

3.1 Private sector match-funding

To date, most central government grant schemes for charging infrastructure cover 75% of the eligible capital costs. The remaining 25% can be covered by the local authority but in some cases, EV chargepoint operators have provide this match-funding. Where central government funding is not available, private sector funding could be matched directly against local authority capital. This reduces the up-front financial burden that local authorities face when installing charging infrastructure.

Depending on the agreement reached with the private sector provider, the drawbacks for the local authority may include reduced income from the chargepoints and reduced control over where chargepoints are located.

There will also need to be agreement on equipment ownership and/or upgrades throughout and at the end of the contract.

For example, Coventry City Council was awarded £702,000 through the UK Government's Ultra-Low Emission Taxi Scheme for rapid chargepoints at eight locations. The council entered an agreement which involves Siemens covering 25% of the costs, in return for a revenue share. The ESPO Framework 636 was used for procurement and the contract will last 15 years. Similarly, the Swedish state-owned utility, Vattenfall and Canterbury City Council agreed a partnership to deliver 12 7.4kW public chargepoints in February 2019. The chargepoints are part of a package of measures to improve air quality by facilitating EV uptake. The costs are covered by grants from the Office for Low Emission Vehicles (OLEV) and a contribution from Vattenfall, who also supply the chargepoints with wind-generated electricity.⁴

3.2 Concession frameworks

Through a concession contract, the operational costs and risks are shared, in part or completely, with a chargepoint provider.⁵

The sector is maturing quickly but concession frameworks are most likely to be successful where operators can be confident that the chargepoints will be profitable. Compromising on locations and offering longer contract terms may be necessary to attract chargepoint operators to invest.

Developing or using a concession framework is advantageous where the overriding concern and motivation is to minimise costs and risk for the local authority while providing a functional charging infrastructure network. Disadvantages include reduced revenue generation for the authority, reduced control over chargepoint locations and a initial infrastructure roll-out may take longer while contractual terms are agreed. See the summary in Table 2.

Local authorities who have taken this approach include Nottingham City Council, Oxford City Council, and the London Go Ultra Low City Scheme (see the case studies later in this guide).

⁴ Canterbury City Council, Jan 2019. <https://news.canterbury.gov.uk/renewable-energy-set-to-power-districts-electric-vehicle-charging-points/>

⁵ The Concession Contracts Regulations 2016 defines a concession contract as when the award of the contract involves the transfer to the concessionaire of an operating risk in exploiting the works or services encompassing demand or supply risk, or both. The transferred risk should involve exposure to the vagaries of the market, such that any potential estimated loss incurred by the concessionaire shall not be merely nominal or negligible. Source: Gov.uk, 2016. The Concession Contracts Regulations 2016. http://www.legislation.gov.uk/uksi/2016/273/pdfs/uksi_20160273_en.pdf

Table 2: Evaluation of concession frameworks from the perspective of local authorities. Adapted with permission from a presentation given by Go Ultra Low Nottingham.

Advantages	Disadvantages
<ul style="list-style-type: none"> ➤ some income shared by the concessionaire with local authority ➤ chargepoint operator incentivised and responsible for the maintenance of the network, leading to a better end-user service ➤ reduced risk for the local authority, in terms of maintenance and ensuring income generated covers ongoing costs ➤ depending on the agreement, the local authority may retain ownership of the equipment or underground electrical connections which are valuable as the basis of any future network ➤ depending on the terms of contract renewal, the concessionaire may be responsible for updating and refreshing the equipment and software, future-proofing the network. 	<ul style="list-style-type: none"> ➤ in comparison to full ownership, reduced income share for local authorities ➤ as relatively novel procurement model, likely to require more dialogue within a local authority and time spent developing the tender requirements/ specification ➤ contractual award and negotiations discussions may slow down network delivery, leading to a reputational risk and dissatisfied EV owners ➤ not all chargepoint companies are willing or able to accept the terms of a concession framework, reducing the choice of suppliers ➤ only likely to successful tender exercise where chargepoints likely to be profitable, or on a sufficient regional scale to allow some cross-subsidisation and risk balancing.

Figure 2



3.3 Alternative business models for chargepoints with low upfront costs

Where local authorities are looking to grow their network quickly at no upfront or low cost, there are further options available.

Some chargepoint operators are approaching local authorities in England with the offer of 'free' charging infrastructure. Although the details vary, often companies will offer fast or rapid chargepoints at no cost, including equipment, installation, commissioning and maintenance. The operator is likely to be highly selective on locations, wanting only 'prime sites' i.e. off-street locations with 24/7 access, facilities onsite or nearby, a straightforward grid connection and no need for a grid upgrade.⁶ The operator will own the units and is likely to retain the revenue and set the pricing. The council may receive a rental income for the chargepoint installed on their land.⁷ This may present an excellent opportunity for some local authorities but due to the selectivity on locations, the 'free' chargepoints are unlikely to satisfy the needs of all user groups across a city.

Some chargepoint operators are developing 'leasing' business models. Some operators are targeting workplaces and fleets but others are beginning to work with local authorities. For example, Phoenix Works offers businesses and public sector organisations chargepoints at no upfront cost, just a fixed service charge. Depending on the usage rate of the chargepoint over its lifetime, and where revenue exceeds the service fee, this may present a cost-effective solution for local authorities.⁸

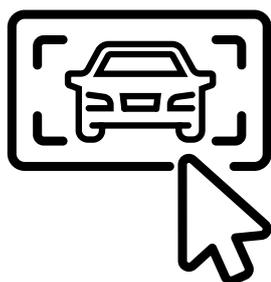
Suffolk County Council, working in partnership with EO and Bulb, are adopting a similar approach to build a new network, Plug In Suffolk. Local businesses are being encouraged to 'host' fast chargepoints that are open to the public. Businesses would pay £1.99 per chargepoint per day and receive 90% of the revenue generated. The installation, operation and maintenance costs are covered by the network.⁹

3.4 UK Government Charging Infrastructure Investment (CIIF)

To encourage the private sector to invest in public charging infrastructure, the Government has established a £400m EV Charging Infrastructure Investment Fund. HM Treasury will invest up to £200m and match-funding of at least £200m is expected to be provided by private investors.¹⁰

As of summer 2019, the government has been in negotiations with Zouk Capital to become the private equity fund manager. The fund managers will raise and allocate the funding on behalf of Treasury, making independent, commercial decisions within parameters set by government.¹¹

The fund should provide access to finance to chargepoint companies and diversify the parties involved in the sector within the financial community, enabling faster expansion of public charging networks. The fund may be invested in chargepoint equipment, the software and platforms required to run infrastructure, grid connections and reinforcement or battery storage solutions linked to chargepoint provision.¹²



⁶ For example, BP Chargemaster Local Authority Offer, <https://bpchargemaster.com/local-authority-offer/>

⁷ For example, Instavolt and Mid Devon District Council, <https://instavolt.co.uk/case-studies/mid-devon-district-council/>

⁸ The Phoenix Works commercial offer, <https://thephoenixworks.com/commercial/>

⁹ Plug In Suffolk <https://www.pluginsuffolk.org/>

¹⁰ HM Government, 2018. The Road to Zero p98

¹¹ HM Government, 2019. Charging Infrastructure Investment Fund <https://www.gov.uk/government/publications/charging-infrastructure-investment-fund>

¹² HM Government, 2018, Charging Infrastructure Investment Fund Request for Proposals https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/727576/CIIF_RFP.pdf

4. Case studies

Over the past few years, local authorities have adopted a range of ownership models and approaches to procurement for charging infrastructure. Reasons for the variations include the changing availability of government grants and private sector finance and the type, location and potential profitability of the chargepoints being installed. The level of risk that the local authority wishes to carry and the resources available to invest in more complex procurement processes are also influential.

Table 3 summarises the case studies which follow, ordered broadly by the increasing level of private sector involvement in each project and decreasing reliance on government grants. Risk liabilities in this context should be interpreted as the risk of unexpected costs, either during installation or on-going maintenance and repair, or the risk of lower revenue generation than anticipated.

Table 3: Summary of procurement approaches taken by local authorities.

Approach or case study	Type of charging infrastructure	Chargepoint network ownership	Funding source for chargepoint units & installation	Responsibility for maintenance & repair	Revenue arrangements	Risk liabilities (i.e. unexpected costs)	Framework & contract length	Procurement complexity
ChargePlace Scotland	National network, slow and rapid chargepoints	'Host' – local authority or organisation (i.e. workplace)	Up to 100% government grant from Transport Scotland	Transport Scotland, on an ad hoc basis	Most chargepoints are free to use for a certain time period, 'host' pays for electricity	With Transport Scotland and local authorities	NA	List of approved installers available to 'hosts'
Most current procurement to date	Dependant on grant scheme	Local authority	75% Central government grant, 25% Local authority funds	Local authority (monthly service fee paid to contractor)	All to local authority	With the central & local government	Varies	Simplified supplier selection if use the ESPO or TMT2 Frameworks
Private sector match-funding	Dependant on funding stream	Local authority	75% Central government grant, with 25% private sector investment	To be agreed between parties	To be agreed between parties	Shared between public and private sector	Varies	Coventry City Council used ESPO Framework with additional requirements
Central Southern Regional Framework	All types of chargepoint	Contracting local authority	Grant-funded or private sector finance option, brokered by supplier	Chargepoint supplier	10% rebate to council on energy costs. 1% revenue to Hampshire City Council when other organisations use framework	Site-dependant, shared between parties	Framework: 2+2 years Contracts: up to 15 years	Initial investment by Hampshire County Council to set up, now streamlined call-off process
Greater Manchester EV Network	Lot 1: GMEV infrastructure	Local authority	Central or local government funding	Contracted supplier	All revenue collected by GMEV	With central and local authority	Framework: 7+3+3 years	New framework but relatively straightforward as 'operate & own' approach, added social and innovation criteria
	Lot 2: Supplier-owner infrastructure	Supplier	Private sector investment	Chargepoint supplier	All to supplier, which pays a 'landlord rent' to GMEV	Transferred to supplier		More significant investment in framework development and contract negotiations
GULCS London Concession Framework	On-street chargepoints, up to 7kW	Borough	75% Central government grant, 25% boroughs funds	Chargepoint supplier	Most to supplier, with a share to the borough	Transferred to supplier	Framework: 3+1 years Contracts: 10 years	Invested resources to set up framework but will reduce costs and assist many boroughs
Oxford City Council Concession Framework	On-street chargepoints for residents – innovation trial	Local authority	Central government grant	Chargepoint supplier	Most to supplier, with a revenue share to the council, once chargepoint profitable.	Transferred to supplier	Contract: Leased to operators for 4 + 4 years	Significant officer time invested, drawing on learnings from other local authorities. Trial framework will provide the groundwork for city-wide infrastructure roll-out
Go Ultra Low Nottingham Concession framework	Fast & rapid chargepoints,	NCC owns underground network	Supplier claims against central government grant, supplier will provide additional funds if required and additional rapid chargepoints	Supplier	Minimum guaranteed payment and a revenue share paid by supplier to local authority	Transferred to supplier	Framework: 10 years Contracts: 5+5 years	Resource-intensive to establish as innovative model but lead to a successful, low-risk infrastructure delivery
Low-upfront cost models E.g. Mid Devon District Council & Instavolt, BP Chargemaster, Plug in Suffolk	Fast and rapid chargepoints	Supplier	Private sector investment	Supplier	All to the supplier. The council may receive a rental income for the use of their land	Transferred to supplier	Dependant on contract, often long-term	Likely to be simpler than a regional or network-wide procurement framework. Officer time will be needed to develop the tender documents and negotiate revenue share/legal arrangements

4.1 Case study – ChargePlace Scotland

ChargePlace Scotland is a national network with approximately 1,000 fast and rapid chargepoints. Established in 2013, the network has been developed by the Scottish Government via grant funding for local authorities and other organisations, totalling approximately £15m in 2018/19. All chargepoints that appear on the ChargePlace Scotland map¹³ are accessible to the public and share one back office system and membership app, delivering a positive customer experience.

The ChargePlace Scotland network is funded by Transport Scotland and grows via several routes:

- ▶ grant funding provided directly to local authorities to install public charging infrastructure
- ▶ grant funding allocated via the Energy Saving Trust (EST) to households or businesses and public sector organisations (in addition to OLEV funding, see Appendix A)
- ▶ grant funding allocated via EST for public destination charging infrastructure.

Following a review by Transport Scotland, funding for public chargepoints at 'destinations' is available to organisations (both businesses and local authorities) if they meet at least two of the eligibility criteria:

- ▶ the proposed location receives visitors on a daily basis
- ▶ visitors spend, on average, more than an hour at the proposed locations
- ▶ there is no charging infrastructure within five miles.

The proportion of grant funding available varies between 50% and 100%, up to a maximum of £21,000 per site, and is dependent on the number of chargepoints requested, if the organisation is public or private sector, and how rural or remote the site is.

The Non-Public Workplace Chargepoint Scheme funds chargepoints for use by fleet drivers, staff and visitors, and these do not appear on the ChargePlace Scotland Map. The number of funded chargepoints varies by the number pure EVs or plug-in hybrids owned by the organisation or staff.

Further information about ChargePlace Scotland can be found on the EST website.¹⁴

Figure 3



¹³ ChargePlace Scotland website <https://chargeplacescotland.org/>

¹⁴ EST, 2019. Electric Vehicles and ChargePlace Scotland <https://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/electric-vehicles-chargeplace-scotland>

4.2 Case study – Greater Manchester Electric Vehicle (GMEV) Network

Transport for Greater Manchester (TfGM) took over the Greater Manchester Electric Vehicle (GMEV) Network in 2014. By 2018, it had grown to 159 dual-headed fast and four rapid chargepoints, with over 2,000 members. They decided that the network required a technological renewal and strategic expansion if it were to support the mass adoption of electric vehicles across the region and play a central role in improving air quality.

TfGM extensively researched the untapped potential for charging infrastructure in the region and long-listed locations using street-level data. Stakeholders identified that time and cost savings could be achieved through a procurement framework for the entire Greater Manchester region. A regional framework also avoids market fragmentation, takes advantage of economies of scale and results in a more attractive private sector investment opportunity.

The GMEV framework contract is available to all Association of Greater Manchester Authorities (AGMA) and associated members,¹⁵ plus private landowners in the region. Contract approvals are expected in autumn 2019.

The framework will last seven years with the option to extend twice, by three years a time. It covers all types of infrastructure and is structured into several sections:

- ▶ GMEV (publicly owned) infrastructure: covers the existing network and additional public-sector funded and owned chargepoints. Suppliers will be expected to upgrade, operate and maintain new and existing infrastructure and collect payments on behalf of GMEV, at prices set by GMEV.
- ▶ Supplier-owner infrastructure: GMEV will facilitate a 'host agreement'. Locations will be identified collaboratively and the supplier will be expected to fully fund, install, operate, maintain and market the infrastructure and pay rent to the council if chargepoint is on public land. In return, the supplier will set pricing and collect all revenue.
- ▶ Electricity supply: an opportunity to supply the GMEV (publically-owned) infrastructure at a capped kW rate. There is a renewable energy stipulation.

In the tender process, all suppliers were expected to describe how they would support innovation and social value, for example by including provision for load management, demand-side supply, open data and optimum location modelling. This aimed to enhance the quality of the network and reduce adverse impacts on the electricity network.

The total contract value is £58m including £2m already awarded by the Joint Air Quality Unit (JAQU) as Early Measures Intervention Funding, £1.8m awarded through the OLEV ULEV Taxi Infrastructure scheme and £1.89 million for bus charging infrastructure. Future external funding applications by TfGM are expected to raise an additional £21m with a further £2m of external funding attained through applications from individual local authorities. Operational and electricity supply costs are expected to be £2m a year for the duration of the framework contract (13 years).

Although the framework is still in development, this is an ambitious contract which has strong potential to enable the development of a strategic, high-quality charging infrastructure, blending public and private sector finance and expertise.

Figure 4



Photo credit: Monty Rakusen

¹⁵ AGMA: Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan), TfGM, Greater Manchester Police, Greater Manchester Fire and Civil Defence Authority, Greater Manchester Waste and Disposal Authority.

Associated AGMA Members: Blackpool, Blackburn and Darwen, Cheshire East and Warrington.

4.3 Case study - Central Southern Regional Framework for EV Charging Infrastructure

Developed and managed by Hampshire County Council in 2018, the Central Southern Regional Framework is open to public sector¹⁶ organisations across the region¹⁷ to make the process of procuring chargepoints quicker and simpler. As of early 2019, 28 public bodies had signed up to the framework.

Hampshire County Council (HCC) developed the framework because felt that existing frameworks did not meet their requirements. When other authorities use the framework, 1% of installation capital costs are reclaimed by HCC to cover framework management costs.

The framework is flexible with few restrictions on the speed and type of chargepoint that can be procured, as long as the units are Open Charge Point Protocol (OCPP) compliant. OCPP compliance ensures interoperability between different chargepoint manufacturers, making the network easier to manage and more convenient to use across the entire region. The framework covers chargepoints for public sector fleets, on-street locations, off-street car parks and staff charging at home.

The Central Southern Regional Framework is a single-supplier framework that, after a competitive tendering process, was awarded to Joju for two years, with an option to renew for a further two years. A single supplier framework has the advantage of offering consistent service delivery and simpler framework management. Framework users can select the level of installation and management services they require, including £1 initial feasibility studies.

Chargepoints installed through the framework can be publicly funded through local authority or grant capital, or are financed using private sector funds that are brokered by Joju, or a combination of both.

The tariff paid by the end-user of each chargepoint is determined by using a regional average. However, a maximum tariff has been agreed with Joju and imposed through the framework to avoid over-charging EV drivers.

Joju offers an income share to the contracting authority of a 10% rebate on the energy cost per kWh. While this represents a relatively low and varying income stream it is an attractive option as it is guaranteed from the start of operation, not only once the chargepoint is profitable. It is often sufficient to cover officer time, enabling continued investment in infrastructure.

Figure 5



Photo credit: Hampshire Council

At the end of the contract, up to 15 years, chargepoint ownership will revert back to the local authorities as it is on land owned by the local authority. They may then decide to remove it, sell the location or re-procure, depending at its value at that stage.

For more information about the framework, see the Hampshire County Council¹⁸ and Joju Solar's¹⁹ websites or email energy@hants.gov.uk.

¹⁶ Including councils, universities and educational establishments, national park authorities, emergency service organisations, health services and trusts, housing associations, public bodies and charitable trusts.

¹⁷ Including Hampshire, Berkshire, Dorset, Isle of Wight, Hertfordshire, Surrey, West Sussex, Wiltshire and Devon. Public sector bodies interested in the framework but outside these areas should contact HCC to discuss access, contact details below.

¹⁸ Hampshire County Council website <http://www3.hants.gov.uk/energyandsustainability/electric-vehicle-chargepoints.htm>

¹⁹ Joju Solar website <https://www.jojuSolar.co.uk/electric-vehicle-charging-for-councils/>

4.4 Case study – Go Ultra Low City Scheme, London

London's Go Ultra Low City Scheme (GULCS) aims to provide London boroughs with capital funding and support to install over 1000 public chargepoints by the end of 2020 – a target that it is on track to meet.

Following a joint bid by London councils, Transport for London (TfL) and the Greater London Authority (GLA), London was awarded £13 million by the OLEV to install rapid chargepoints, provide on-street chargepoints for residents and car club operators, and create 'neighbourhoods of the future'. For the £5.2m on-street chargepoint workstream, the funding covers 75% of the capital costs of chargepoints (up to 7kW, with a £7,500 cap).

To reduce the considerable time and cost burden of procuring and maintaining chargepoints on boroughs, London Councils developed a tailored, multi-supplier framework which has been available since Summer 2018 to any public body in London installing chargepoints for residential or car club use. This framework covers slow and standard chargepoints (up to 7kW), with TfL offering a separate concession framework for rapid chargepoints (over 43kW).

The framework includes a concession contract in which the supplier, rather than the borough, is responsible for operating and maintenance costs of the chargepoints over the lifetime

of the contract. This approach overcomes a significant barrier for many boroughs, especially where there is a risk that revenue will not cover ongoing costs. In return, the operator receives all the revenue and returns a percentage share to the borough.

The chargepoint operator is permitted to set the electricity tariff for the end-user but this cannot be higher than the price agreed during tender, with an allowance for inflation. Contracts agreed between suppliers and boroughs can be up to a 10 year maximum, with the majority likely to be five years or less.

The framework also includes a contract option where the borough retains all revenue but pays an ongoing fee to the operator for maintenance and operation. This is most suitable for chargepoints used by fleets.

The framework has two lots, each with four suppliers:

- chargepoints with a shared power supply (i.e. lamp column chargepoints)
- chargepoints with a dedicated power supply (i.e. free-standing chargepoints).

The framework agreement lasts for three years, with a one year renewal option.

The framework enables London boroughs to run mini competitions or appoint a supplier directly based on specified criteria that matches the borough's needs, as they can be confident that suppliers have already been rigorously assessed against financial, technical, health and safety criteria.

Included in the framework are procurement specifications, instructions, contract terms and conditions, pricing template and evaluation framework. This overcomes the challenge of a lack of expertise and capacity within boroughs to develop these documents, and encourages consistency in approach across boroughs. Boroughs are expected to identify appropriate locations, liaise with residents and match-fund 25% capital costs. Suppliers have submitted a 'rate card' so boroughs can select the level of services they require.

With the procurement framework and other support now in place, the GULCS is progressing well. As of May 2019, 1,079 chargepoints have been installed and by the end of Summer 2019 numbers are expected to reach 1,700. Many chargepoints are integrated with lamppost columns. More information about the programme can be found at London Councils website²⁰ and in a research article.²¹

Figure 6

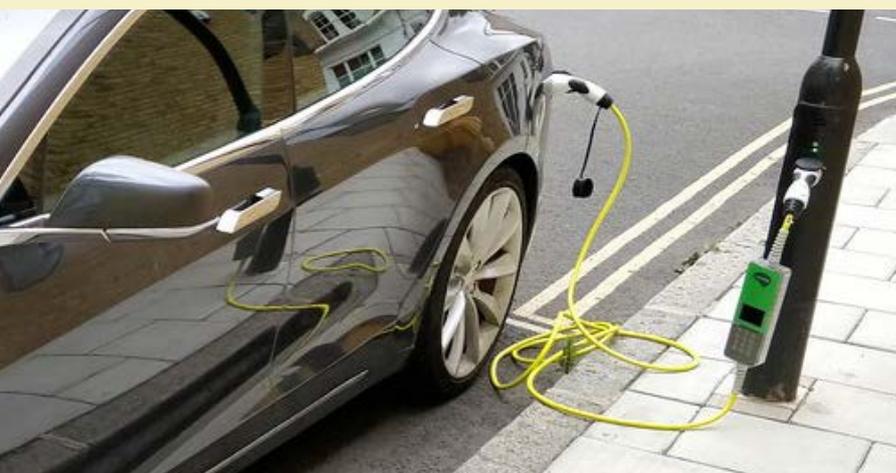


Photo credit: Energy Saving Trust

20 London Councils, 2019. Go Ultra Low City Scheme <https://www.londoncouncils.gov.uk/our-key-themes/transport/roads/gulcs>

21 Clancy L, Palmer S and Blake J (2018). Developing and procuring London's highway infrastructure to enable an electric future. Proceedings of the Institution of Civil Engineers – Civil Engineering 171(6): 45–50, <https://doi.org/10.1680/jcien.18.00013>

Figure 7



Photo credit: Go Ultra Low Oxford

4.5 Case study – Go Ultra Low Oxford

The Go Ultra Low Oxford project, run by Oxford City Council and Oxfordshire County Council, is trialling six types of charging infrastructure²² over 12 months to assess their suitability for on-street charging in residential areas. The project was awarded £816,000 from the Office for Low Emission Vehicles (OLEV) for the capital costs of the trial and the subsequent roll-out of around 100 chargepoints.

Oxford City Council developed a bespoke concession framework which reflects the time and resource intensiveness of this innovative trial. Their framework also takes into account relatively lower income typically generated by on-street residential chargepoints, when compared to rapid chargepoints, for example.

Through the OLEV funding, Oxford City Council covered all capital costs (including equipment and installation) and has retained ownership of the chargepoints. The chargepoints have been leased to commercial chargepoint operators for four years, with the option to extend the contract by a further four years.

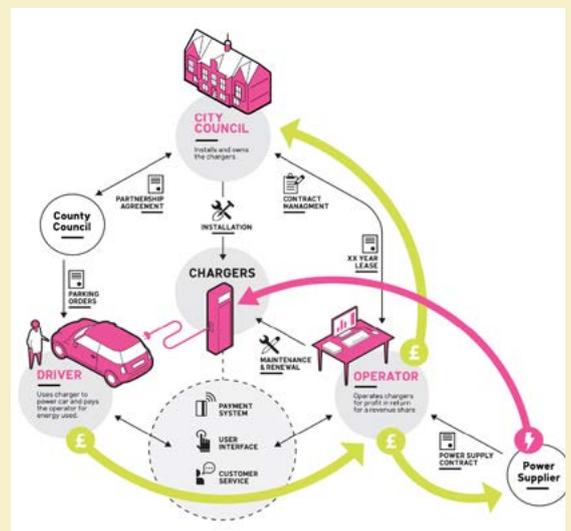
The council do not pay a monthly fee to cover operational costs. Instead, the operator is responsible for the maintenance and operation of the chargepoints, including customer service, collecting payments and the power supply contract. They operate the chargepoint

for profit, returning a revenue share to the council once the chargepoint is profitable (see Figure 1). All units are Open Charge Point Protocol (OCPP) compliant, ensuring they are compatible with a single back-office system provider, New Motion.

At the end of the trial, the Council can require the removal of the chargepoint, at the cost of the operator, if it is not functioning effectively or fit for purpose.

In the future, the Council are considering developing a concession contract which would leverage private investment, especially for rapid chargepoints in central locations and destinations.

Figure 8 – Operating Model for Go Ultra Low Oxford, funded by OLEV



Credit: Oxford City Council

22 Go Ultra Low Oxford, 2019 <https://www.goultralowoxford.org/info/5/chargers>

Figure 9



Photo credit: Nottingham City Council

4.6 Case study – Go Ultra Low Nottingham Concession Framework

Go Ultra Low Nottingham is led by Nottingham City Council (NCC) on behalf of Nottinghamshire County Council and Derby City Council, and supports the uptake of ultra-low emission vehicles in the region. The programme was awarded £6.1m by OLEV in 2016, £2m of which was allocated for around 230 fast and rapid (min. 45kW) public chargepoint sockets to be installed by 2020. Additional funding of £702,000 has been secured using the OLEV Taxi Infrastructure Grant for dedicated taxi chargepoints.

NCC developed a 10 year concession framework which requires the supplier, or concessionaire, to buy the hardware, complete the civil and connection costs, install, operate and maintain the chargepoint network. The concessionaire is also responsible for upgrading the network as technology develops. Following a OJEU competitive tender to source a single supplier, the framework was awarded to BP Chargemaster. This 'fully managed solution' approach was selected because it minimises risks and cost liability to the councils.²³

The £2m OLEV grant was used by NCC for the first call-off to support the concessionaire with the initial establishment of the network, the D2N2 network. In practice, Chargemaster can submit claims to NCC until March 2020 to draw down capital from the OLEV funding, including for the chargepoint hardware, civil works and commissioning and initial network set-up, after completion. To fulfil their obligations as a concession Chargemaster provides additional capital to cover all service, maintenance and repair costs, the ongoing management of the back office system costs, and any additional installation/equipment costs if they exceed £2m, up to the end of the contract.

As part of tender, Chargemaster also committed to expand the D2N2 network by 50 rapid chargepoints, at no cost to NCC, under the same terms as the framework.

The concession will own the equipment and management systems but NCC retains full rights and ownership of site agreements and below ground infrastructure. NCC saw limited value in the equipment itself after a decade, in comparison to the underground network.

If requested by NCC, the concessionaire is responsible at the end of the call-off contracts (5+5 years) for the removal of the charging infrastructure at their own cost and 'making good' the groundworks.

NCC receives a significant guaranteed minimum payment for every chargepoint (irrespective of usage) which ensures the network's sustainability, including officer time. A percentage revenue share provides a top-up payment to NCC.

Tariffs for EV users are competitively priced within a band agreed with the council which also offers residents and taxi drivers preferential rates. The network allows pay-as-you-go access, without requiring membership of the network.²⁴

A unique element of this concession framework is that Nottingham City Council can become the 'owner' of the network across other local authority districts. For smaller local authorities, the framework can provide them with a fully-funded, fully-repaired and maintained charging infrastructure service at their choice of locations, but NCC retains the minimum guarantee payment and revenue share. Both parties have to agree to wayleaves which can be time consuming but it is still workable. Alternatively, local authorities included in the framework can 'call-off' from the framework, thereby retaining network ownership, the minimum guaranteed payments and revenue share, but they are likely to have to provide some capital investment.

Potential locations for chargepoints were identified on both public and third-party land by the councils and partners, taking into account resident/private landowner requests, power supply and access constraints. If further investigations show that the identified locations are commercially unviable (i.e. very high connection costs or issues with wayleaves), alternatives are agreed between the supplier and local authorities in the region.

In summary, NCC have succeeded in creating a pioneering framework that successfully achieves its aims to minimise risk and expenditure for local authorities and puts onus on a supplier to invest in growing a charging networks and their business in the long term.

Figure 10

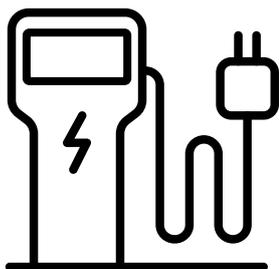


Photo credit: Go Ultra Low Nottingham

23 Summary of recommendations to Nottingham City Council Executive Panel, 2017 <https://committee.nottinghamcity.gov.uk/documents/s59654/Ultra%20Low%20Emission%20Vehicles%20Charging%20Point%20Infrastructure%20Network%2006072017%20Executive%20Panel.pdf>

24 Frequently asked questions regarding D2N2 EV charging infrastructure network <http://www.chargeyourcar.org.uk/d2n2/faqs/>

5. Providing free chargepoints as a local authority



When public chargepoints were first delivered by local authorities, such as through the OLEV Plugged-In Places Scheme,²⁵ many were free to use. Free recharging is a great financial incentive to encourage EV uptake and supported the EV market in its early stages. In Scotland, most chargepoints remain free to use, at least for a limited period. The Scottish Government funds the delivery of ChargePlace Scotland network but local authorities pay for the electricity supply (see the case study in this guide).

However, it is widely felt that local authorities in England should be cautious about installing new free chargepoints unless there is a plan

to ensure their financial sustainability or it is a commercial choice, i.e. as loss-leader to attract footfall to a visitor destination or retail centre.²⁶

Some local authorities have found that after offering free charging, introducing charges attracts negative feedback if residents feel they were misled on the benefits of EV driving or it increases their businesses costs. Setting at least a nominal connection fee from the start or a clear 'sunset clause' on free charging helps to overcome this. For example, the West Yorkshire Combined Authority will offer free rapid charging for taxis only until October 2021.²⁷

25 HM Government, 2013, Lessons Learnt from the Plugged-in Places Scheme. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/236750/plugged-in-places-lessons-learnt.pdf

26 For example, Tesco proposes to offer its 7 kW chargepoints for free, but charge for the use of rapid chargepoints.

27 West Yorkshire Combined Authority, accessed 2019, At least 88 new, free electric vehicles rapid-charge points to be installed across West Yorkshire <https://www.westyorks-ca.gov.uk/all-news-and-blogs/news-archive/eighty-eight-new-free-electric-vehicles-rapid-charge-points-to-be-installed-across-west-yorkshire/>

28 Tesco PLC, 2018, Tesco and Volkswagen partner to provide the largest retail Electric Vehicle charging network in the UK – powered by Pod Point <https://www.tescopl.com/news/news-releases/2018/tesco-volkswagen-partner-largest-retail-electric-vehicle-charging-network-uk-pod-point/>

29 PwC, 2018. Powering ahead! <https://www.pwc.co.uk/industries/power-utilities/insights/electric-vehicle-infrastructure-report.html>

30 EST, 2019. <https://www.energysavingtrust.org.uk/transport/local-authorities/developing-electric-vehicle-charging-infrastructure> (to be published forthcoming)

31 Est, 2019. Positioning chargepoints and adapting parking policies for electric vehicles <https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Positioning%20chargepoints.pdf>

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

6. Installing charging infrastructure on private land

Situating chargepoints on private land at destinations such as retail parks, leisure centres or motorway service stations, will help to create dense, convenient, user-friendly charging networks. Some retailers, for example Tesco,²⁸ are already seeing the potential of chargepoints to attract customers and there is a strengthening business case for chargepoint operators.²⁹ As demand grows, some local authorities may find that they have insufficient public land in suitable places for chargepoints, necessitating closer collaboration with private landowners. Although the development of a destination charging network may be led by the private sector, local authorities can encourage and facilitate this investment in several ways.

Firstly, planning regulations are a major mechanism that local authorities can use to require developers to install chargepoints at new developments. For example, local authorities can update parking standards in Local Plans and the government is consulting

on requirements for chargepoint provision in new non-residential buildings with car parks in England. For details, see the EST guide on planning policies.³⁰

Secondly, local authorities can work with local business networks, possibly via their Local Enterprise Partnership (LEP), to communicate the benefits of EV provision at retail, leisure or businesses premises or workplace chargepoints for staff, encouraging private landowners to invest in charging infrastructure. Chargepoints at residential or commercial properties will become a selling point as EV ownership increases, adding value to the site and attracting footfall. In some cases, the OLEV Workplace Charging Scheme and ChargePlace Scotland can assist with funding (see Appendix A).

Thirdly, local authorities can boost the business case for chargepoints by actively encouraging EV uptake in their locality (see the EST guide on parking incentives for EVs³¹ and the LowCVP guide).³²

7. Investment from community groups or cooperatives

Electric vehicles and charging infrastructure are a growing area of interest for community energy groups and co-operatives.³³ Community car clubs are also investing in electric vehicles, for example Co-Wheels.³⁴ For local authorities, enabling these groups to invest in infrastructure could be an effective way to minimise capital exposure while maximising community benefits. Community energy groups and co-operatives have traditionally funded renewable energy technologies, often solar panels installations. Group members contribute towards the capital cost of an energy-generating asset on the basis that it will reduce ongoing energy costs and/or generate income for members. Often, any surplus revenue is reinvested into further capital projects.

This community investment model could be adapted to fund public charging infrastructure. Members who contribute towards the capital investment costs of chargepoints could have sole or preferential use of these chargepoints at certain times of pay a discounted tariff. Non-members could use the infrastructure but typically pay more.

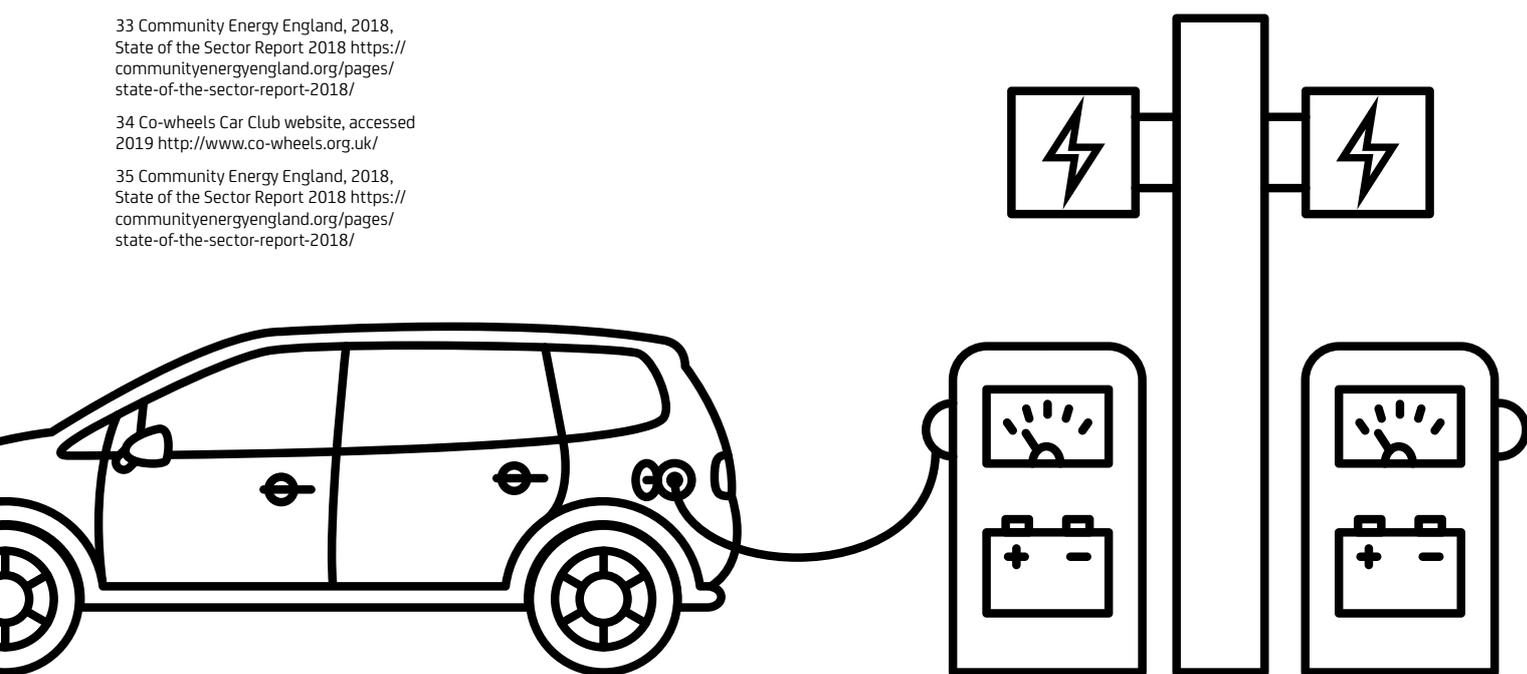
One benefit of this investment model is that a greater proportion of chargepoint revenue will be retained within the community and could be reinvested to install further chargepoints as demands grows. Additionally, the chargepoints could integrate with renewable energy generation, recharging when there is surplus generation, which may otherwise be wasted.³⁵

The main barrier is likely to be a lack of demand in the short term as these groups invest based on the requirements of their members. Difficulties might be encountered in securing locations for the infrastructure, but local authorities could help to facilitate.

33 Community Energy England, 2018, State of the Sector Report 2018 <https://communityenergyengland.org/pages/state-of-the-sector-report-2018/>

34 Co-wheels Car Club website, accessed 2019 <http://www.co-wheels.org.uk/>

35 Community Energy England, 2018, State of the Sector Report 2018 <https://communityenergyengland.org/pages/state-of-the-sector-report-2018/>



8. Chargepoint procurement ‘top tips’

This guide has largely focused on the range of ownership models for charging infrastructure because this is a highly important decision that needs to be made as a local authority at the start of any project to deliver charging infrastructure network.

To conclude this guide, the following section offers ‘tips’ based on a list developed by UK EVSE which looks at what not to do when procuring EV charging infrastructure. This list may help local authorities to shape the detail of tender documents, technical specifications or contractual discussions with suppliers, for example.

1 “Don’t assume that rapid is always right.”

Due to the very high costs for the hardware and DNO connections for rapid chargepoints, think carefully about whether the investment is worthwhile. In some cases, slower chargepoints might conveniently meet the needs of residents charging overnight or just ‘topping up’ their batteries whilst away from home. Remember that plug-in hybrids cannot rapid charge.

2 “Don’t put all your electrons in one basket.”

It is unclear which charging technologies will emerge as the best way to meet the needs of EV drivers who do not have access to off-street parking. A mix of rapid charging hubs and on-street chargepoints across a local authority area is a prudent strategy. New on-street chargepoint designs are also arriving on the market, such as more lamppost options or chargepoints that pop-up from the pavement when needed.

3 “Don’t surprise your DNO.”

Engaging with your Distribution Network Operator early will help you to make an informed decision on what type of chargepoint to procure and locations in order to minimise connection costs and delays. Load management and passive provision can help to future-proof the connection.

See the EST Guide on Minimising costs of street works and grid connections for EV charging infrastructure³⁶ for more information.

4 “Don’t make it difficult to operate or manage.”

As a local authority, make sure that you are not locked into an equipment or network provider, either commercially or technically. For example, ask suppliers about interoperability so you can change chargepoint network operator at the contract. Be clear about responsibilities for resolving issues through service agreements.

To make it easy for users to access the chargepoints, select chargepoints which allow contactless payments.

5 “Don’t dismiss collaboration.”

Private sector partnerships are increasingly common as demonstrated by the range of approaches and case studies described within this guide.

³⁶ EST, 2019. Minimising the costs of street works and grid connections for electric vehicle charging infrastructure <https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Minimising%20the%20costs.pdf>

6 “Don’t always trust the general public.”

When thinking about the design and positioning of chargepoints, consider ways to discourage vandalism, and implement good signage, and enforce mechanisms to avoid petrol and diesel vehicles blocking chargepoints. See the EST guide on Positioning Chargepoints and adapting parking policies for EVs.³⁷

7 “Don’t ignore emerging technology.”

As of 1 July 2019, all government-funded home chargepoints need to be ‘smart’.³⁸ Consider insisting on ‘smart’ chargepoints for public infrastructure too. Vehicle-to-grid, new on-street solutions and wireless charging are beginning to arrive on the market.

³⁷ EST, 2019. Positioning chargepoints and adapting parking policies for electric vehicles <https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Positioning%20chargepoints.pdf>

³⁸ Gov.uk, 2019. New requirements for electric chargepoints <https://www.gov.uk/government/news/new-requirements-for-electric-chargepoints-as-country-moves-towards-net-zero>

9. Support from the Energy Saving Trust for local authorities

Through our Local Government Support Programme,³⁹ Energy Saving Trust provides tailored support to help local authorities improve local air quality and reduce CO₂ emissions through sustainable transport initiatives. We offer impartial advice on chargepoint procurement, planning policies and more. For example, we can facilitate a team workshop or independently review your draft plans.

Local authorities based in Scotland can seek support through Switched On Towns and Cities.⁴⁰

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

Figure 11



Photo credit: Vattenfall

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

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

Appendices

The Office of Low Emission Vehicles (OLEV), Transport Scotland and other organisations provide grant funding to assist local authorities in the delivery of charging infrastructure. Funding is also available for home and workplace chargepoints.

Thanks to government funding, the Energy Saving Trust (EST) is able to offer tailored support to local authorities to assist with the delivery of electrification and sustainable transport initiatives, on a one-to-one, free-of-charge basis. See the EST website for more information on the Local Government Support Programme in England⁴¹ and Switched on Towns and Cities scheme in Scotland⁴².

In addition to the funding schemes detailed below, OLEV, the Department for Transport (DfT) and Transport Scotland also offer funding and support for local authorities to look at switching their fleet to electric vehicles or providing chargepoints for employees. In Scotland, support is also available for the electrification of taxi and private hire vehicles, e-bikes and loans for businesses.

Appendix A: OLEV grant funding

An up-to-date list of the funding available and further information can be found on gov.uk⁴³

Programme	Description
OLEV On-street Residential Charging Scheme (ORCS)	75% grant funding for local authorities to install on-street charging infrastructure in residential areas without off-street parking (e.g. driveways, garages). Funding of £5m is available in 2019/20 on a first come, first served basis.
Electric Vehicle Homecharge Scheme (EVHS)	£500 grant contribution towards the cost of purchasing and installing a domestic chargepoint within a residential property, up to 75% of the total cost. This grant is claimed retrospectively by the installer of the chargepoint.
Workplace Charging Scheme (WCS)	£500 per socket grant contribution when installing EV charging infrastructure in the workplace, up to 75% of the total cost. Businesses wishing to access this grant apply online to receive a voucher that is redeemed by the provider of the chargepoint.

41 <http://www.energysavingtrust.org.uk/transport/local-authorities/local-government-support-programme>

42 <http://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport/switched-towns-and-cities>

43 <https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles>

Appendix B: Transport Scotland grants & support

Funding availability varies over time but the programmes listed below were available in 2019 and are likely to continue in some form, although eligibility criteria and other scheme details may change. More information can be found at Greener Scotland⁴⁴ and the Energy Saving Trust website.⁴⁵

Programme	Description
Switched on Towns & Cities Feasibility Studies	Fully funded feasibility support to provide local authorities with forecasts for ULEV uptake and recommendations for the locations, quantity, specification and investment case for charging infrastructure.
Switched on Towns & Cities Challenge Fund	Annual competition – up to 100% capital funding for EV infrastructure charging projects. Up to 5 Local Authorities with a value of £1.5 to £2.5 million per project.
ChargePlace Scotland	Additional grant funding is available for public chargepoints at destinations and for workplaces to install EV charging infrastructure. Up to £300 grant funding available to install a domestic chargepoint. Scottish local authorities may also receive grant funding directly from Transport Scotland.
Low Carbon Transport Loan Fund	Consumers: Six year, interest free loan up to £35,000 towards purchase of a new EV. Taxi and private hire drivers: Interest free loan of up to £35,000 towards an EV purchase. Businesses: Interest free loan of up to £120,000 with a six year repayment period. Funding is capped at: £35,000 per electric car/van; £50,000 per electric HGV; and £10,000 per electric motorbike/scooter and other sustainable transport measures

Appendix C: Other funding sources

Defra Early Measures Funding	Funding for measures intended to improve urban air quality in local authorities, mandated to produce Air Quality Management Plans. EV charging infrastructure is eligible if evidence suggests it would contribute to improved air quality.
Charging Infrastructure Investment Fund	£500 grant contribution towards the cost of purchasing and installing a domestic chargepoint within a residential property, up to 75% of the total cost. This grant is claimed retrospectively by the installer of the chargepoint. A £400 million fund that will be invested on a commercial basis in charging infrastructure, partly funded by Government.
Innovate UK	Search for funding opportunities online at https://www.gov.uk/government/organisations/innovate-uk

⁴⁴ <http://www.greener-scotland.org/greener-travel/greener-driving/grants-and-funding>

⁴⁵ <http://www.energysavingtrust.org.uk/scotland/businesses-organisations/transport>

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