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Sustainability

Establishing a national direction to decarbonisation for the forces

19th May 2021

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1. Background

It is widely recognised and accepted by Police Forces that there is a responsibility to ensure that organisation activity is conducted in a sustainable and ethical manner. Central to the successful delivery is the need to factor international policy and the regulatory environment such as the Social Value Act (England) 2015, the Well-Being of Future Generations (Welsh) Act 2015, Climate Change Act 2008 and the Government Clean Growth Strategy with the objective of delivering wider social, economic and environmental benefits through organisational activities and aligned strategies.

The world has reached a turning point and society can no longer ignore the science of climate change and the collapse of its natural systems. There is clear evidence that rapid action is required to reverse these dramatic trends. Industry and individuals alike have contributed to the alarming changes to nature's ability to provide important natural resources and critical supportive systems, and its ability to maintain vital regulatory processes.

In 2015 at the COP21 conference in Paris leaders from across the world gathered to agree a global climate action plan now known as the Paris Agreement. An agreement that aims to reduce global carbon emissions. At the same time the UN sustainable development goals (SDGs), a series of 17 goals aimed at promoting social equality, health, and environmental well-being were also agreed as the new global framework.

The broad scope of the sustainable development goals (SDG) reflects the vast array of issues and sectors where policy and regulation can act as a lever for change. These range from issues like modern slavery and addressing inequality, to the regulation of the financial sector and the built environment, restoring biodiversity and limiting climate change.

To achieve these objectives, as leader's we must ensure that sustainability issues are fully integrated into core business activities, aligning with long term vision and values and strategic and operational objectives. This should be accompanied by sustainability-related initiatives such as, appointment of a sustainability function supported at senior leadership level, development of separate business function strategies and targets for annual business reporting on social and environmental performance, stakeholder dialogues about creating shared value and more sophisticated standards for metrics to manage supply and value chains (Social Value Supplier Tool) as well as consideration of a more circular economy.

This objective focused approach will create additional value to the communities that we serve as well as placing policing as an employer of choice. The challenge of addressing sustainability and social value is common across all regions so forces will benefit greatly from a collective and collaborative approach.

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What the Economy should be delivering; Six broad social and environmental ambitions aligned to SDG's.

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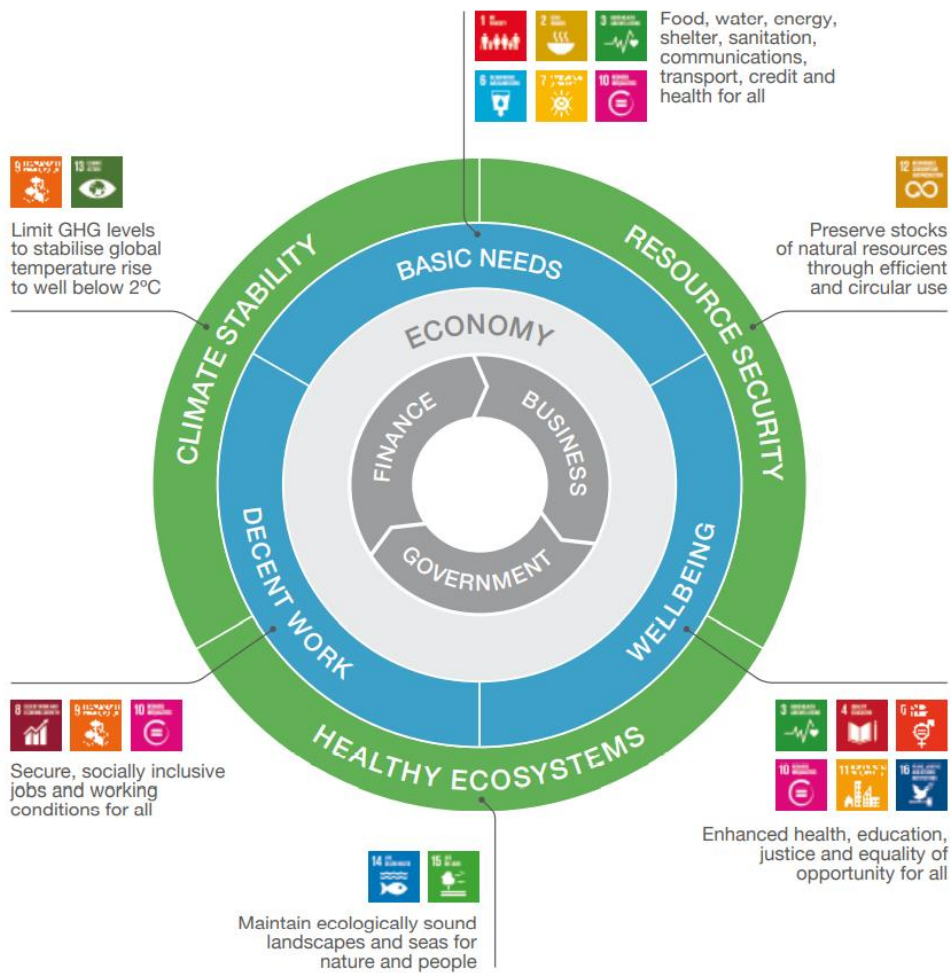
2. Introduction

At the beginning of 2021 following a strategic review held with the APCC (Association of Police & Crime Commissioners), BlueLight Commercial Chief Executive, Lianne Deeming, was tasked by the APCC and the NPCC (National Police Chiefs Council) with establishing a national direction on sustainability; developing a consistent force wide approach on the road to decarbonisation. In line with the Policing Vision 2025, the aspiration of this direction is to work towards the carbon net zero target for 2030, demonstrating a clear commitment to the force's sustainable development goals and positioning themselves as an Employer of Choice for the next generation of prospective recruits for policing.

A focussed sub-group was established within BlueLight Commercial during January 2021 to help drive the sustainability initiative forward, determining the existing national landscape and setting an initial roadmap for intervention and implementation which is cognisant of the respective forces' own individual sustainability journey. The sub-group was formed of BlueLight Commercial leads from energy, fleet, social value, and estates; those elements within the organisation considered best placed to have the potential to help effect the national decarbonisation agenda. It is important to note that although currently the focal point, this project is not a BlueLight Commercial initiative and is an NPCC/APCC directive.

At the outset the sub-group determined that the short-term goal for this scoping phase between January and April 2021 was to broadly understand the national position on sustainability progress across some key headline metrics. This initial piece of work focussed on establishing where the forces were at and determine the baseline position from which future efforts can springboard from. This 'National Stocktake' further expanded upon later in this paper (2. National Stocktake), focusses on the following principle workstreams:

- Sustainability Strategy & Policy
- Energy Usage (Electricity & Gas)
- Fleet

Beyond the internal considerations of the existing status quo for policing it was universally recognised that one area of concern was independently being considered across all forces to a greater or lesser extent, namely electrical vehicles (EV) & charging infrastructure. This is an area of substantial national interest and is being considered at many different levels by multiple political and industrial entities, it was therefore determined by the sub-group that much of the information required to develop an appreciation of the national landscape would be in the public domain. To this end a piece of market analysis on the national landscape for EV infrastructure was commissioned from SmartCube. The findings of which can be found under 3. Electric Vehicle Infrastructure & Technology – the National Landscape.

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3. National Stocktake

3.1 Sustainability Strategy & Policy

It was agreed by the sub-group that an important step in the initial stages of the project was to determine the respective levels of maturity in relation to the consideration of sustainability matters across the forces. As a result, an initial investigation was undertaken to consolidate the information available within the forces in relation to their respective sustainability & environmental strategies, plans and polices. This piece of work would also serve as a route by which a more detailed stakeholder mapping of the respective individuals responsible for sustainability matters in each force could be ascertained to aid the on-going future engagement. By determining a relatively high-level appreciation of the respective efforts the forces had employed to date, it enables an element of benchmarking to be undertaken whereby areas of best practice can be identified, as well as highlighting where significant levelling-up will be required in the next phase of the project.

As part of the national stocktake initial research was undertaken to identify those forces with sustainability/environmental policies and strategies which were publicly available. The search included both "policies" and "strategies" because the terms seem to broadly be used interchangeably, the same goes for the reference to "sustainability" and "environmental" subject to the age of the document. This initial trawl identified 42% of Police Forces in England and Wales have such policies/strategies in place and publicly available in some format. Subsequent to this initial exercise a wider piece of direct engagement began, and all 43 forces were approached with a view to plugging the identified gaps, determining the respective validity of the publicly available information and to map the stakeholder network. BlueLight Commercial was also in regular contact with the Emergency Services Environmental & Sustainability Group (ESESG) from the outset.

This second more laborious piece of work took a considerable amount of time, the biggest challenge being ascertaining the right person in each force to speak to on sustainability matters, engaging with them and obtaining the latest approved document. In some of the larger or more progressive forces this was relatively straightforward, in others much less so. The challenges this exercise alone represented was a clear demonstration of the need for nationalised direction and centralised approach.

At the time of writing it has been identified that 60% of forces do have a have sustainability/environmental strategy or policy in place. Some 12% have confirmed they do not currently have anything in place and the remaining 28% have not provided a response or evidence either way. It should also be noted that a number have informed BlueLight Commercial they have a strategy/policy that has expired, and a new policy is being drafted to be in place after the PCC Elections in June 2021. Refer to National Stock-take Sustainability & Environmental Strategies under Appendix A. The received strategies have yet to be intelligently reviewed to establish their respective maturity and validity, this forms a substantial part of the next phase of the project.

Beyond BlueLight Commercial endeavours the ESESG have simultaneously been progressing their own initiatives in relation to sustainability and the sustainable development goals. During May they have recently released for discussion a first draft version of their Sustainability Charter. This Charter has been developed for their members to pledge their support to work towards a set of common goals and aspirations to drive consistent sustainability messaging in line with national and international sustainability objectives. It is clear that the aspirations of this project and that of the ESESG are very much aligned, it is therefore important that the directions set are too.

3.2 Energy Usage (Electricity & Gas)

A fundamental part of understanding the national position on carbon emissions and establishing an accurate carbon footprint, is determining the volume of energy used by the forces. To date no true national position on energy appears to have been established, with the latest Chartered Institute of

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Public Finance and Accountancy (CIPFA) data prepared on behalf of National Police Estates Group (NPEG) only taking into account 25 force returns (*CIPA, December 2020, "Strategic Report – A holistic view of the police estate across the UK").* Determining the whole picture on the national energy portfolio is obviously critical in determining even a basic carbon footprint. It is also fundamental in enabling accurate national benchmarking and establishing which forces are procuring energy through the Renewable Energy Guarantees of Origin (REGO) scheme. REGO provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation and is used in offsetting carbon emissions. Bringing this information to one place also enables centralised consideration of the national direction when re-procuring energy contracts to suit the sustainability goals.

The initial first step has been to baseline the current contractual arrangements for each force in relation to their gas and electricity supply. This has involved mapping which framework arrangement was being used by each of the respective forces, thereafter, developing strategic relationships with these framework providers and the associated forces to get access to the most up to date consumption and spend data.

Data was requested to understand both consumption and pricing over the financial years 19/20 and 20/21 YTD. This enabled comparison on consumption and financial performance across each of the frameworks, identifying also where savings had been realised, either by the commodity prices dropping or consumption reduction caused mainly by the operating models through the COVID19 pandemic.

Forces nationally have arranged their energy contracts via the following framework providers:

Crown Commercial Services [23 forces]
LASER Energy [8]
YPO [5]
NEPO [3]
West Mercia Energy [3]
Direct contract [1]

Despite a broad alignment on the frameworks used there is substantial variance on "basket" choices thereunder. With multiple fixed and variable basket choices even across the same framework provider, it is clear there is not a nationally aligned strategy either commercially or in relation to the sustainability credentials.

Despite best efforts there are still a number of gaps within the consumption and spend data due to some forces being unwilling to share the data requested with BlueLight Commercial or having not done so in a timely manner to suit this report. The fact there is no centralised data reporting available has made data gathering extremely difficult and time consuming without full force cooperation and communication with their supplier(s). A consolidated, centralised approach to data collection would represent a clear benefit going forward if all forces were willing or instructed to co-operate fully. BlueLight Commercial report "Establishing a national position on utility frameworks for the Forces" providing the detail behind the data collection, contract position and current status can be found in Appendix B.

Stage one of this project on energy data collection was to understand the national landscape based on existing energy consumption, framework usage and the associated spend data. Stage two is to begin to use this data smarter, creating a strategy that utilises the same to inform current carbon footprint baseline and then work with forces to put in place a road map for carbon reduction in the form of a carbon descent planning.

Of the currently utilised energy framework providers, LASER Energy are also setup to take the role of 'lead energy consultant' and are therefore able to assist with carbon footprint analysis and

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descent planning strategies. Within appendix (Appendix C) they have produced costed proposals based upon both a multi-force 'high level' carbon footprint assessment/forecast, and a detailed 'deep dive' analysis which will set in place a carbon descent plan. It is proposed that where this has not been done by forces already that this LASER approach is adopted nationally to further inform the appreciation of the current status quo and the extent of the challenge to get to net zero.

Wedded to any carbon reduction strategy will need to be an action plan to identify the technical options available with a measure of the impact and effectiveness of each option in reducing the carbon footprint versus business as usual. Further steps are now in process to identify the options and the potential routes to market. For example, the most obvious is to ensure that 'green energy' is purchased, but this must be produced from renewable sources and backed with Renewable Energy Guarantees of Origin certificates (REGOs) to show authenticity. Further options include Power Purchase Agreements (PPA's) which are long term agreements to purchase energy from renewable and traceable sources, combined heat and power systems, air or ground source heat pumps, solar thermal hot water systems, solar/photovoltaic, low energy (LED) lighting etc. The mapping exercise being undertaken will describe the full range and availability of the options alongside funding options and any the potential of any government grant funding available. By centralising and sharing knowledge nationally via this project there will be substantial synergies developed.

3.3 Fleet

In November 2020 the Prime Minister, Transport Secretary and Business Secretary announced the end of the sale of new petrol and diesel cars in the UK by 2030. This is a phased approach with the first step seeing the phase-out date for the sale of new petrol and diesel cars and vans brought forward to 2030. The second phase will see all new cars and vans be fully zero emission at the tailpipe from 2035. Policing will now only be able to access a decreasing number of petrol/diesel engines until around 2033.

The Government is set to publish its Transport Decarbonisation Plan this Spring in the run up to the COP26 Climate Summit in Glasgow and last year established the Zero Emission Vehicle Transition Council, bringing together ministers and governments representing some of the world's biggest car markets.

These developments present both a challenge and opportunity to Policing, other emergency services and the wider Public Sector.

The Current Fleet Baseline

Police fleet across the UK is currently made up of approximately 40,000 vehicles with the average lifespan of a Police vehicle approximately four years.

BlueLight Commercial have worked with National Association of Police Fleet Managers and (NAPFM) to ascertain a baseline of all forces and current position in terms of the make-up of the UK Fleet. The results in graph format can be found at Appendix D. This data will also enable measurement of progress in future years. Data has been provided by all UK Forces as well as various other policing organisations such as British Transport Police and College of Policing.

The results of the baselining exercise demonstrate that whilst some progress has been made by forces such as Police Scotland, Gloucestershire, MPS and Surrey/Sussex, that this still only equates to 2% of the overall national fleet made up of electric vehicles and a further 2% hydrogen. Most electric vehicles purchased are cars and vans for non- response purposes. Diesel vehicles still make up 80% of the fleet.

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Charging Infrastructure

For most forces the electric vehicle charging infrastructure or indeed the supply network is not yet in place to support EV roll out and will require significant investment as recently provided in Scotland. There will be a requirement for rapid charging infrastructure, not only on Police Estate but in the wider environment: - Fire, Ambulance, NHS and Councils across the UK. This will require a joint Fleet and Estates strategy as there is the potential for significant grid works on Police Estate. There is a requirement for joined up thinking and engagement across all key stakeholders and a robust communication plan in place to the officers and staff as the ULE Vehicles rollout takes place.

There are currently 786 vehicles chargers across the Police estate
- 37% of those are slow chargers (taking between 8-10 hours to charge a vehicle
- 62% are fast chargers (3-5 hours)
- 1% rapid chargers (taking ½ - 1 hour).

Vehicle battery range is improving with vehicles now having a range of 250-300 miles in some manufacturer's models, over the next 12-18 months the range could be as high as 400-500 miles in vehicles which will reduce range anxiety.

Residual Values

The costs of maintenance, parts, repair for the current fleet and the impact on revenue budgets, outweighs the benefits of onward sale by auction to realise residual value and replacement. Early indications are suggesting that residual values of existing fleets will fall dramatically in the coming years as ULEV vehicles become more prominent. At this stage It is unclear what the residual values of electric vehicles in police use look like at auction and more work is needed in this regard, but it is clear is that there is a potential environmental challenge in the disposal of used batteries, which will also need to be considered at vehicles end of life.

Resourcing Impact

There will be a twofold impact on resourcing; firstly, with the impact on driver training and secondly with staff based within internal fleet workshops. Driver Training will be required for officers required to drive ULEV vehicles in response and pursuit environments, this will be a new requirement as many officers will not previously had this experience.

Fleet staff training will be required for staff based in internal fleet workshops in relation to repair and maintenance of the Ultra-Low Emission (ULE) Vehicles. The future skill sets of the staff will change with up to 40% less maintenance required on vehicles, which will see an increasing need for a more mobile workforce.

Vehicle Testing

With technology advancements, the requirement for robust vehicle testing will be more critical than ever. The current regime has been devised between the MPS and NAPFM, these standards will require revision and ongoing assessment to ensure that they remain fit for purpose. Funding will be needed to support this process on a national basis.

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Future Funding Models

Currently, the upfront cost of an electric vehicle is higher than a petrol/diesel version. Although there is an argument that the whole life costs, due to less complex servicing and the lower cost of electricity, are relatively similar. This does, however, impact on capital versus revenue budgeting for forces. Leasing options will also need to be explored in any future procurement strategy.

Manufacturer compliance with legislation and targets

WLTP (Worldwide Harmonised Light Vehicles Test Procedure) applies to all new cars since September 2017, and tests for fuel economy (mpg) as well as C02 emissions. CAFE (Corporate Average Fuel Economy) regulations have now been introduced across Europe. They set very strict targets for vehicle manufacturers to reduce their average C02 emissions across their range of vehicles by 2021 and those not meeting those targets are subject to significant fines.

The impact of these changes is that manufacturers have been working on the removal of many of their higher performing vehicles, which come with higher C02 emissions, from production. This has left less range and choice for policing in some response and pursuit roles. WLTP and CAFE combined have also impacted on the cost of a base vehicle as manufacturers have moved to incorporate what were previously optional extras, into the fewer base vehicle options available.

Hydrogen power

Major manufacturers are developing hydrogen fuel cell vehicles including BMW, Audi, and Mercedes Benz, with Hyundai, Honda and Toyota already having a vehicle on the market. It is anticipated that the market will expand over the next few years. This presents a further challenge to forces in determining whether to invest in electric charging infrastructure and purchase of electric vehicles versus the alternative solution of hydrogen. There are currently 21 hydrogen vehicles in police use, 20 of those within the Metropolitan Police and one in Surrey/Sussex.

Grey Fleet

Grey fleet vehicles have been widely used in the policing for a long time. The policy of allowing employees to use their own privately owned vehicles for business travel and be reimbursed for the miles they drive has been seen as simple and convenient by a number of forces and other public sector organisations.

Privately owned vehicles on UK roads typically have an average age of 8.5 years, the use of grey fleet flies in the face of the national policy objectives to decarbonise transport. Given that a number of areas across the UK are having to implement clean air zones due to poor air quality, this is an area that requires focus. Solutions need to be developed which make use of all types of shared and public transport including public transport, bike hire and bike share and daily rental and car club schemes

There are solutions to address grey fleet and alternatives to the use of these vehicles. Now is an opportune moment to effectively address business travel practice. Over the last year business travel will have been limited due to the Covid-19 pandemic. Whilst the rapid change in many working cultures, leading to increased working from home and the widespread use of video conferencing, will have undoubtedly changed many business practices for the long term, there will inevitably always be some need for business travel, particularly in policing

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<u>Next Steps</u>

BlueLight Commercial are working with NAPFM to conclude a national tender for the provision of vehicles and have established a baseline for ULE vehicles.

The first step in any strategy to reduce emissions is to address usage. To support forces in this respect a national Telematics Framework has been awarded, this has currently been adopted by over 20 forces. The data extracted from this system is invaluable in both the calculation of CO_2 emissions and the usage of the vehicle, which will help assist forces to make informed decisions about future vehicle strategy.

In the past tender exercises for vehicles have been conducted collaboratively on a four-year cycle. The latest process that is currently being concluded by BlueLight Commercial and NAPFM will result in contract awards for a two-year period. This will enable the two organisations to work closely with operational colleagues, other functional areas, and manufacturers to fully understand the market developments and forecasts and put in place a strategy for future procurement. This is likely to focus on more targeted agile procurement to enable forces to respond quickly and to take advantage of technical developments within the market.

It is clear that under the existing regime, that without change or intervention that there would only be opportunity for two rounds of procurement activity to replace the current fleet of 40,000 vehicles before the 2030 government target date.

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4 Electric Vehicle Infrastructure & Technology – the National Landscape

There is palpable concern everywhere from front-line services through to estates teams around what the developing situation on electric vehicles (EV) means to each of the respective forces. As noted in the introduction, EV is of substantial national interest and is being considered at many different levels by multiple political and industrial entities trying to wade-through and make sense of strategic planning and technological advances.

4.1 Introduction

The Government has a stated aim for no new petrol or diesel cars from 2030 and for all cars to be zero emission from 2035.

There have been multiple strategies and policies to support this aim since 2011 including a total spend of £1.1bn. Despite this level of attention over the last decade less than 10% of the spend has been on electric vehicle charging infrastructure (EVCI) and without a significant step change the targets will not be met.

At the outset (2011) the Government set a vision for ECVI that ultimately it would not be reliant on public subsidies on the basis that once there is sufficient volume of electric and hydrogen cars, electric vehicle chargepoints (EVCP) will be commercially viable. The Government recognised that some funding would initially be required to attract private funding in the early stages when there is not sufficient demand to make all EVCPs profitable. The theory is that once there is a national recharging infrastructure in place then people will more confidently move from petrol and diesel to electric or hydrogen, and the zero-emission target will be achieved. Reality has not lived up to this intention. Despite multiple schemes (PIP, GUL, CIFF, ORCS) there are still significant gaps in the national EVCI.

Early expectations that charging would happen on private driveways or at places of work supported some installation points (133,000 off street chargers and 8,500 workplace chargers) but by definition, roll-out on these terms is limited. 40% of the population does not have a private driveway. More relevant are publicly placed EVCPs. However, there are greater barriers to installing these and whilst the supply is increasing (doubling in the last two years to c.20,500 at the start of 2021) without a significant increase in the rate of roll-out the goal of zero emission cars from 2035 will not be met.

The obstacles to a wider roll-out include (1) Funding: private companies are very selective of the sites they view as viable and without sufficient volume of relevant vehicles these are few and far between (2) the Grid: significant upgrades to the national electricity grid are required before certain sites, especially by motorways, will support EVCPs (3) Local Government: whilst some funding is centralised, access to it tends to be via local authorities without a common approach.
The zero-emission target is relevant to both electric and hydrogen technologies but to date the infrastructure for recharging electric vehicles has had more focus. Attention is now turning back to hydrogen with the Government ear-marking significant levels of funding including £240m for low carbon Hydrogen production, £1bn Net Zero Innovation Portfolio and £33m low hydrogen supply competition.

To access this funding requires private sector buy-in (and often co-investment) however the government is yet to launch their Hydrogen Strategy and without this and a corresponding legislative framework it is not credible. These elements are not likely to come together before early 2022.

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Overall, whilst some progress has been made, to attract the additional c.£5-10bn of private sector funding needed to achieve the required rate of installation will require a more holistic approach.

4.2 Key findings

Policies

Multiple policies and schemes with no holistic approach: the PIP scheme 2011-21013, the City Scheme in partnership with GUL 2015-2020, the CIIF 2018 and the Project Rapid 2020. Despite all these programmes the rate of installation of EVCPs needs to increase five-fold for the 2035 zero emissions target to be met.

Public funding

£1.1bn spent in 10 years to incentivise the take-up of ULEV. Only 9.7% of that spend contributed to deployment of public EVCI. Funding schemes viewed as difficult to bid for by many local authorities. As a result, there are substantial regional variations in funding the roll out of public EVCPs.

Private funding

Private funding has fuelled the supply of public EVCIs to date (reaching 20,455 EVCPs by the start of 2021). Despite nearly doubling in the last two years, this rate of growth is not sufficient. An estimated £5-10bn of further private funding is still required to achieve the 2030 and 2035 deadlines. With the infrastructure needed to be in place to attract take-up, private companies need to be incentivised to invest.

Partnerships

EV charging is still not profitable at present. Achieving the roll-out will take a shared risk and reward approach from private companies and local authorities working in partnership. New partnerships are being forged, and various ownership models and revenue share arrangements are emerging. However, there is no single common approach.

Technology

The Government is agnostic as to the type of zero emission vehicle (electric or hydrogen). This technology-neutral approach should lead to infrastructure for both. To date financial initiatives have focused on electric cars (as the most market-ready zero-emission technology). Strategy and funding for hydrogen is lagging behind and not expected until early 2022.

4.3 Conclusions

A holistic plan is required, Local authorities need to:

- Collaborate with central and regional authorities and other key delivery bodies on strategies and plans.
- Engage with suppliers, assess deployment models, and decide on their preferred approach – considering private investment vs grant funding opportunities.
- Liaise with DNO and assess the grid capacity available at each selected site along with connection options. Run relevant procurement exercises based on the outcomes of the actions above.
- Reassessing throughout deployment: To put the plan into action, Local authorities must:
- Assess site specific costs for installing EVCPs including grid connection upgrade costs to deploy both fast and rapid EVCPs along with general installation costs

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- Use these costings to identify high cost or no-go sites and as a result, adapt their deployment plan
- Assess the growth in demand and utilisation of previously installed EVCI to inform decisions as to when, how and at what pace the next phase of roll-out should be carried out

At a Force level a series of questions should be asked: A clearly defined road map should set out the fleet implementation electrification framework and timeframe. Forces investing in fleet electrification are required to thoroughly understanding the TCO, local regulatory environment and how many stakeholders are willing to collaborate, including local utilities, infrastructure providers and financing parties. The key due diligence activities and considerations include: Overall expected returns from the investment, understanding of local regulatory policies and funding, site identification with characteristics driving economic feasibility, such as transmission access, together with selection of ideal partners, like infrastructure providers and O&M contractors.

Plan before deployment:

- What is the true cost of owning an EV and when total cost of ownership parity can be achieved?
- What are the current government tax incentives, rebates, and grants?
- Is existing public EVCI adequate to support on route charging?
- What are requirements (Level 2 or DC fast charging, quantity)?
- What are the compatibility considerations for EVCI?
- Are there additional planning requirements for EVCI?
- What is the closest substation, and could it support the new electric load?
- Is there a plan to pay for the utility infrastructure, or is there some sort of a utility program roll out?
- Is the utility going to put in local storage or generation?
- Does the utility have the bulk power capability to support full fleet electrification in each service area?
- Does the utility want to offer charging as a service? Will the regulatory environment support it? If so, does it have the operational technology systems and contracts to support charging, including demand response measures?

5 Next Steps

As this project moves into its next phase it is imperative that clear expectations and deliverables are agreed with the NPCC; within this section BlueLight Commercial set out their early interpretation of the headline proposals for structure and direction of the project based on the information established to date.

It is also imperative that expert sustainability advice is integrated early into the next phase of the project to validate the intricacies of the strategy and direction. To date the information accumulated, whilst informative, has not been authenticated by an expert; to progress into the implementation stages without having done so represents a risk going forward. It must be agreed at the outset of the next phase what form this specialist input takes and how they are integrated into the project team, workstreams and its on-going governance thereafter.

5.1 Project Governance

Governance is about leadership, strategic direction, control and accountability. A key objective of governance is to make decisions efficiently, effectively and transparently. It is the system by which an organisation or project is directed and controlled.

Project governance structures are established because organisational structures do not generally provide the necessary framework to deliver projects. Day to day operations do not tend to enable the sustained focus and timely decision making needed for projects to succeed. Project governance structures inevitably overlap with organisational structures. However, the allocation and delegation of decision-making rights is an important difference between organisational structures and project governance structures.

Best practice for project governance promotes a single point of accountability for the success of a project, either termed a project executive, project sponsor or Senior Responsible Owner (SRO). This person is empowered to focus on the project, its objectives and benefits.

For this Sustainability (Decarbonisation) project it is envisaged that the framework will be set as follows:

- Project Governance Board (Members) - Understand the investment context and support the SRO to make required decisions. Can hold the SRO to account in fulfilling their role. Provide strategic direction, monitor the project, and make key decisions and/or recommendations to the SRO

- Project Governance Board (Chair) – normally SRO but could be alternative member of Project Governance Board.

- Senior Responsible Owner (SRO) – will provide project leadership, own the business case and is responsible and accountable for the project's success. Ensures appropriate project assurance processes, such as gateway reviews, are scheduled and responded to in a timely manner.

- Workstream Leads - Leads and manages the workstream teams on a day-to-day basis to the delivery of their objectives, reporting to the SRO.

- Workstream Team - Responsible for completing tasks and activities required for delivering project objectives against the approved project scope.

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The Project Governance Board (PGB) will operate within predefined Terms of Reference (ToR) specific to the needs of the project. The ToR documents membership of the project governance board and outlines the type of reporting it should ask for and receive, principal headings:

- Purpose
- Objectives
- Scope and Function
- Chairperson
- Membership & Voting Rights
- Member Obligations
- Board Meetings

This document is to be drafted on agreement of the project's progression with the NPCC/APCC and advice on the proposed constitution.

5.2 Proposed Workstreams

It is proposed that from this initial benchmarking phase three consolidated headline workstreams. These workstreams are set out below and will report into the Senior Responsible Person (SRO) and be governed by the overarching Project Governance Board, who will validate the direction:

- Strategy & Policy
- Energy & Carbon Descent Plan
- Fleet & EV Infrastructure

Beyond the overall project direction and strategy, individual strategies, objectives, and deliverables will need to be determined for each workstream within the first quarter post-approval along with a programme for implementation and roll-out. It is currently planned that some form of roll-out will take place in conjunction with the emergency services show at the beginning of September 2021 however this may be subject to change based on progress post-PCC election.

Subject to finalisation and agreement by the workstream teams, below under 5.2.1 to 5.2.3 are perceived headline objectives for consideration at this juncture.

5.2.1 Strategy & Policy

- NPCC/APCC endorse a national strategy for sustainability
- Establish which elements of a national strategy need definition and agreement at NPCC/APCC level i.e. what is the aspiration strategically?
- National stakeholder network consolidated and formalised around delivering on the national strategy – working group set that feeds into Project Governance Board
- Ensure existing groups and forums for sustainability & environment e.g. Emergency Services Environment and Sustainability Group (ESESG), are wholly engaged and directions appropriately aligned – one direction and combined effort
- Further validate the respective forces sustainability policy/strategy statuses and develop template best practice for roll-out that aligns with the direction
- Identify sustainability champions to assist in roll-out of initiatives

5.2.2 Energy & Carbon Descent Plan

- Consolidate final energy position on national basis (work with current dissenters to obtain energy data to establish holistic national picture)
- Working in conjunction with Strategy & Policy workstream to determine national stakeholder network for energy and carbon descent planning and establish working group
- Disseminate data accumulated and start to shape best practice guidance on upcoming renewals based upon renewable options
- Determine appetite nationally for carbon footprint assessment (basic version of LASER proposal or alternative)
- Identify deep-dive carbon footprint forces and establish programme and plan (detailed version of LASER or alternative)
- Understand a national view of carbon footprint and gap analysis forecast on future considering business as usual (BAU) versus the impact of the interventions.
- Work with forces to help improve on gap analysis outcomes (includes overlap on fleet)
- SALIX relationship – lobbying potential in behalf of all forces
- Integrate learning on decarbonisation interventions and establish best practice guidance for estates teams

5.2.3 Fleet & EV Infrastructure

- Establish collaborative partnership with NAPFM
- Conclude national tender for the provision of vehicles and have established a baseline for ULE vehicles.
- Telematics framework award to enable data extraction to assist in the calculation of CO_2 emissions based on driving behaviours, thereafter, determining potential interventions and decisions about future vehicle strategy
- Set plan to 2030 for fleet renewal/movement to alternative fuel
- Detailed consideration of wider fleet expenditure (grey fleet) as part of carbon footprint analysis
- Further industry expertise to be established and interpreted in relation to – EV charging infrastructure & alternative fuel/electric vehicles technology development
- Establish best practice guidance for forces EVCI in collaborations regionally and nationally that can aid green vehicle transition

5.3 Summary Actions

- NPCC endorse a national strategy for sustainability (decarbonisation)
- Align NPCC direction with APCC
- Project Governance Board, Senior Responsible Owner and Workstream Leads/Teams defined, and Terms of Reference drafted
- Project strategy and headline direction, objectives and deliverables agreed
- Sustainability/environmental specialist/s integrated to guide and validate direction
- Workstream teams established and national working groups convened
- Workstreams determine objectives, deliverables, and timelines

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BlueLight Commercial team

Lead: Lianne Deeming – Chief Executive

Sub-group:

- Dan Hollis – Regional Commercial Director (Estates)
- Ruth McDermott – Regional Commercial Director (Social Value)
- Shaun Mann – Commercial Specialist
- Lisa Parker – Commercial Specialist
- Rachel Elwood – Commercial Officer
- Kasia Brzoska - Analyst

Appendices

A – National Stock-take - Sustainability & Environmental Strategies
B – Report "Establishing a national position on utility frameworks for the Forces"
C – Proposal for LASER's Zero Carbon Services: BlueLight Commercial
D – Vehicle Fuel Mix Analysis – Electric Volumes
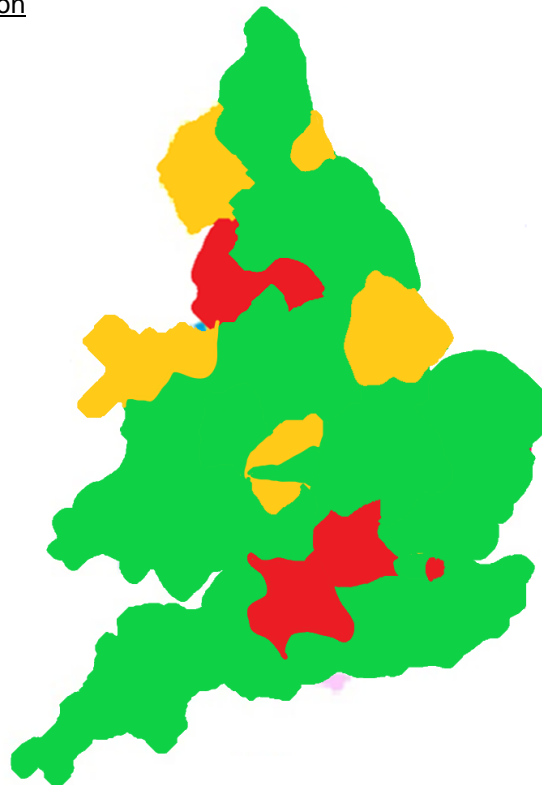E – Electric Vehicle Infrastructure May-21 BlueLight Commercial

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APPENDIX A

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National Stock-take
Sustainability & Environmental Strategies

Summary

Summary	Number of Forces	% of Forces
Forces with Polices	31	72%
Forces without Policies	7	16%
Forces yet to respond	5	12%

Heatmap – based on Region

The table below indicates the percentage of forces within each of the regions who have provided a copy or confirmed that a current strategy/policy is in place.

| North East	67%	City of London	0%
North West	50%	South East	80%
Yorkshire and Humber	75%	South West	67%
East Midlands	80%	Wales	100%
Eastern (7 Forces)	71%	West Midlands	67%
MET	100%		

APPENDIX A

Heatmap – based on Police Force

Key:

Green – Copy of Strategy/Policy has been provided

Amber – BlueLight Commercial have engaged with Police Force, not received confirmation if a strategy/policy is in place.

Red – Police Force have confirmed no strategy/policy is in place

APPENDIX B

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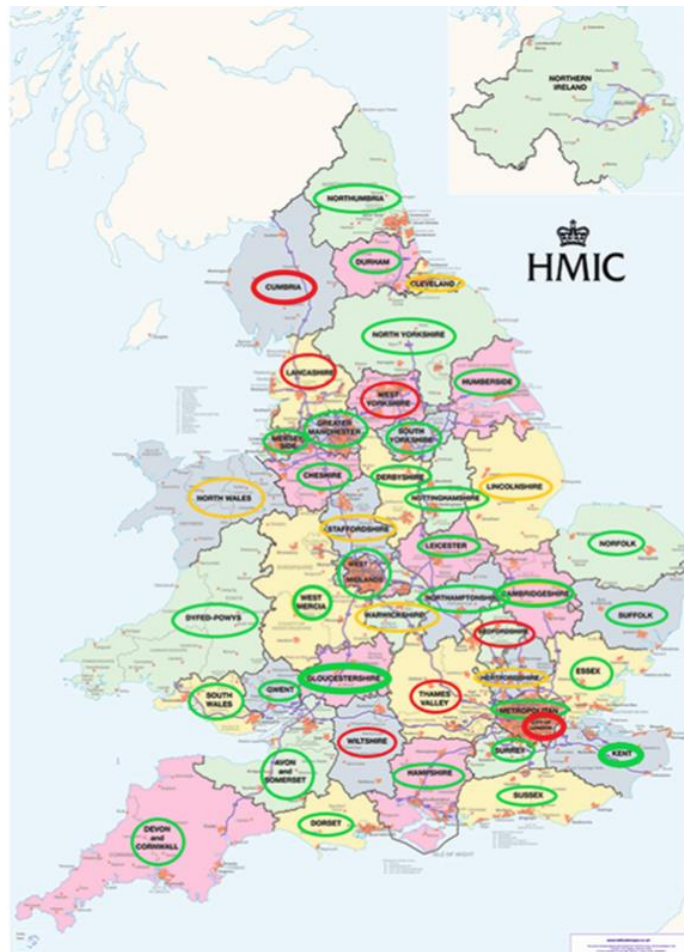
UTILITIES

Establishing a national position on utility frameworks for the Forces

May

Shaun Mann
Commercial Specialist
Estates May 2021
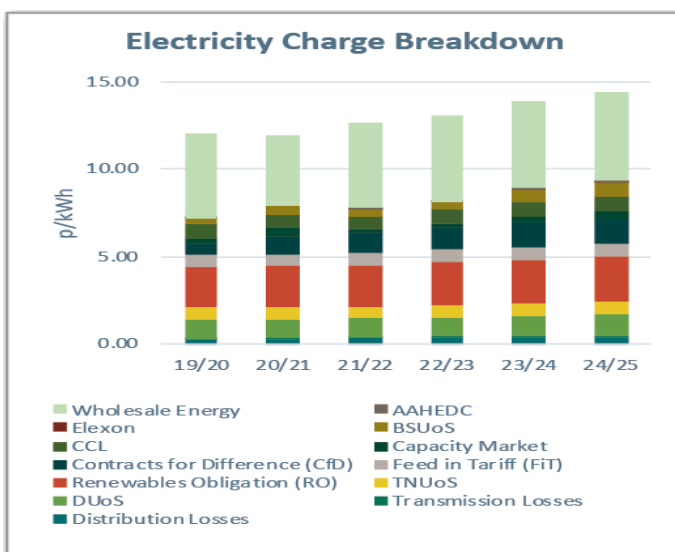
Contents

1. Introduction

BlueLight Commercial's aspiration is to become the go-to expertise hub for all energy related commercial and procurement matters. This paper introduces the work that we have undertaken so far to consolidate a national picture on usage, expenditure and framework utilisation. This collective positioning will enable us to provide intelligent direction to the local teams on their energy contracting, whilst giving us the opportunity to strategically liaise with the providers to look at opportunities for advantage gained by combining force spend.

Currently for police forces, there is no common strategy and each force in isolation decides their own strategy based upon the risk appetite of their procurement, estates and finance teams and often chooses to remain with the framework provider that they know.
There would be the potential for both financial and non-financial efficiency benefits by developing a forces-wide strategy which is applicable to all scales and capabilities of forces across the national landscape.

The energy market is generally considered to be a specialised and complicated landscape, it does not lend itself very well to traditional procurement and tendering methods as forward commitment to pricing is generally not available and suppliers are more often judged on their past performance, but this is also complicated as the trading style and the contract options vary between framework providers and performance may vary between each trading period.
The energy market is heavily regulated by Ofgem and subject to several costs which do not represent the pure cost of the energy consumed, they are known as non-commodity costs. These make up a large proportion of the final consumption cost, they comprise of several costs including the cost to transport the energy to site, energy losses through transportation, network charges, government levies such as CCL, environmental taxes and much more. As an example, the table below shows how the non-commodity costs for electricity have risen over time and the future forecast, currently representing around 70% of the cost. Gas is currently around 30% of the cost, these costs are fixed and not able to be negotiated.

Electricity Charge Breakdown

Legend: Wholesale Energy, Elexon, CCL, Contracts for Difference (CfD), Renewables Obligation (RO), DUoS, Distribution Losses, AAHEDC, BSUoS, Capacity Market, Feed in Tariff (FiT), TNUoS, Transmission Losses

Cost	19/20	20/21	21/22	22/23	23/24	24/25
Distribution Losses	0.24	0.29	0.35	0.37	0.39	0.39
Transmission Losses	0.07	0.05	0.06	0.07	0.07	0.07
DUoS	1.06	1.08	1.07	1.08	1.16	1.24
TNUoS	0.72	0.71	0.63	0.73	0.74	0.75
Renewables Obligation (RO)	2.36	2.35	2.42	2.46	2.49	2.53
Feed in Tariff (FiT)	0.63	0.67	0.66	0.68	0.70	0.73
Contracts for Difference (CfD)	0.63	0.99	1.16	1.33	1.43	1.50
Capacity Market	0.31	0.47	0.20	0.15	0.30	0.41
CCL	0.85	0.81	0.78	0.79	0.81	0.82
BSUoS	0.33	0.45	0.41	0.43	0.77	0.83
Elexon	0.01	0.01	0.01	0.01	0.01	0.01
AAHEDC	0.03	0.03	0.04	0.04	0.05	0.05
Wholesale Energy	4.81	3.98	4.83	4.88	5.00	5.04
Total p/kWh	12.04	11.90	12.62	13.01	13.91	14.36
Total Non-Commodity	72.26	79.12	77.85	81.34	89.08	93.21
Variance %	-	9.5%	-1.6%	4.5%	9.5%	4.6%
Non-Commodity	60%	67%	62%	63%	64%	65%
Commodity	40%	33%	38%	37%	36%	35%

2. Current Situation

The current spend on gas and power across all the 43 forces (2019/2020) is approximately £66m.

This is split across 5 main Public (sector) Buying Organisations (PBO) /framework providers –

- Crown Commercial Service (CCS) – have the largest number of Forces contracting with them, 23 in total, and therefore the largest spend. They are the biggest public procurement organisation in the UK and are essentially a trading fund of the UK Government.

- LASER Energy (Laser) – have the second highest number of Forces contracting with them, 8 in total. They were established in 1989 and as part of the Commercial Services Energy Division, are a wholly owned subsidiary of Kent County Council.

- Yorkshire Purchasing Organisation (YPO) – have 5 Forces contracting with them, these forces are geographically located in the Yorkshire region, but YPO do operate nationally. YPO is publicly owned by their 13 local authority members.

- North East Procurement Organisation (NEPO) – have 3 forces contracting with them, these forces are geographically located in the North East region, but NEPO do operate nationally. NEPO is publicly owned by their 12 local authority members.

- West Mercia Energy (WME) - have 3 forces contracting with them, these forces are geographically located in the Midlands region, but WME do operate nationally. WME is publicly owned by their 4 local authority members. WME focusses solely on energy and associated services for the public sector, with their sister company called Consortium Education (formerly West Mercia Supplies) operating in the education sector for stationery and furniture.

There is one other main PBO that provides an energy framework -

Eastern Shires Purchasing Organisation (ESPO) – no forces currently contract with ESPO, but their frameworks are available to the public sector UK wide. They are publicly owned by their 6 local authority members.

Commercial energy procurement can also be undertaken by private companies acting as 3rd party intermediaries / brokers, but in most cases, this would mean a separate procurement on behalf of the requesting organisation if they have not been awarded a place on an existing framework. Examples include but are not limited to INENCO (via The Procurement Hub framework), Beyond (via Gwynedd Council as contracting authority), Inspired Energy & Pagabo etc.

NOTE: This report does not include any information for water. Water is a lower spend area (circa £7m pa 19/20) and even following deregulation in 2017 is subject to smaller potential benefits as the saving only applies to the small retail element of the pricing.

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The table below shows the detail of each framework used by forces, the start & end dates and the number of forces using them:

Framework Provider	Framework Details	Start & End Dates	Suppliers	Forces Annual Spend 19/20	Number of Forces Utilising	Notes
Crown Commercial Service (CCS)	RM6011 Lot 1 Electricity	14/08/2019 - 01/10/2023	EDF Energy Ltd	£35,170,193	22 Forces	Lincolnshire is outsourced via G4S to CCS. South Wales & Gwent via NPS.
Crown Commercial Service (CCS)	RM6011 Lot 3 Gas	14/08/2019 - 14/08/2023	Total Gas and Power Limited	£12,607,349	23 Forces	Staffordshire have gas with CCS but electricity via ENTRUST
LASER Energy (LASER)	Y18003 Electricity Flex	13/02/2019 - 30/09/2024	Npower	£10m (approx)	8 Forces	
LASER Energy (LASER)	Y18002 Gas Flex	20/12/2018 - 30/09/2024	Total Gas and Power Limited	£1.2m (approx)	8 Forces	
Yorkshire Purchasing Organisation (YPO)	791 Electricity	01/04/2019 - 31/03/2023	Npower	Unknown	5 Forces	
Yorkshire Purchasing Organisation (YPO)	986 Gas	01/04/2021 - 01/04/2024	Corona Energy	Unknown	5 Forces	
North East Procurement Organisation (NEPO)	NEPO301 Electricity	01/04/2019 - 31/03/2023 (poss 2yr ext)	EDF Energy Ltd	Unknown	3 Forces	
North East Procurement Organisation (NEPO)	NEPO302 Gas	01/04/2020 - 01/04/2024 (poss 2yr ext)	Corona Energy	Unknown	3 Forces	
West Mercia Energy (WME)	Electricity	01/04/2020 - 31/03/2024	Total Gas and Power Limited	Unknown	3 Forces	
West Mercia Energy (WME)	Gas	01/04/2018 - 31/03/2022 (2022-26 already awarded to TGP)	Total Gas and Power Limited	Unknown	3 Forces	
ESPO	191_20 Electricity	01/10/2020 - 30/09/2024	Total Gas and Power Limited	£0	None	
ESPO	192_19 Gas	01/04/2019 - 31/03/2023	Total Gas and Power Limited	£0	None	
Other	?	?	?	Unknown	City Of London	Carried out own procurement exercise?

3. Energy Trading

Electricity - Electricity is a unique product that cannot currently be stored in large amounts. Supply and demand for electricity must be matched, or balanced, always. In Britain this is primarily achieved by suppliers, generators, traders and customers trading in the competitive wholesale electricity market.

Trading can take place bilaterally or on exchanges, and contracts for electricity can be struck over timescales ranging from several years ahead to on-the-day trading markets.

Electricity can also be imported or exported through interconnectors. Currently there are electricity interconnectors between Britain and France, the Netherlands, Belgium and Ireland.

Gas - Britain's wholesale gas market involves the buying and selling of natural gas in Britain after it has arrived from offshore production sites. These include liquefied natural gas (LNG) terminals, storage sites, pipelines from other countries (such as Norway) and through interconnectors with Europe (in Belgium, Holland and Ireland).

The wholesale gas market in Britain has one price for gas irrespective of where the gas comes from. This is called the National Balancing Point (NBP) price of gas and is usually quoted in price per therm of gas.

Gas shippers, those who bring gas to Britain or transport within Britain, buy and sell gas and provide suppliers with gas so that they can provide it to end customers.

Hedging - Whilst the above describes the main principles of wholesale trading, it doesn't allude to the volatility and complexity involved.

Energy prices are influenced by a variety of factors that affect the *supply and demand* equilibrium. On the *demand* side, commonly referred to as a load, the main factors are economic activity, weather, and general efficiency of consumption. On the *supply* side, commonly referred to as generation, fuel prices and availability, construction costs and the fixed costs are the main drivers of the price of energy. There's a number of physical factors between supply and demand that affect the actual clearing price.

Essentially, forward hedging is buying in advance, where the price is fixed at the time of the transaction, but the actual delivery takes place in the future. Energy can be bought yearly, monthly, daily or even half-hourly on the energy market and businesses must choose the right strategy to suit their appetite for risk.

The benefits or forward hedging are alleviation of market volatility/spikes, longer buying window allowing benefits of aggregation of volume, opportunity to make small hedges over time for increased benefit and potentially lower fees or load variance penalties. This then avoids time constraint purchases at higher market rates.

Each of the PBO's have a few trading options available, the differences and trading options of each framework is shown in more detail in the following section. The consumer/Force has the option to choose the risk profile or 'basket' that best suits their situation.

4. Basket Options

Crown Commercial Service

- **L6 - Short Term Locked Product (Fixed Price)**

17 Forces choose this product.
6-month purchase window up to the point of delivery.
Traders enter the market multiple times during this period.
All purchasing completed before delivery.
Monthly commodity price will be set for the entire delivery year.
Note – 3 Welsh forces who contract via the National Procurement Service (NPS), have a bespoke L12 basket, so purchase window is 12 months prior to delivery.

- **V6 – Short Term Variable Product (Variable Price)**

4 Forces choose this product.
18-month purchase window; 6 months prior to delivery and 12 months during delivery window.
Traders enter the market multiple times during this period.
Traders may be able to secure lower prices when purchasing energy during the delivery period as market risk premiums can be removed.
A longer trading window gives the traders a greater chance of avoiding market spikes.

- **V30 – Long Term Variable Product (Variable Pricing)**

2 Forces choose this product.
42-month purchase window; 30 months prior to delivery and 12 months during delivery window.
Traders enter the market multiple times during this period.
Traders can buy day-ahead and intra-month, adapting purchasing to reflect actual demand and changing weather conditions.

LASER Energy

- **PIA Purchase in Advance**

5 Forces choose this product.
Facilitates the purchase of all site volume prior to delivery for a 12-month supply period. The delivered price is fixed for the 12-month period.
Protects against any market increases during the delivery period.

- **PWP Purchase within Period**

0 Forces choose this product.
Allows customers to purchase a proportion of the required volume prior to delivery for each 6-month supply period. The remainder is then purchased within this period.
A reference price will be set at the beginning of the supply period when open volume is still to be purchased. This reference price will be applied to billing during the 6 months and a reconciliation between the reference price and final achieved price will be carried out at the end of the period.
Provides the chance to reduce costs if markets fall within period.

- **FSAR Flexible Set and Reset**

0 Forces choose this product.
Allows customers to purchase a proportion of the required volume prior to delivery for each 6-month supply period. The remainder is then purchased within this period.
Budget limits are agreed in advance, with commodity purchases closed out if market prices move above the pre-set limits. This option facilitates the sell back of volume if the market falls by more than the pre-set triggers. A mechanism is then in place to buy back prior to the point of use.
With the ability to Reset, FSAR maximises potential savings in falling markets.

Note – The other 3 forces with LASER have chosen a bespoke hybrid basket option which is a mix of PIA/PWP.

YPO

- **Flexible contract**

5 Forces choose this product.
The volumes are bought throughout the preceding 24 months at optimum trading times when prices are lowest to deliver a fixed 12-month price from 1 April each year.
This allows YPO to take advantage of dips in the market and reduce supplier premiums.
Prices are fixed each April for the following 12 months.

- **Fixed contract**

0 Forces choose this product.
Provides contract pricing based on wholesale market pricing on the day the quotation is prepared and is a good option when the market price is low. It locks the cost of the electricity or gas for the duration of the contract, but non-commodity costs are additional and may fluctuate.
This option provides some level of budget certainty.
Available in contract terms from 12 to 48 months.
This is available for electricity (MPAN) half hourly meters and gas (MPRN) meters only.

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- **Fully fixed contract**

0 Forces choose this product.
Provides budget certainty, the monthly charges cannot change over the length of the contract.
Available in 12 to 48-month contract options.
Operates like a fixed contract, but everything including the non-commodity costs are fixed.
Typically, slightly higher in cost due to the supplier taking the risk of any changes to non-commodity costs.

NEPO

- **Fully Flexible Purchasing**

Both electricity and gas can be purchased from the wholesale commodity market using a fully flexible agreement.
This approach optimises customer prices by taking advantage of reductions in the market price whilst conversely protecting against increases.
A robust Risk and Purchasing Strategy, aligned to participating organisations' risk appetite, is used to govern all purchasing activity.

- **Fixed Contracts**

There is the option to place fixed price electricity contracts with a variety of different contract terms available.

All forces are part of a flexible purchasing strategy where approximately 40% of the annual volume is purchased in advance, with the rest traded on 'day-ahead'. There is a budget set at the start of the year with fixed monthly billing, but this is reconciled against actual trading performance at the end of the year. If there is a deficit, this is recovered by increasing the following year unit rate.

West Mercia Energy

- **TWP Trade Within Period**

3 Forces choose this product.
Budget certainty is delivered through a capped price mechanism giving a maximum price per kWh for the next financial year.
Once the price is set, energy is traded within the financial year and daily decisions are made on whether to transact within the market, which will include decisions to buy or sell energy to try and secure the lowest possible prices.
Where lower prices are secured customers receive discounts off the capped price throughout the year. If wholesale prices increase through the year, customers are protected by the capped price.

Approximately 60% is hedged in advance allowing for the level of the cap to be set, with the remaining 40% traded within the period.

- **TIA Trade In Advance**

Budget certainty is delivered through all volumes being bought in advance of the delivery date. This protects against market increases during the period.

- **Fixed Price Procurement**

Fixed price allows procurement of energy for the duration of the contract on one given day and locks the price down along with the associated non-commodity costs. Whilst this strategy offers complete budget certainty, it is high risk as it is at the mercy of wholesale energy prices on one given day of the year.
WME have a fixed priced framework and a reverse auction DPS with 17 suppliers.

5. Additional Services

The basket options described in the section above are known as 'procurement only' this means that the framework organisation manages the complaint route to market and tendering, the supplier performance KPI's, plus the market analysis and trading.

You will also receive regular management information reports, market update reports and access to an energy helpdesk and account managers for support.

However, who manages the price and invoice validation? The meter data collection, validation and analysis?
This could be time consuming for force internal resource and relies on local knowledge and experience.

There are additional services available with some of the framework organisations which will help with this:

Bureau Service – energy monitoring and reporting. This will track and alert on usage and allow forces to be proactive, not reactive, potentially helping to drive down consumption. Offered by LASER.

- ✓ *Portfolio Management*

Storing and maintaining site and meter details in one place together with your utility data allows for portfolio level reporting that helps to identify distinct changes in consumption trends over time and enables tracking against high level targets.

✓ *Reporting and Validation*

Scheduled and consistent reporting helps to track and monitor usage and spend and enables any potential areas of waste to be easily identified. Invoices are validated which provides assurance that your costs are in-line with expectations and helps to remove the uncertainty of estimated billing.

✓ *Data Collection*

Data is collected and compared from a wide range of sources, including direct from energy suppliers, 3rd parties, AMR and DC providers. All meter readings will be collected and validated when submitted via a web portal and issued direct to the utility supplier. Data is also able to be collected and stored from renewable generation sources and electric charging points as well as carbon reporting.

✓ *Statutory Reporting*

Processes to assist with Streamlined Energy and Carbon Reporting (SECR), Green House Gas (GHG), Energy Savings Opportunity Scheme (ESOS) and Display Energy Certificate (DEC) reporting.

Managed Service – focussing on price an invoice validation. The comparison below shows the benefits over and above the procurement only service described earlier.

Managed Service is offered by Laser Energy & West Mercia Energy. YPO have a separate framework titled – Utilities Invoice Validation and Energy Management Service 1033. This is facilitated by Utilidex and incorporates bureau and invoice validation services.

Service Description	Procurement Service	Managed Service
Contract Transfer		
Prepare for the Transfer	✓	✓
Manage the Transfer	✓	✓
Energy Procurement		
Energy Procurement (FTFP or Flex)	✓	✓
Tender Analysis & Price Validation	✓	✓
Market Information & Newsletters	✓	✓
Contract Management		
Additions & Removals to contract (e.g. COTs)	✓	✓
Maintain Contract Schedules	✓	✓
Annual Budget Setting	✗	✓
Bill Validation		
Invoice Validation	✗	✓
Billing & Data Provision	✗	✓
Accounts Payable File Creation	✗	✓
Query Management		
Billing Queries (e.g. all validation checks, billing errors, missed billing, estimated billing, duplicate bills)	✗	✓
Site Configuration Queries (e.g. meter additions/removals, AMR queries)	✗	✓
Log & track progress	✗	✓
Query Logs	✗	✓
Customer Web Portal		
Access Estate Information	✗	✓
Meter Read Submission	✗	✓
Access Suite of Energy Reports	✗	✓
Energy Monitoring & Reporting		
Collection of historic utility consumption and cost	✗	✓
Monthly Run Reports (e.g. full portfolio report, cost, usage, carbon; site vs site reports)	✗	✓
Monitoring & Targeting Services (e.g. monitor actual vs target usage/CO2)	✗	✓
Budget Tracking and Accruals	✗	✓
Carbon Reporting Support	✗	✓
Energy Management Advice & Support	✗	✓

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6. Savings

During the financial year 2020/2021 the COVID19 pandemic caused additional volatility in the wholesale market and a drastic change in working practices.

Many, if not most back office functions (police staff as opposed to front line officers) were very quickly mobilised and adapted to work from home, this meant that a significant proportion of office space was vacant and as a result energy consumption reduced, meaning lower consumption.

There a couple of caveats to this statement; in some cases where skeleton staffing remained, additional heating was required over the winter period to maintain a suitable working temperature to counteract the lack of body heat generated and more vast open spaces to heat. So, in some cases gas consumption increased, but on the whole electricity consumption decreased quite considerably.

In addition to the consumption savings, the calculation also includes any reduction in commodity costs, so ultimately the saving represents the reduction of the invoiced value.

To aid Home Office Cashable Savings reporting for individual forces, Bluelight Commercial has been able to work with the framework providers and energy suppliers to identify the scale of this consumption reduction and the subsequent reduction in energy bills. Consumption during 20/21 was compared to the same periods in the previous year in 19/20 to show the level of decreased consumption.

Full year effect reporting for CCS will not be available until June 2021 so the interim reporting available, showing the period 01/04/2020 – 31/01/2021 is shown below.
Data has been provided by CCS, LASER, and West Mercia, for YPO only minimum data is available for one of their forces, and NEPO have declined to provide any information.

The savings per framework supplier and total savings can be seen in the table below:

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Framework	Forces	Electricity 20/21 Saving	Gas 20/21 Saving
CCS *10 months data only	Bedfordshire Police Cambridgeshire Police GMCA GMP Gwent Police Authority Hertfordshire Constabulary Lincolnshire Police Mayors Office for Policing & Crime Northamptonshire Police Authority PCC Derbyshire PCC for Devon & Cornwall Police & Crime Commissioner for Cumbria Police And Crime Commissioner For Avon And Somerset Police And Crime Commissioner For Derbyshire Police And Crime Commissioner For Dyfed-Powys Police and Crime Commissioner for Gloucestershire Police and Crime Commissioner for Leicestershire Police And Crime Commissioner For Merseyside* Police and Crime Commissioner for South Wales Thames Valley Police The Nottinghamshire Office Of The Police And Crime Commissioner The Pcc For Bedfordshire The Police and Crime Commissioner for Dorset* The Police and Crime Commissioner for West Midlands Wiltshire Police Authority	£1,515,774.38	£1,202,641.59
LASER	KENT POLICE ESSEX POLICE SURREY POLICE HAMPSHIRE POLICE NORTH WALES POLICE NORFOLK POLICE SUFFOLK POLICE SUSSEX POLICE	£619,301.60	£339,807.66
West Mercia Energy	Chesire Warwickshire	£32,449.00	£47,546.00
	West Mercia * no data yet	?	?
YPO	West Yorkshire *some data, awaiting clarification Lancashire * no data yet South Yorkshire * no data yet North Yorkshie * no data yet Humberside * no data yet	?	?
NEPO	Cleveland Police * no data yet Durham Constabulary * no data yet Northumbria Police Authority * no data yet	?	?
		TOTAL	TOTAL
		£2,167,524.98	£1,589,995.25
		19/20 Grand Total	
		£3,757,520.22	

7. Sustainability & Green Energy

Tackling climate change is the biggest challenge facing our generation and the transition to sustainable energy is critical to achieve the goal of reaching net zero by 2050.

COP26 is the next annual UN climate change conference to be hosted in Glasgow in November 2021, this is critical because it's the first moment when countries must set out more ambitious goals for ending their contribution to climate change under the Paris Agreement.
The UK government is already working towards its commitment to reduce emissions in 2030 by at least 68% compared to 1990 levels through the UK's latest Nationally Determined Contribution - the highest reduction target made by a major economy to date. The announcement in May 2021 builds on this goal to achieve a 78% reduction by 2035.

The Renewable Energy Guarantees of Origin (REGO) scheme is administered by Ofgem on behalf of the Department for Business, Energy & Industrial Strategy (BEIS). The scheme provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation. Guarantees of Origin (GoOs) ensure supplier compliance with fuel mix disclosure obligations.

In support of the above, the UK public sector must now put plans in place to reduce their own carbon footprint. There are many options, solutions and choices available when thinking about energy sustainability and decarbonisation, starting from taking control and minimising onsite consumption right through to the power of onsite generation. Each option needs to be justified and verified to be sure of the best return on investment of each project.

Potential options could include –

Green Energy - Many energy suppliers offer green business energy tariffs; this means that some or all the electricity used is matched with the amount the supplier buys from renewable energy sources. You still get the same electricity through the wires, but you can be assured that your money is being spent on feeding green electricity into the national supply, reducing fossil fuel dependence.

Demand Reduction - the long-term reduction of demand through effective energy management, including investing in energy efficiency by upgrading lighting (LED), insulation, refrigeration, motors and pumps.

Solar PV – Solar photovoltaic systems convert energy from the sun into electricity, they are generally roof mounted or can be ground mounted in a solar farm set up. Similarly, solar thermal energy can be used to heat water in a tank.

Wind & Hydro Power – the use of wind or water turbines to generate electricity.

Combined heat & power - Cogeneration or combined heat and power is the use of a heat engine or power station to generate electricity and useful heat at the same time

Biomass Energy - the energy that is generated from burning raw organic waste, everything from animal waste to wood pellets to create electricity or fuel.

Battery storage - Battery Energy Storage Systems (BESS), are devices that enable energy from renewables, like solar and wind, to be stored and then released when customers need power most. Lithium-ion batteries are currently the dominant storage technology.

Power Purchase Agreement (PPA) - Put simply, a PPA is a contract between two parties, the generator/supplier and the consumer/buyer. The PPA defines all the commercial terms for the sale of electricity between the two parties, including when the project will begin commercial operation, schedule for delivery of electricity, penalties for under delivery, payment terms, and termination. (A similar arrangement is also available for "green" gas and is known as a Gas Purchase Agreement (GPA)). There are several options available including

1. Indirect Wire via Grid - A contractual arrangement where a buyer chooses to buy a specified amount of electricity, for a specified term, from a specified asset which belongs to a generator. The electricity is then supplied through the normal electricity Transmission and Distribution systems and paid for through a standard electricity Supplier contract.
2. Direct Wire - involves a direct physical connection between the generator and the buyer, whether on-site (e.g. roof-mounted solar power) or with a physical connection. This means electricity can be supplied without needing to use the Transmission and Distribution systems and can be supplied 'behind the meter', avoiding the variable non commodity costs for Transmission and Distribution. This can make the overall total costs of Direct Wire significantly cheaper than Indirect wire PPA's.

The type of asset/generator used to create the energy is an important consideration; Existing assets will give lower prices as installation and set up costs will be lower, plus immediate delivery with more flexible contracts – but, generally considered to be less 'green' as they are not adding any new green capacity to the network. New-to-earth/new built assets provide additionality as they add new generating capacity, but in most cases will be more expensive, more complex contracting and longer lead times.

Route to Market
The majority of the PBO's have solutions integrated into their energy supply framework, or a separate specific framework which Forces would be able to utilise to access advice, design and implementation of decarbonisation projects. Similarly, there are also options to procure green energy tariffs.
Other frameworks nationally will have renewable technology services frameworks, even if they do not specifically supply electricity and gas.

Funding
Over the last couple of years, Salix, which is a non-departmental public body, owned wholly by Government, has run 2 phases of its Public Sector Decarbonisation Scheme. The schemes were available for capital energy efficiency and heat decarbonisation projects within public sector non-domestic buildings, including central government departments and non-departmental public bodies in England. Both schemes are now closed to new applicants as the funding available has been allocated, but further phases could be added in the future.

In March 2021, UK Research and Innovation (UKRI) awarded £171 million of funding across nine significant UK decarbonisation projects.

As new public sector funding schemes become available, BlueLight Commercial will ensure that Forces are made aware and support their application process where applicable. With the potential scope for sector/force lobbying approach to be explored further after initial discussion with Salix.

8. Issues and Risks

It is fair to say that, in general, the current approach to the energy market by Forces is both inconsistent and disjointed, some of the main issues are: -

- There is a heavy reliance on several external framework organisations with no real transparency, justification or strategy regarding the choice of framework.
- There is unclear profile mapping of contract end dates and notice periods.
- No centralised data reporting available and data gathering is difficult and time consuming without full force cooperation and communication with their supplier(s).
- There is a lack of understanding regarding the effectiveness of the buying strategies/baskets employed and differing risk appetites.
- There is very little regional or national alignment currently. Using the same PBO for supply is not the same as alignment.
- There are differing levels of 'inhouse' experience and resource available to manage contracts effectively as well as varying maturity of sustainability and energy policies and strategy.
- Forces may resist change especially if this means a move away from their current supply route.

Brexit
As most of the UK Gas is sourced overseas, we could see impacts on Gas prices directly from changes in FX markets. If Sterling loses value post EU Exit, then the cost of Gas would rise. This would also filter through to electricity prices as 40% of our electricity is generated from Gas.

The UK also utilises 'interconnectors' with France, Belgium and Holland. These are used to balance the National Grid both here and in the participating counterparties. The arrangements are governed by Commercial Contracts and hence we see minimal risk to their continuance.

The supply import and export operation with mainland Europe is very much B2B and not Gov to Gov, so commercial common sense will remain – if it is commercially advantageous for either party to sell into domestic markets either way then that will happen with no additional tariffs expected.

How would we mitigate against this? The trading teams within the PBO frameworks will operate 'stop losses' on commodity prices whereby in the event that the commodity costs rise it would trigger the stop loss and they would purchase the remaining energy requirements to protect customer's interests (prices).

REMIT is an EU-wide Regulation that guards against wholesale market abuse. Regardless of whether a deal is implemented, Ofgem will continue to monitor and enforce GB wholesale energy market integrity and transparency as it does currently.

9. Next steps & Conclusion

This report offers a snapshot in time of the current position for Utilities for the Forces. It is also worth referencing that previous similar reports have been written for the National Commercial Board (these are included as Appendices):

Proxima Procurement Strategy January 2018
CLEP Strategy and Next Steps December 2018

These previous reports echo the findings within this report and provide largely the same conclusion which proves that there has been no movement in strategy or direction by the Forces, with a reliance still on the buying strategies employed by the frameworks. Focus is still on force-by-force spend as opposed to spend across the 43 forces.
BlueLight Commercial have been able to obtain more granular data than previously available, although we have not yet been able to obtain all the required data. Building this data picture will enable us to make future decisions and recommendations, from a position of knowledge.

Also, since the release of these reports the concentration on green generation, long term PPA's and EV charging has grown, however the true impact of EV charging is not yet understood or known. Therefore, previous strategies adopted need assessing against their suitability to meet changes in the market.

To summarise, the 3 key work streams will continue to be:

- **Volume** - Demand management (reduction) & green generation / decarbonisation.
- **Commercial** – Contractual arrangements (and route to market), risk profiling, centralised management.
- **Operations** – Supplier relationship management, contract management, bureau / data.

Although combined Force spend is relatively large, when compared to the scale of the baskets managed by the framework providers it is only a small proportion e.g. CCS have c.800 customers with Force spend (£48m) representing just 5% of their energy customers.

Due to transmission and distribution being monopolised, the commodity element of the cost that can be competed is c.5% which will include any framework income e.g. CCS commission for 19/20 was £245,036 representing 0.5% of spend, made up by 'per meter' charges. The utility companies will make additional margin by exploiting supply chain finance by holding payments before paying their supply chain (national grid etc).

By breaking down the cost elements it is easier to understand the potential benefit: national Force utility spend is circa £66m. Electricity represents approximately £50m of this, commodity cost at 30% represents £15m. So ultimately, the potential national saving on the commodity element is negligible, and only available against the £15m, and from this the commodity itself, plus supplier margins needs to be paid.

Note - When comparing any tangible cost benefit between frameworks, it is important not to forget the service level that accompanies it. This service level will also need strategic management to ensure performance, as standalone use of the frameworks currently, is not working to achieve any benefit and their respective performance is taken at face value, with no process in place to assess value once the contract has been signed.

There is no opportunity for 'quick wins' or 'low hanging' fruit in this marketplace. Any true judgement of the performance of the frameworks cannot be evaluated from a 'snapshot' of performance or against a 'quick quote' process, it needs to be historically and over a period of years as their hedging and trading performance will have peaks and troughs.
Although total force combined consumption would make us an attractive customer, the number and complexity of sites makes us admin intensive and reduces our attractiveness compared to a large single site consumer of the same volume. It also increased our management costs due to charges applied per meter.

The biggest national disparity currently, is the variance of framework provider used and the variance in risk appetite (trading basket choice). To inform a future strategy, further work is needed to understand force reason and logic for their current choices alongside their openness to potential change. Force engagement so far has been very slow, even with help in the early stages from a circular email via NPEG requesting the release of data to BlueLight Commercial.

So, the benefit of centralising contracts for all Forces through one supplier/framework is limited with regards to commodity cost saving. The benefits would be enhanced if there was a national strategy which aligned risk profiles, backed by strong and transparent data analytics and proactive supplier and contract management.

Consistent data is key, both for comparing the current landscape, but also for effective management and tracking of performance, the information would enable accurate benchmarking and performance monitoring. Ideally all forces would engage in a bureau service to provide this consistent data set. Data management and dependable reporting will provide time efficiencies for internal force resource who inevitably spend time collating and interpreting data for bill validation and reporting purposes. Note – data management via Bureau service was also a recommendation within the CLEP Strategy.

Clean data will become more important as we get closer to 2050 with the requirement for carbon reporting submissions, based upon consumption reduction and green generation.
With the decarbonisation programme becoming more important for forces, it is hoped that accountability with specific internal roles and responsibilities will bring traction.
Finance and investment committees will need to ensure that CAPEX is set aside for decarbonisation schemes and investment into renewable technologies.

BlueLight Commercial's Next Steps –

- Continue to build engagement with forces and framework providers to build the national data picture. If engagement remains slow, specific questionnaires could be used, or workshops could be held.

- Provide advice, education and intelligent signposting when forces evaluate their next contract and route to market. Co-termination of end dates will need to be a factor when advising of contract length (note co-termination is a long-term process). Bluelight commercial must have support from NPEG, NPCC & PCC's to ensure that we are consulted at the beginning of any commercial process to ensure at the very least we are aware of the latest position per force, but ideally we would help to shape a national direction based upon informed decisions.

- Help to inspire both financial risk and cultural mindset change based upon market insight and intelligence. Also ensuring that any cost evaluation is clearly understood.

- Boost cost savings by supporting volume reduction strategies. Because considering the low commodity cost margins, the biggest efficiencies will come from volume management rather than pure cost reduction.

- Encourage and nurture a joined up and nationally consolidated approach to green energy, sustainability projects and investments with the ultimate goal of net zero carbon.

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NATIONAL COMMERCIAL BOARD

PROCUREMENT STRATEGY: ELECTRICITY SUPPLY

Category : Electricity – Consolidation of spend (UT02)

Date: 26 January, 2018

Version: FINAL

Author: Hannah MacPherson
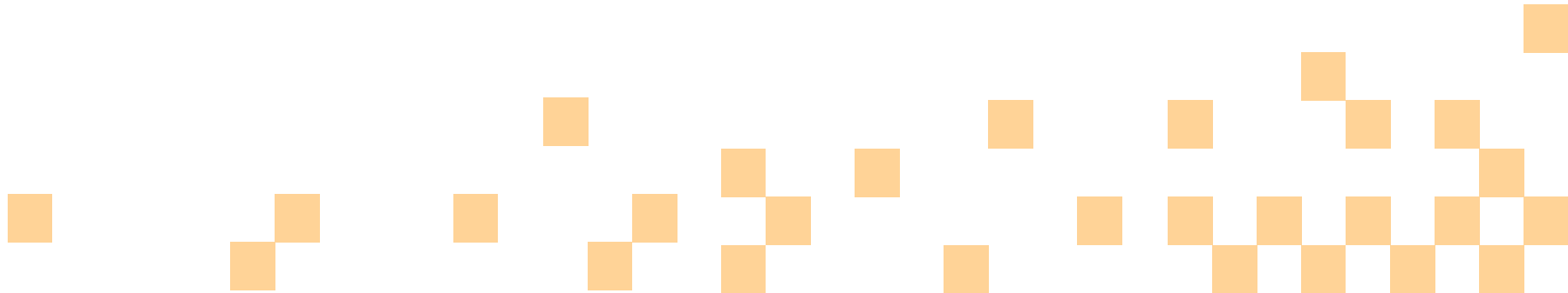
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EXECUTIVE SUMMARY

Current Situation

- The total spend on electricity supply across the 43 police forces is £47m; 64% (£30m) of this spend is via Crown Commercial Services (CCS), 15% (£7m) of spend is via LASER Energy Buying Group,13% (£6m) and 5% (£2m) of spend is via Yorkshire Purchasing Organisation (YPO) and North East Procurement Organisation (NEPO), respectively, and 2% (£1m) of spend is via other routes.
- They key stakeholders involved are the 43 individual forces, CLEP, CCS, LASER, YPO, NEPO and the 4 different suppliers currently being used (EDF, npower, British Gas and West Mercia Energy).
- The top 5 forces in terms of electricity spend are the MET (£10.9m), West Yorkshire (£2.6m), Greater Manchester (£2.2m), West Midlands (£1.9m) and Essex (£1.4m).
- The current approach to electricity supply is complex and inconsistent with a reliance on the buying strategy employed by external parties.

Business Requirements

CLEP needs to adopt a long-term, forces-wide strategy which is applicable to all scales and capabilities of forces across all geographies. The strategy should:
- Deliver low costs whilst ensuring a reliable supply of electricity at a service-level which meets the needs of the forces.
- Account for a changeable estate and the existing contracts that are in place.
- Involve effective stakeholder management, centralised reporting and streamlined processes.
- Provide information and data in a timely, accessible manner.
- Involve effective risk management and governance framework to ensure optimum buying performance.

Issues & Challenges

- The current approach is complicated, disjointed and inconsistent.
- There is a lack of transparency and dependence on external framework providers and buying organisations to deliver the best results; there is no understanding of the effectiveness of the current buying strategies currently employed, both under and out with CCS and LASER framework agreements.
- Current focus is on force-by-force spend as opposed to the spend across the 43 forces.
- There is no centralised reporting and most forces have operations centralised where the contracts are held (in most cases with framework agreement providers).
- It appears that CCS/LASER performance is taken at face-value and there is little to no consideration for opportunities which could be brought about by changes within CCS/LASER, or out-with these framework agreements.

Strategy, Opportunity and Target

- Savings of £1.37m to £2.13m have been identified in relation to improved electricity supply procurement.
- The opportunity exists to consolidate electricity procurement across the forces. By consolidating electricity spend under one supplier and taking an all-encompassing approach to sourcing electricity, economies of scale can be benefitted from and a complete picture of spend and buying strategy across the forces can be achieved via centralised operations and reporting.
- Consolidation will also bring the opportunity to improve price risk management and buying strategies in a transparent, proactive manner, enabling y-o-y savings. The aim is to have all 43 forces acting as a single entity, sourcing energy from a single supplier selected on the basis of its suitability for the forces' property portfolio, consumption volume and service level required.
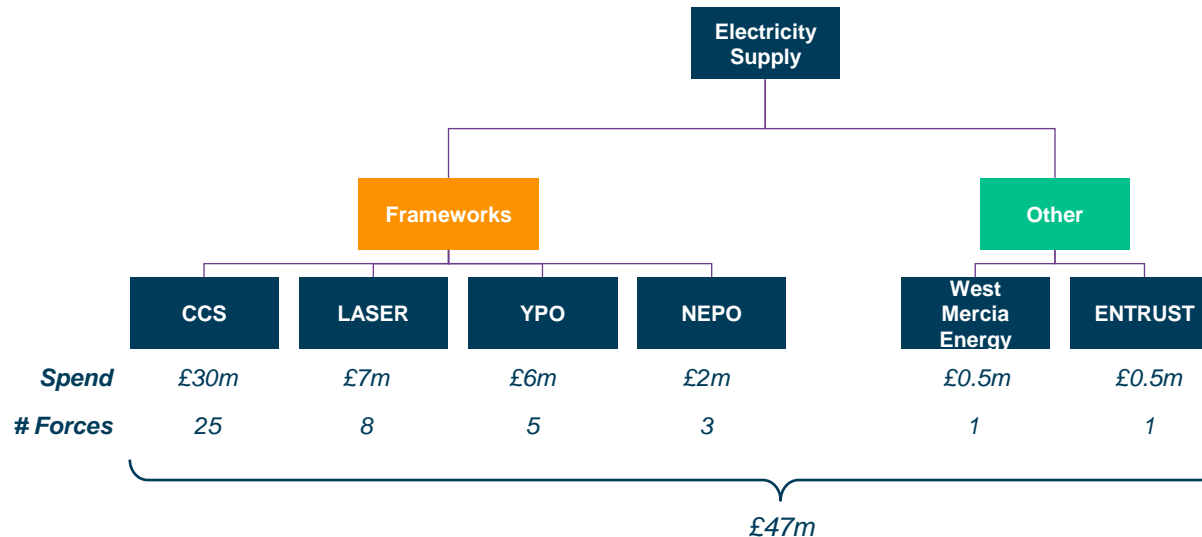
Next Steps

1) **Produce a diagnostic report** – develop a detailed "as is" picture of the current approach to electricity supply by gaining granular contractual details and insight into framework providers' and purchasing organisations' buying strategies, market expertise and approach to risk management.
2) **Identify where savings opportunities exist and develop strategic and actionable next steps to achieve those savings** – identify strategic and operational needs across the forces to enable suitable supplier selection.
3) **Decide on and formalise the strategic approach** – taking consideration for existing contracts in place, devise a detailed strategic plan to realise savings.
4) **Execute tendering process** – in line with the agreed strategic approach, secure a long-term relationship with the supplier best suited to the forces' needs.
5) **Execute strategic approach** – ensure savings are sustained by developing and supporting the correct governance and risk management frameworks.

CATEGORY STRUCTURE

The total spend on electricity supply across the 43 forces is £47m[1] per annum.

- Spend on utilities supply (electricity supply, gas supply and water supply) across the 43 forces is broken down into spend on supply, and spend on consumption management, with the vast majority of spend being on the supply of utilities
    - *Utility supply:* The procurement of utility supply from a supplier(s). For electricity this cost is made up of wholesale (38%), network (26%), operational (17%) and environmental and social obligation (8%) costs plus a supplier margin (5%), VAT (5%) and other direct costs (1%)
    - *Consumption management:* The management of utility consumption. This includes meter maintenance, data monitoring and projects to improve the efficiency of utility consumption in turn reducing the volume of utilities consumed by a building or site

Electricity Supply

Frameworks | **Other**

	CCS	LASER	YPO	NEPO		West Mercia Energy	ENTRUST
Spend	£30m	£7m	£6m	£2m		£0.5m	£0.5m
# Forces	25	8	5	3		1	1

£47m

- The total spend on electricity supply is £46m with 41 of the 43 forces opting to procure their supply via framework agreement providers
- Most forces make use of Crown Commercial Service's (CCS) frameworks and as a result 66% of electricity supply spend is via CCS
- Other framework providers are LASER Energy Buying Group (LASER), Yorkshire Purchasing Organisation (YPO) and North East Procurement Organisation (NEPO)

[1] *Spend based on 2016/17 data obtained from framework providers, suppliers and individual forces was £45,626,071; this assumes a City of London spend of £1.1m (average of other 42 forces spend) which was unidentified as it is rolled into City of London Corporation spend. There is also CCS spend with Place Partnership – this has not been included in the assessment.*

CATEGORY STRUCTURE

The majority of electricity supply spend (£30m) is via Crown Commercial Services (CCS).

Approach	Provider	Overview	Number of forces	Number of suppliers	Spend
Frameworks	CCS	Framework agreements for flexible half hourly (HH) and non-half hourly (NHH) electricity supply	25	2	£30m
	LASER	Framework agreements for fixed and flexible HH, NHH and unmetered electricity supply	8	1	£7m
	YPO	Framework agreements for HH, NHH and unmetered supply points	5	1	£6m
	NEPO	Framework agreements for sites on the HH, NHH and unmetered supply market	3	1	£2m
Other		Forces engage directly with suppliers, out-with external framework or tendering services.	2	2	£1m

- **Crown Commercial Services (CCS)**[2]
- 64% (£30m) of electricity supply spend is via Crown Commercial Services with EDF (£24.8m) and British Gas (£5.2m) under framework agreements RM1075 and RM999, respectively.
- The EDF spend under RM1075 is for the supply of half hourly (HH) electricity and the British Gas spend under RM999 is for non-half hourly (NHH).
- **LASER Energy Buying Group**[3]
- 15% (£7m) of electricity supply spend is via the LASER Energy Buying Group with npower.
- **YPO**[4]
- 5 forces secure their electricity supply via Yorkshire Procurement Organisation (£6.2m spend) with npower.
- YPO's electricity framework is "Electricity – 296" and covers supply nationally
- **NEPO**[5]
- 3 forces source their electricity using North East Procurement Organisation (£2.4m spend) with npower
- NEPO is currently undergoing a Competitive Procedure with Negotiation to re-procure the Electricity Framework Agreement and invitations to tender have now been issued.
- **Other**[6]
- Cheshire Constabulary deals directly with West Mercia Energy (£540k)
- Staffordshire Police outsource all their facilities, including utilities, to the Kier Group. The contract secured by Kier, via ENTRUST (owned 51% by Capita and 49% by Staffordshire County Council), is with npower (£530k)

Key Suppliers

Commercial Procurement Services

[2] Data from CCS; [3] Data from individual forces (assuming City of London Spend); [4] Data from Lancashire Constabulary for YPO forces; [5] Data direct from NEPO; [6] Data from West Mercia Energy and the Kier Group.

5

CURRENT POSITION - CONTRACTUAL LANDSCAPE

The majority of supply contracts operate under CCS framework agreements.

64% of electricity supply spend is via CCS frameworks

Type	Framework / contract	Start and end date	Key supplier(s)	Spend	Forces / PCCs with access
Framework (CCS)	Framework RM1075 • HH supply	Start: 27/03/2015 End: 26/03/2019	EDF	£24.8m	Avon and Somerset, Bedfordshire, Cambridgeshire, Cumbria, Derbyshire. Devon & Cornwall Police, Dorset, Gloucestershire, Greater Manchester, Hertfordshire, Leicestershire, Lincolnshire, Merseyside, Metropolitan, Northamptonshire, Nottinghamshire, Sussex, Thames Valley, Warwickshire, West Mercia, West Midlands, Wiltshire, Dyfed-Powys, Gwent, South Wales
	Framework RM999 • NHH supply	Start: 1/10/2013 End: 30/09/2017* *Renewed - supply starting April 2019	British Gas	£5.2m	Avon and Somerset, Bedfordshire, Cambridgeshire, Cumbria, Derbyshire. Devon & Cornwall Police, Dorset, Gloucestershire, Greater Manchester, Hertfordshire, Leicestershire, Lincolnshire, Merseyside, Metropolitan, Northamptonshire, Nottinghamshire, Thames Valley, West Mercia, West Midlands, Wiltshire, Dyfed-Powys, Gwent, South Wales
Framework (LASER)[7]	Framework Y14069 • Flex	Start: 01/10/2016 End: 30/09/2020	npower	£7.2m	City of London, Essex, Hampshire, Kent, Norfolk, Suffolk, Surrey, North Wales
Purchasing Organisation	YPO	Start: 31/03/2015 End: 31/03/2019	npower	£6.2m	Humberside, Lancashire, North Yorkshire, South Yorkshire, West Yorkshire
	NEPO	In the process of being re-procured	npower	£2.4m	Cleveland, Durham, Northumbria
Other	West Mercia Energy	Unknown	West Mercia Energy	£0.5m	Cheshire
	ENTRUST	Unknown	npower	£0.5m	Staffordshire

[7] *It is assumed that the LASER framework agreement being used by forces is the "framework for the <u>flexible</u> procurement and supply of electricity" where the supplier is npower; there also exists a LASER framework "to facilitate the arrangement of <u>fixed</u> price electricity contracts"*

CURRENT POSITION – STRATEGY

The majority of forces opt to procure their electricity supply via framework agreement providers.

- Although there is consensus across the forces that efforts should be made to ensure the best value for money supply contracts are established, there is a lack of overarching strategy and governance to maximise on the savings available.
- It is evident that efforts have been made to consolidate spend and benefit from the opportunities presented by operating supply contracts under framework agreements, but there remains a lack of consistency in how the forces use these.
- It appears that there is no process for assessing value within the framework contracts once they have been signed.
- There is an assumption that once a force has signed with a framework, that this is the best approach, it maybe but often it is not that simple.
- The service-level from CCS has been shown to be below-par with forces having opted to move away from their frameworks on the ground of lack of manageability of support.

Strategy	Frameworks - Intended Benefits	Frameworks - Reality
Framework agreements	• Take advantage of market and risk management expertise • Make use of an independent governance system • Achieve optimal energy prices relative to market prices • Benefit from economies of scale • Ensure OJEU compliance • Take advantage of simpler tendering processes and established relationships • Depending on framework, option to benefit from the demand side management	• Lack of transparency regarding the quality, completeness and depth of the market and risk management expertise provided • No quantification of the savings achieved relative to the market or to a better buying/trading model • Size of contribution to spend under frameworks does not necessarily maximise the benefit achievable by the forces by consolidating spend • Lack of understanding on the value add which CCS delivers vs the main supplier

Crown Commercial Service   L·A·S·E·R Energy Buying Group   YPO   nepo

REQUIREMENTS

A defined strategy supported by effective governance is needed to enhance electricity supply management.

- Although the volume and service level requirements vary slightly between forces, the high level requirements remain the same – each force requires a reliable supply of electricity at the lowest possible cost.
- In order to maximise savings achieved and ensure a long-term, sustainable approach, a forces-wide strategy needs to be developed.
- The forces all face similar internal and external issues - police forces have declining site numbers which in the short-term means declining volume requirements, but short-term they potentially face rising volume requirements as they migrate towards electric vehicles.
- Suppliers are under intense financial pressures with low margins, and are no longer vertically integrated, which is driving them to be more "selective" on clients, aiming for those which have large volumes but a low cost to serve ethos. The police force needs to adapt to these changing conditions and develop a "partnership approach" with a key supplier.

Requirement	Details	Current Situation
Forces-wide strategy	• Long-term, applicable to all scales and capabilities of forces across all geographies • Delivers low costs • Accounts for changeable estate and existing contracts that are in place	• Taking CCS/LASER success at face value • No consideration for opportunities which could be brought about by changes within CCS/LASER, or out-with
Holistic management	• Effective management of all stakeholders – this includes all forces and suppliers	• Complex, fractured and inconsistent
Complimentary projects	• Benefits of projects are maximised on by communicating and rolling out across all relevant and applicable forces and sites	• Projects vary across the forces • Lack of forces-wide campaigns and projects
Efficient operations	• Relevant to business needs • Provides information and data in a timely and accessible manner • Efficient processes decreases the supplier's cost to serve • Streamlined as to minimise man-hours and costs	• Most forces have operations centralised where contracts are held (framework agreement providers) • Operations held at framework providers as opposed to with the forces which is not necessarily most efficient
Comprehensive reporting	• Reporting is consistent across the forces to enable a current forces-wide view to be obtained • Information from reporting enables benchmarking and performance to be monitored • Reports and data should be auditable	• No clear insight • No evidence of transparency or centralised reporting • Focus is on force-by-force spend, not the spend accrued across the 43 forces

CATEGORY SPEND

Electricity supply spend is £46.7m. The majority (£33.6m) is with EDF.

Category Supplier spend

Total Spend	£47m
No. of suppliers	4
No. of suppliers (top 80% spend)	2 (EDF & npower)
No. of suppliers (tail spend)	2 (British Gas & West Mercia)

Sub-category spend breakdown*
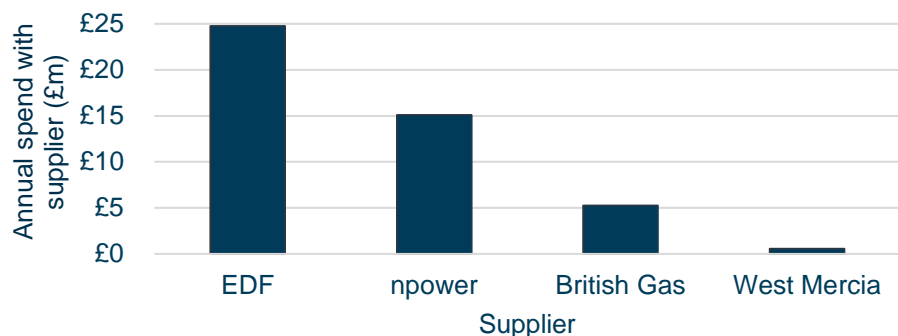
Observations and Insight

- The markets are changing significantly with fewer suppliers driven by low margins and higher costs to serve.
- Distributed generation, long term PPA's and EV requirements mean that the strategy adopted five years ago needs to change to meet the market.
- Most importantly, the police forces needs (consumption patterns) are different from a hospitals and other organizations who make use of the same CCS/LASER frameworks meaning "piggy backing" on CCS/LASER volume may not be the best option.

Category Definition

- Electricity is split into two key contract types - half hourly (HH) and non-half hourly (NHH).
- Electricity costs are made up of wholesale (38%), network (26%), operational (17%) and environmental and social obligation (8%) costs plus a supplier margin (5%), VAT (5%) and other direct costs (1%).
- Most large scale buyers of energy will procure wholesale energy using hedging and trading strategies, allowing them to buy forward and manage risk in a volatile marketplace.
- Distribution and transmission costs are set by the regulator and ensure that customers do not overpay for monopolistic markets.
- Levies and taxes have changed significantly over the years as the marketplace and governments have consistently pushed towards greener energy.
- Supplier margins have been significantly eroded as competition has grown within the industry meaning it is not uncommon to see supplier margins below 1% of the overall bill.
- Suppliers collect customers money and then ensure that the money is redistributed (on a half hourly basis for large customers, or through a profile for non-half hourly customers) to the local distributor, national grid or government as well as the settling the wholesale trades made by the customer.
- The supplier therefore can make most of its margin on cashflow and by collecting money early and sitting on large cash reserves.
- As a result suppliers place a lot of value on the credit worthiness of clients and their ability to pay. Whilst police forces have a very high credit rating (as they are ultimately government backed) it would be interesting to understand the payment terms which each force has in place with their suppliers.

SUPPLIER PROFILES – FINANCIAL

54% (£25m) of spend is with EDF, one of the UK's "Big 6" energy suppliers.

Ratio	EDF Energy	npower	British Gas (BG)	West Mercia Energy[8]
Turnover £	£7,588,000,000	£3,365,000,000	£9,650,300,000	(£56,757,000)
Employees	13,597	2,317	14,516	12 (located in HQ)
[Our] Spend % of Turnover (Hypothetical)	(TBC)	(TBC)	(TBC)	(TBC)
P/L before Tax £	£305,000,000	£4,000,000	£605,900,000	(£1,916,000) (Gross Profit)
Net Income £	£186,000,000	-	£495,400,000	Undisclosed
Net Current Assets £	£3,058,000,000	(£261,000,000)	£2,349,400,000	£1,739,000
Net Profit Margin %	4%	0.1%	6.3%	Undisclosed
Current Ratio	2.1	0.9	1.6	Undisclosed

- Npower and SSE are going through a merger of their supply businesses and it is likely the new company will be the biggest player in the market.
  - This is likely to lead to a more streamlined service offering and a more targeted approach to choosing specific clients.
  - Consolidation is likely, and the competition with the supplier market is going to get tougher.
- EDF has a high exposure to this with such a large volume going through CCS.
  - It is probable that if some of the volume of CCS was "broken up" tit would start to create a good negotiating position for a number of key suppliers aiming to win business.

[8] *Little information is available on West Mercia Energy; this data was extracted from its 2016/17 Final Accounts published here https://westmerciaenergy.co.uk/Accounts.aspx - There is a relationship with Shropshire Council which may explain the account data*

THE MARKET PLACE – ELECTRICITY/POWER (1)

- The industry pattern is always broken down to 4 key areas - generation, transmission, distribution, and supply.

✓**Competition**   **Monopoly**   **Monopoly**   ✓**Competition**

Generation → **Transmission** → **Distribution** → **Supply**
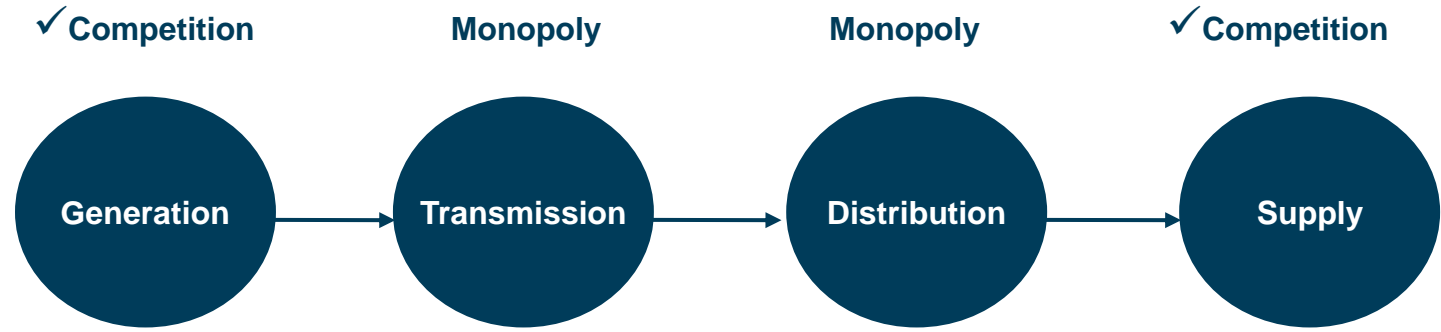
- The UK market place is dominated by a combination of
  - Generators

    SSE   SCOTTISHPOWER   e·on   centrica   eDF   RWE

  - Transmission Network Provider

    nationalgrid

  - Suppliers

    havenpower   SSE   SCOTTISHPOWER   first:utility   OPUS energy   npower   eDF   e·on

THE MARKET PLACE – ELECTRICITY/POWER (2)

- UK electricity supply industry currently generates £32.8bn in revenue making an industry profit of £393.6m.

- Revenue is expected to grow at a compound annual rate of 1.5% over the five years through 2022-23 to reach just under £35.3bn

- The industry is made up of approximately 36 operators.

- The industry is dominated by six operators (the Big Six), which account for an estimated 82% of industry revenue.

- Independent suppliers are expected to continue to gain ground on the Big Six in the coming years.

- The competitive landscape is expected to change as it SSE has confirmed it is merging with Npower to form a new energy company. The deal will knock the industry's Big Six down to five and the new firm is expected to be roughly the size of British Gas and to serve around 11.5 million customers.

- The UK industry is regulated by Ofgem (and by NIAUR in Northern Ireland).

101 TWh

60 TWh

50 TWh

125 TWh

1998

UK Electricity Market – 336TWh

1 MW

1990

100 kW

1994

5,000+ Elec

60,000+ Elec

2.2m Elec

25m Elec

Site Numbers
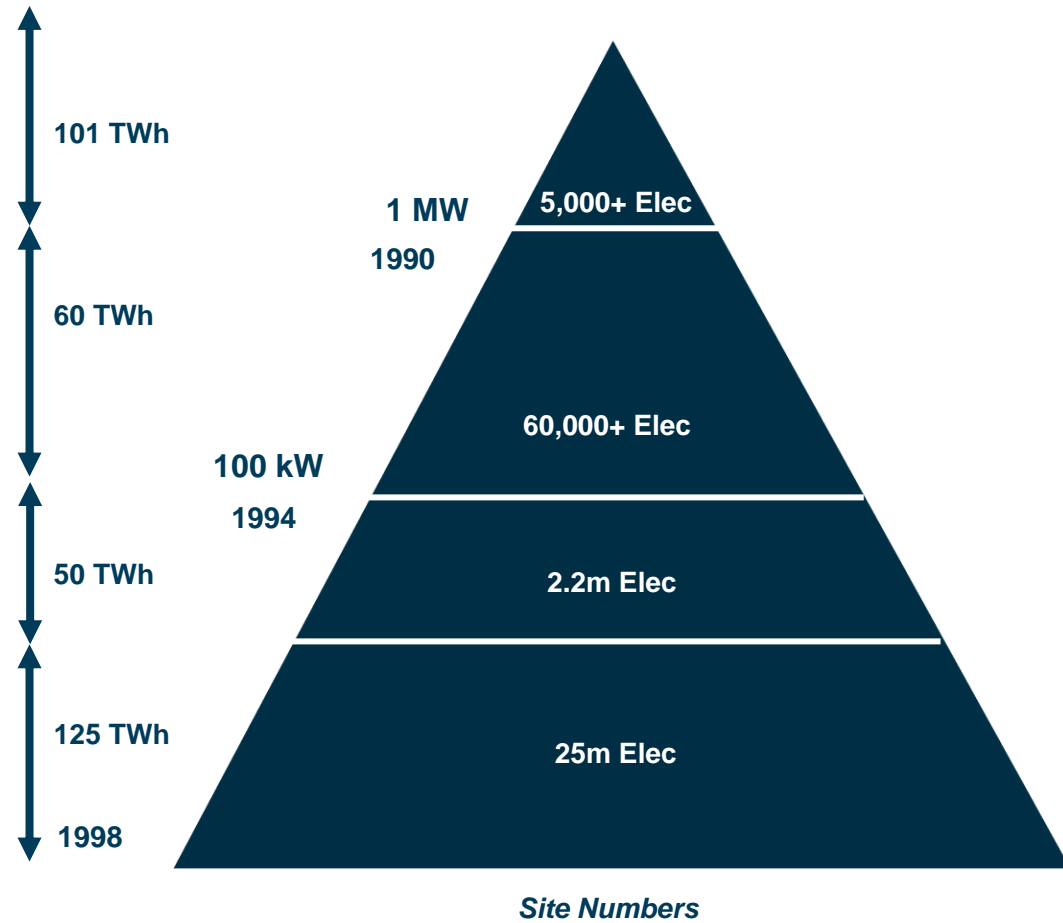
THE MARKET PLACE – ELECTRICITY/POWER (3)

- The cost of electricity is made up of 5 main parts
  - 45% of electricity costs are driven by regulation and only manageable through demand management.
  - 55% of costs are however subject to competitive pressure and are influenceable.

Approx. % of Price

Supplier Margin
Wholesale
Levies
Distribution
Transmission

Influenceable Components — 55%

Un-influenceable Components — 45%

Typical Cost Split

Legend:
- Wholesale
- Network
- Operational
- Environmental/social
- Supplier margin
- VAT
- Other

Pie chart values: 38%, 26%, 17%, 8%, 5%, 5%, 1%
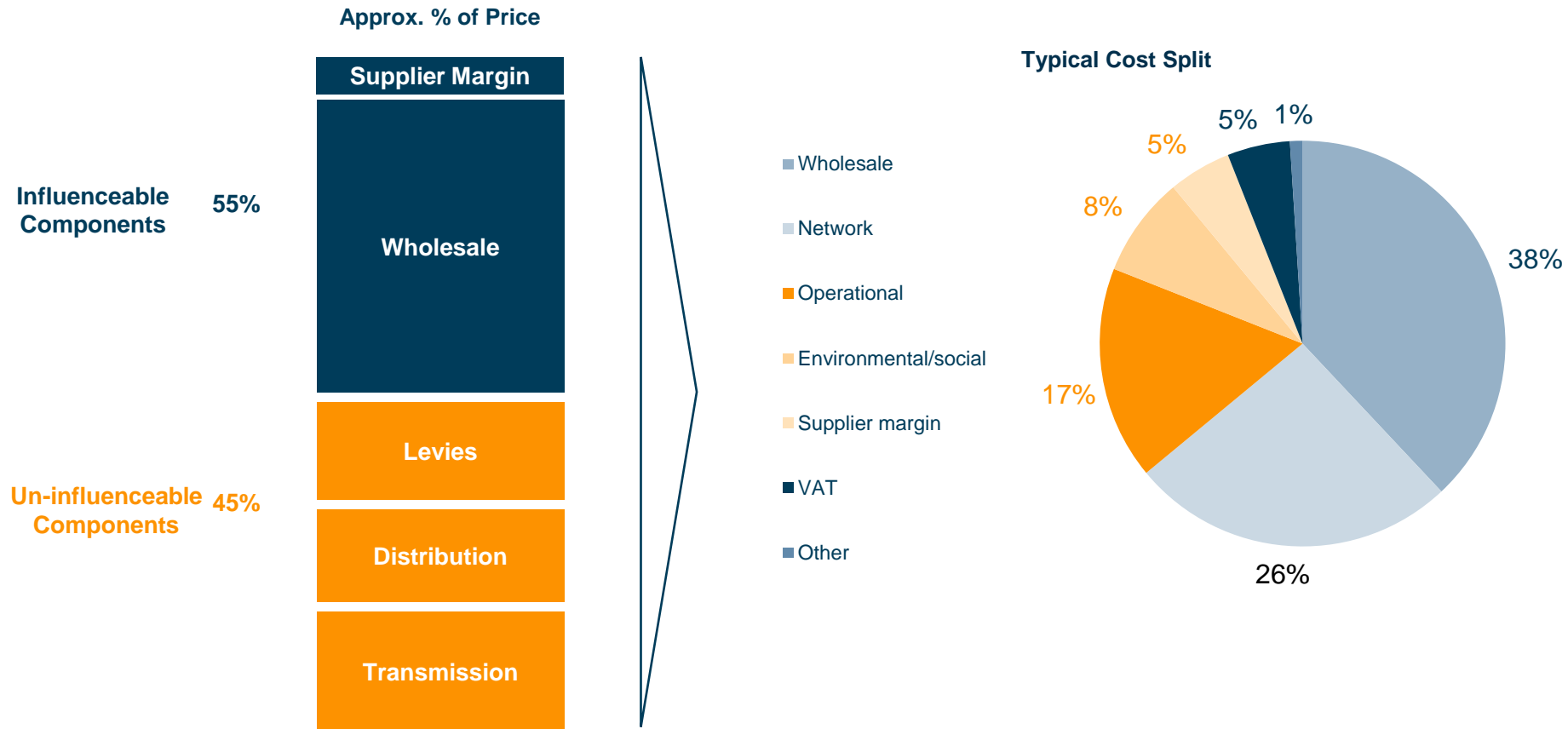
SUPPLY MARKET ANALYSIS

The market is oligopolistic with the (soon-to-be) Big Five being potential suppliers for a forces-wide approach.

The reason for the Big Five being key potential suppliers for CLEP is that these suppliers are able to tailor a contract to meet the group's volume and service-level needs.

Aggregate Market Overview (UK Electricity Supply)

Total size of market, £	£32.8bn
Market growth per annum	1.5%
No. of suppliers	36
No. of suppliers (comprising 80% of market)	6
No. of suppliers (comprising 20% of market)	30

Top 6 Suppliers by Industry Related Revenue £ bn
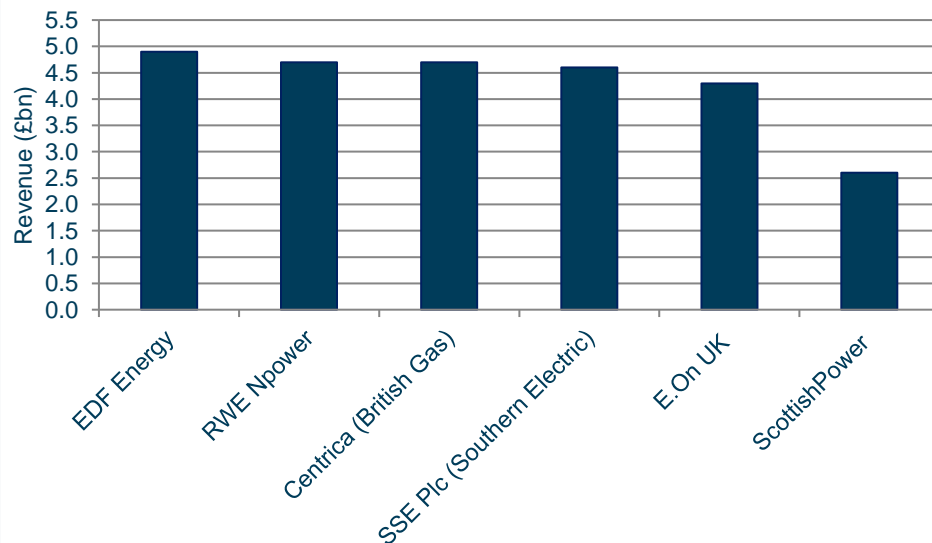
Supply Market Profile and Dynamics - Observations, Analysis

- CLEP's combined volume is around 1TWh, this puts them squarely in the "sweet spot" for a supplier
  - This volume is not so large that it makes it unmanageable, but large enough that it makes it worth investing in strategic partnership.
  - The fact that CLEP will have a multi-site, changing portfolio means that there will however be a small premium (compared to a single site customer).
- CLEP would be a top 40 client for the majority of the main suppliers, and would command a reasonably high margin.
- The main reason CLEP will be high margin is that there will be a perceived high admin cost, with legal and government regulations increasing cost to serve - this can be addressed through strategic change.

Supply Market Insight

- The majority of forces make use of CCS
- Public organisations use CCS to procure energy related goods & services where procurement options include framework agreement, customer access agreement and model contract between customer and supplier which allows the supplier to deliver the customer's energy.
- This three way agreement is designed to optimise energy procurement enabling the public sector to gain maximum benefit from volume purchasing.

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EXTERNAL MARKET OVERVIEW

The "Big Six" are EDF, npower, British Gas, SSE E.On and ScottishPower – the forces use 4 of these.

Bar chart – Annual sales (£bn); Latest (£m) and Year Previous (£m):

Supplier	Latest (£m)	Year Previous (£m)
EDF Energy	7,588	8,440
Npower	3,365	3,665
British Gas	9,650	10,635
SSE Energy Supply	4,674	5,001
E.On UK	302	1,126
ScottishPower	5,422	6,590
First Utility	908	874
Ovo Energy	685	512
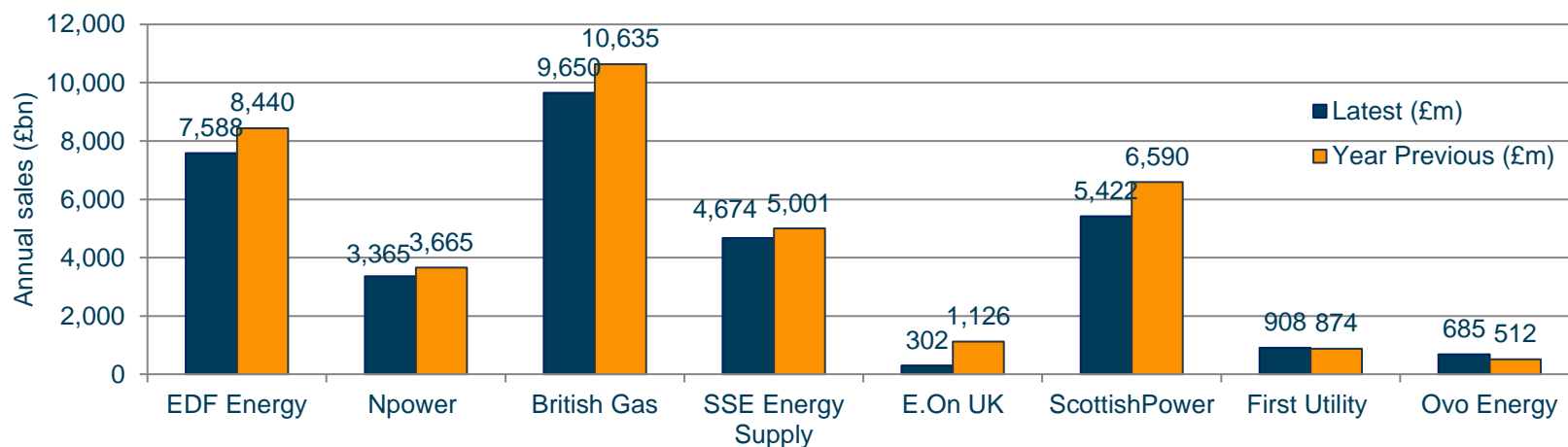
Supplier	Supplier rank	Annual Sales £bn	Current Clients	Strengths / Opportunities	Concerns
EDF Energy	1	£7.6bn	Multi-sector	• Largest UK supplier by market share • Biggest government supplier and has a long-term relationship with CCS	Supply margins are being eroded and EDF have protected this through high margin government contracts. However, as CCS volumes decline, other suppliers are testing EDF margins.
Npower	2	£3.4bn	Multi-sector	• Multinational organisation • Looking to scale through SSE acquisition	IT investment and reductions in some domestic tariffs has seen npower reposition its market share to gain profit.
British Gas	3	£9.6bn	Multi-sector	• Large UK supplier with a major UK energy offering	IT programme created mistakes resulting in customers leaving in droves. Currently loss making but may wish to acquire customer share.
SSE Energy Supply	4	£4.6bn	Multi-sector	• Large UK supplier with a major UK energy offering	High Variable Tariffs which are being phased out, and low appetite for IT development; hence the need to partner with npower. SSE customers will migrate to npower systems in Summer 18.
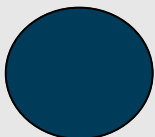
SUPPLY MARKET DYNAMICS

There is an increased dependence on European interconnectors and a drive towards renewables, behind-the-meter generation and the electrification of cars.

Factor	Current trends / future development	Key Opportunities and Risks	Implications for CLEP
Market regulations and trade barriers	• Future trade relationship between the UK and the EU is unclear pending Brexit negotiations • Government still driving towards nuclear • Greener power now competitive without subsidy	• Britain could find some of its energy initiatives at risk of losing funding and guarantees from EU institutions • It is still unclear if the UK will be expected to remain compliant with EU standards and requirements	• Wholesale prices will remain volatile with UK reliant on Norwegian gas imports and LNG • The UK likely to look at long term investment from China
Renewable energy	• Government intervention designed to promote renewable energy – the Renewable Obligation (RO) was closed to all new generating capacity as of March 2017 • Renewables are becoming economic without subsidy	• The UK will be less reliant on the declining UKCS as it looks to growth in renewables • There is a risk however that end users may end up having to pay more as investment is required and costs may be passed onto them	• Renewables continue to be a growth area, and when coupled with batteries will radically change the energy markets of the world • It is likely we will see less biomass in favour of solar and wind (which are truly renewable)
On-site generation	• Total number of CHP schemes have increased in the UK • Solar PV generation showed the largest increase of renewable technologies in 2016	• Commercially this is very attractive as it avoids distribution and transmission costs, but it means that small scale generation is replacing big projects and the need for a large scale grid network	• Long term PPA (Power purchase agreements) are being offered by suppliers, but these are not risk free • It is likely that the government may look to tax on-site generation as it grows • Behind meter generation obscures demand growth
M&A	• SSE has confirmed it is merging its British domestic business with Npower to form a new energy company	• The deal would decrease the country's Big Six energy firms down to five and shake up the industry • The costs of billing systems and service requirements mean economies of scale have to be implemented to reduce costs	• The industry is evolving to manage large amounts of data, predicting weather and demand and supply fundamentals. This is driving big change for the future • Consolidation is inevitable

SUPPLY BASE RESTRUCTURE OPPORTUNITIES

To get to the best possible cost base we need to focus on the following techniques

Area	Key Actions	Impact
Restructure Relationship	**_Restructure the relationship between CLEP and CCS (and/or LASER) at a strategic level_** • Assess the "success" and strengths of the strategies employed by each buying group; this includes assessing market knowledge, buying expertise, risk management strategy and contract management • Identify how best to maximise on the benefits and opportunities presented by these frameworks • For any weaknesses identified, develop strategy to improve on these areas	
Restructure Supply Base	**_Consolidate all electricity supply spend under one supplier_** • Assess existing contracts and frameworks to identify end dates, exit provisions and any nuances • Assess the level of market/risk management/buying expertise which exists internally • Identify force-wide requirements - in terms of both volume and service level • Determine suppliers best suited to the requirements identified • Execute tender process to select supplier • Establish new forces-wide contract with selected supplier • Provide ongoing support to ensure opportunities are maximised on an ongoing basis	

CLEP would most benefit from the consolidation of their electricity supply spend under one supplier

Low ● ● ● ● ● High

STRATEGIC OPTIONS

The greatest opportunity exists in the consolidation of the forces' volume – there are several ways to do this.

Each strategic consolidation option can be defined by 5 pillars which enable for consideration of the strategy in the context of the forces' capabilities and desired operational control[9]

Pillar	Options				
	Bring In-House	**Partnership w/ Supplier**	**Hybrid Approach**	**Framework Provider**	**Outsource**
Strategy	• Bring all operations in house under a single forces-wide unit	• A strategic relationship is built with a single supplier	• Outsource some operations whilst centralising some in-house [10]	• All supply and operations under one supplier via a framework provider	• Completely outsource to a 3rd party procurement organisation (e.g. INENCO)
Structure	• Completely centralised	• Some operations are outsourced to the supplier, but majority are centralised in-house	• Outsource majority of operations whilst developing a "light" in-house core group	• Operations sit within framework provider	• Outsource all operations to a 3rd party; completely outsources
Systems	• CLEP will require centralised data repository • Linkage with A/P	• Leverage suppliers systems • Process for data anomalies	• Split requirements between inhouse and outsourcing based on strengths	• Utilise provider's in house systems (assess if these are white label supplier systems)	• Use 3rd party systems – but need to ensure test against suppliers
Skills/ Staff	• Up skill in key areas to deliver overall value	• Assign skills by needs within partnership • Maximise on strengths of supplier	• High dependence on outsourced skills	• Minimal required – leveraged or outsourced • Central single line of reporting within CLEP	• None required – leveraged or outsourced • Central single line of reporting
Culture	• Group approach where efforts are made for the benefit of the forces as a whole	• Group approach still needed but less dependence on in-house skill	• Some inhouse skills needed but external skillsets are leveraged	• Full "pass the buck", with some involvement from CLEP	• Full "pass the buck"

[9] Operations refer to risk management, buying/hedging strategies, administrative activities, reporting, bill reconciliation etc.

[10] For example, making use of a framework provider but "deskilling" that dependence (e.g. only use them for reporting/admin) or using a supplier for hedging/buying operations and risk management whilst centralising other operations

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■ RISKS

Consolidating all electricity supply spend under one supplier is not without risk.

In assessing the aforementioned consolidation strategies it is important to consider that regardless of choice, consolidation entails some risk

The best way to consider these risks is by considering the trade-off between

- *Economies of scale: Cost advantage which arises as a result of costs being able to be spread out across a larger number of "units/sites" which lowers the risk premium and increase the portfolio effect of risk management.*
- *Law of Diminishing Returns: The theory that beyond a certain volume the cost benefits diminish as the risks associated with such a large volumes become unwieldy and difficult to mitigate the bigger you get.*
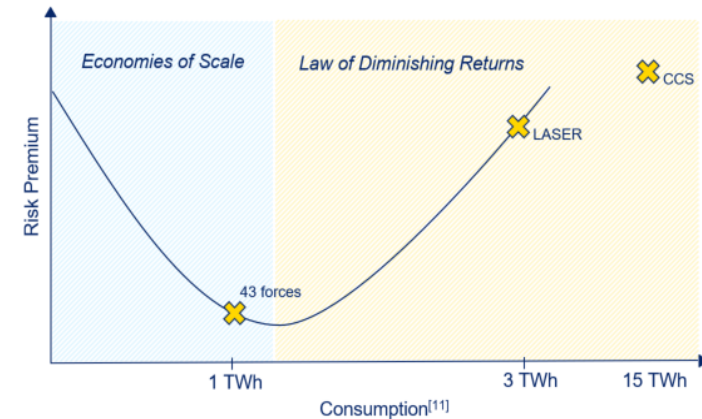
- The concept is that the cumulative electricity consumption volume of all 43 forces (c. 1TWh) makes CLEP an ideal candidate for a single supplier

  - The forces together become a bespoke shape and portfolio which drives a lower risk premia and cost to serve for a supplier (*economies of scale* are benefited from)

  - When CLEP's consumption is grouped in with that of other bodies (for example with the NHS and other public sector bodies under CCS, c. 15TWh) the portfolio volume becomes such that the *law of diminishing returns* comes into play

  - Conversely, if the forces' move away to form the bespoke c. 1TWh portfolio and over time find the portfolio reduced (drastic reduction in sites, forces opting to move out of the portfolio in pursuit of their own "better" deal, the benefits entailed from achieving economies of scale start to reduce resulting in potential cost increases for those remaining in the portfolio

CATEGORY MANAGEMENT – STRENGTHS AND DEVELOPMENT

We can get better control, drive more opportunities by focussing on ……

- Formalised Vision & strategy

- Formal Risk Management governance & control framework

- Proactive planning & management of consumption

- Effective sourcing strategies balancing risk and market risk and opportunities with long term strategic direction

- Alignment with operations, EE and environmental and sustainability

Internal Stakeholders

Strategy

Governance & Control Framework

Internal Stakeholder Management

Strategic Sourcing

Demand Management

Demand

Spec

Supply

Supplier Management

Compliance, Buying Channels and Requisition to Pay

Data and Information Management

Operations Management

External Suppliers
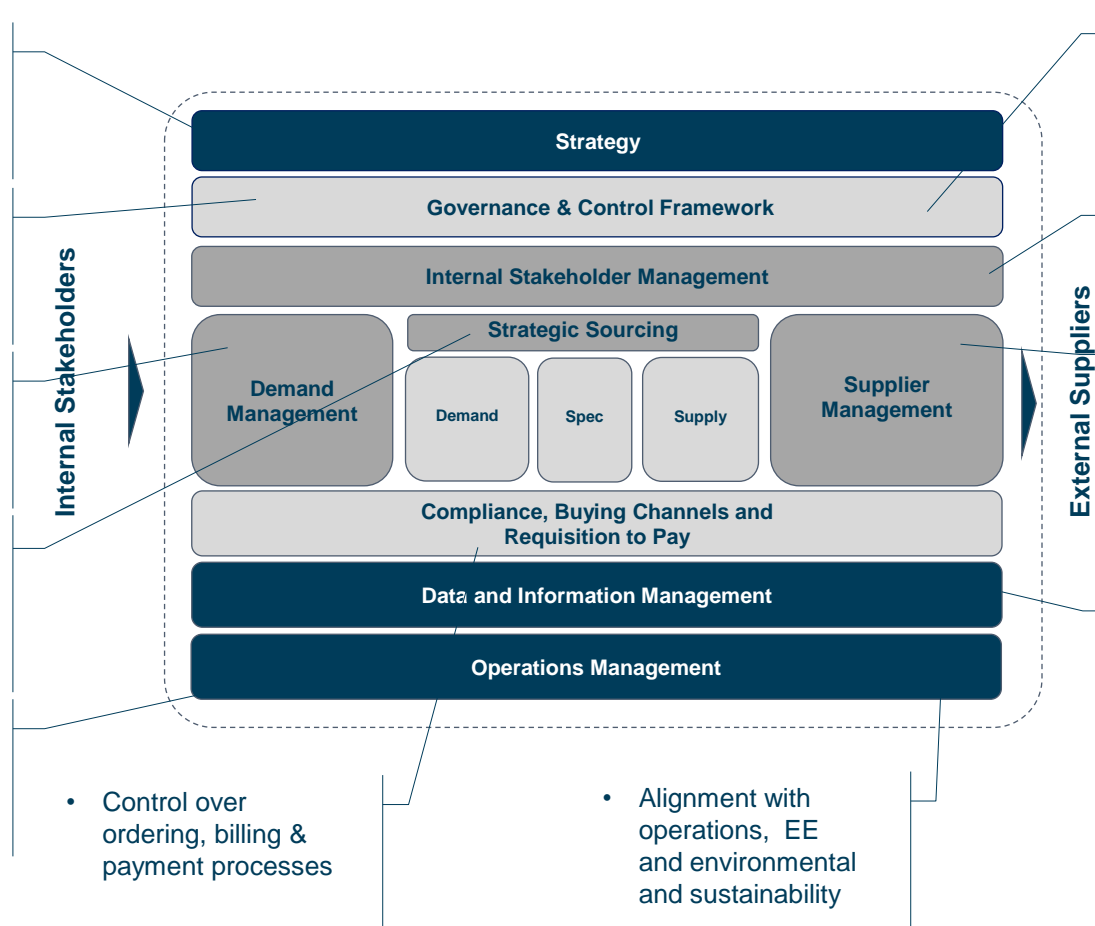
- Formal category management, structures & processes

- Managed engagement with key stakeholders

- Formal SRM, Performance &Contract Management

- MI to support operational & strategic management

- Control over ordering, billing & payment processes

- Alignment with operations, EE and environmental and sustainability

| Strong | Functional | Gap |

CATEGORY STRATEGY: 3 YEAR ROADMAP

- *We will drive value by devising and implementing a holistic forces-wide strategy which reduces costs by centralising and streamlining processes by enabling CLEP to establish a long-term, strategic partnership with a supplier which is best suited to its dynamic volume and service-level needs.*

To

- Forces-wide strategic approach to electricity supply
- Increased transparency
- Lower costs
- More streamlined processes
- Year-on-year savings sustained
- Maximise on economies of scale
- Supplier(s) selected on basis of suitability for the forces as a single-entity client

Long term

Recommendations
- Engage in proactive communication with supplier
- Measure and monitor performance

Benefits
- Sustained year-on-year savings are ensured
- Facilitates a strategic relationship with supplier Streamlines buying process and enables economies of scale to be benefited from
- Constant understanding and awareness of performance enables proactive approach

Rationale
- Ensures efforts made remain effective year-on-year which in turn ensures long-term savings for the forces
- Effective performance monitoring encourages a "can always do better" attitude

Medium term

Recommendations
- Execution of strategic plan based on forces-wide assessment
- Complete the tendering process to identify and secure a relationship with the most suitable supplier
- Develop risk management framework/governance

Benefits
- Best long-term supplier will be engaged with in the context of long-term, forces-wide requirements
- Transparency and control over market exposure

Rationale
- Completing a comprehensive tendering process enables the forces to ensure all their requirements are identified and detailed and best supplier is engaged
- Enables forces to ensure buying performance is optimal

Short term

Recommendations
- Gain complete understanding of the "as is" or order to assess current performance
- Define forces-wide requirements (volume and service level)
- Develop strategic plan

Benefits
- Enables most effective strategic, long-term plan to be developed

Rationale
- The complete assessment of the "as-is" and requirements facilitates the ability to develop the most optimal approach to buy electricity for the forces as a single entity

From

- Lack of forces-wide strategy
- Disjointed approach
- Assumption that CCS and LASER perform optimally
- Suppliers being used not selected for right reasons
- Reliance on external market and buying expertise
- No control over risk management strategy employed in buying electricity

Next 3-6 months **Next 6-12 months** **12 months +**

NEXT STEPS (1/3)

To deliver these opportunities we propose the following next steps

1. Produce a diagnostic report (i.e. a strategic review)

• Develop a complete "as is" picture of the current approach to electricity supply and assess current contractual landscape

• Compile a complete set of data which allocates spend at a by force, by supplier, by framework/contract level

• Gain insight into CCS and LASER – their buying strategy, market expertise and approach to risk management

See slide 25

2. Identify where savings opportunities exist and develop strategic "next steps" needed to achieve those savings

• Based on this granular assessment, a better understanding of the size of the savings achievable will be gained

• The forces-wide requirements will also be able to be identified, enabling suitable approaches to improving electricity supply strategy to be identified, alongside suitable suppliers

• Based on the requirements identified, recommendations will be made as to how best to maximise on savings opportunities identified

3. Decide on and formalise strategic approach

• Based on current contracts in place and their specific exit provisions and nuances, a consolidation plan will be developed

• The assessment of requirements will enable suitable suppliers to be identified and approached

4. Execute tendering process

• In line with the strategic approach agreed upon, the tendering process will be executed to secure a long-term, strategic relationship with the supplier best suited to the forces' needs

5. Execute strategic approach

• Ensure savings are sustained by developing correct governance and support frameworks

NEXT STEPS (2/3)

These steps correspond to a "4-pronged" approach to strengthening CLEP's approach to electricity procurement

01 STRATEGY
Develop a forces-wide strategy which accounts for capabilities and long-term developments and changes

02 DATA
Set-up the required data analytics to understand the situation, provide a transparent view of demand and usage, identify the opportunities and measure the impact of ongoing energy and cost reduction efforts

03 TENDER
Proxima's understanding of the market place and interaction with key suppliers ensures that CLEP, when tendering, not only get a low cost but a contractual arrangement fit for purpose

04 SUPPORT
On demand access to category expertise and insight to turbo charge your capability and get you where you need to be rapidly. Areas in addition to energy which may be of interest: fuel and risk management

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NEXT STEPS (3/3)

The "4-pronged" approach facilities an environment in which savings can be sustained

01 Strategy
Build for the future

CLEP needs an energy strategy, which all forces are buying into.

Proxima will work with you to develop the strategy which ensures how you can deliver sustainable savings using our proven strategy map approach.

Benefits
- Consistency of approach across all police forces
- Clarity on coping with future projects
- Stakeholder and supplier roadmap to better ways of working
- Roles and responsibilities

02 Data
Insight from your data

Successful energy cost reduction programmes rely on strong data analytics.

Proxima will develop an in-house system which captures this data and centrally stores and analyses performance across the forces. This will be done in a way which facilities ongoing data insight.

Benefits
- Data drives best practice in managing volume and price
- Consistency of reporting across the forces reduces supplier costs to serve

03 Tender
Low cost and fit for purpose

CLEP need to move from a transactional to strategic approach to managing utilities spend.

Proxima will deliver a change programme for CLEP which showcases new ways of working through strategic partnerships

Benefits
- Key CLEP stakeholders will learn from experts
- Suppliers will be prevented from pulling the wool over CLEPs eyes

04 Support
On demand expertise

There are a range of areas where CLEP would benefit from having external expertise and guidance, such energy efficiency, price risk management, etc.

Benefits
- Expertise and support as and when needed

WHAT NEXT – 1. PRODUCE A DIAGNOSTIC REPORT

Any recommendations must be validated by a complete assessment of the current approaches

(a) **Aim:** *View electricity supply from the perspective of the forces*

   Solution: *Understand the reasoning behind the forces' choices of electricity supply routes*

- It is understood that each force has made the decision to secure their electricity supply via their chosen framework provider and supplier, and that the reasons for this will vary from force to force

- It is important to understand these reasons to be able to gain perspective on the current perspective on electricity supply options across the forces as this facilitates an appreciation of the key assumptions made and performance metrics sought across the forces

(b) **Aim:** *Assess the strategies and performance of each of the currently used framework providers*

   Solution: *Understand the risk management and hedging/buying strategies employed by each framework provider*

- The unit rates secured by framework providers ultimately depends on the risk management and buying strategies employed by their buying teams, and their expertise in these areas

- By interviewing each framework provider to gain insight into these strategies an understanding of the success of these have in delivering the best value for the forces will be gained

- In doing this answers to the key questions (how good are they, is the best value being obtained) can be answered via quantification of the rates achieved – as opposed to just taking it at face value

(c) **Aim:** *Validate the recommendations made to the forces*

   Solution: *Evidence the recommended approach via quantification of current performance*

- In achieving (a) and (b) above recommendations will be able to be made based on an unbiased assessment of the current performance of framework providers, avoiding the necessity to take effectiveness at face value

- Quantifying the current success of the risk management and buying strategies employed will also enable recommendations made to be validated, enabling the forces to gain a true appreciation of why changes are being put forward and the benefits they could achieve by pursing them

AGGREGATE IMPLEMENTATION TIMELINE (SUMMARY)

- The first stage is to assess the current situation "as-is" by engaging with key stakeholders including CLEP representatives, suppliers and corporate procurement bodies (CCS and LASER)
- Once all data and insight has been compiled, a diagnostic report detailing findings will be produced; this will include an outline of how to best approach consolidation efforts and maximise on the opportunities identified
- The tendering procurement processes will then be put in motion to identify requirements and in turn select the best supplier
- Ongoing support will be provided throughout the process to ensure opportunities are not missed and the longevity of savings is maintained.

Project description	2018								
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1: Data collection	Data Deep Dive		Cleanse Data and Identify Gaps		Correct Data Gaps	Define Ongoing Data Management	▲ Deliver data management strategy		
					▲ Deliver cleansed, updated Data Cube				
2: Strategic review	Assess Strategy and Develop "As-Is" Strategy Map					▲ Deliver strategic review / diagnostic report			
						◆ Decide whether to implement strategic next steps			
3: Data analytics			Build systems architecture						
4: Tendering procurement			Implementation Plan	Confirm Requirements	Issue and Manage Tender	Evaluate Proposals	Supplier Selection	Implementation	
					▲ Produce tender documents			◆ Decide on supplier	
5: Ongoing support			Identify Stakeholders & Requirements	Identify Performance Metrics and Confirm Support Agreement	Provide Ongoing Support				

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IMPLEMENTATION CONSIDERATIONS

Planning needs to be given to the operational difficulties that may be encountered in implementation

- We hope that our below observations and suggested resolutions will allow whoever picks up delivery can hit the ground running and put solutions in place prior to implementation

Potential issue/ risk	Suggested resolution
Resistance from forces to move away from selected supply route	All recommendations will be validated via quantitative analysis and in-depth reviews of all existing supply routes
Forces take up of changes in strategic approach	Diagnostic has go/no-go milestones which will stop if CLEP change direction
Length of existing contracts	Change in strategic approach will account for contracts rolling into new ways of working
Change in personnel	Strategic plan needs sign-off at various levels to ensure that there is a collective response
Minimum volumes	Change of strategic approach will need significant sign on and may require central leadership
Forward price headwinds	Buying strategies tested and signed up to at all levels (year-on-year comparators may not be best in class benchmark)*

*For example, if the forward price for 2020 traded at a low of £44 and the forward price for 2021 traded at a low of £48, and CLEP secured both prices, we would argue that the performance is exceptional but clearly year-on-year there has been a significant increase. Therefore the assessment of performance during the diagnostic phase is critical to ensuring buy-in across the strategy.

APPENDIX – SAVINGS CALCULATION METHOD

Savings are estimated as a percentage of the wholesale and "other" costs per unit of energy.

- When considering the total cost (£) associated with electricity supply, the total costs is made up of two "elements"

  - The cost per unit of electricity (i.e. price, £/MWh)
  - The volume of electricity consumed (i.e. volume, MWh)

$$\text{Total cost (£)} = \text{Price (£/MWh)} \times \text{Volume (MWh)}$$

- This strategy is focussing on (a) the price of electricity; volume of consumption savings are covered in Category Plan: Energy Management

- The price of electricity savings are estimated as a percentage of the wholesale costs (38% of price) and "other" costs (62% of price)

- This is why the estimated savings are lower than the initial estimate (c.£2.3m vs c.£2.8m) delivered due to annual spend across the forces being £6.5m (12%) less than originally estimated spend (£47m vs £53m). The nature of the savings calculation being as a percentage of total spend therefore means that total savings achievable is less than if the spend were larger.

NATIONAL COMMERCIAL BOARD

ELECTRICITY SUPPLY – STRATEGY AND NEXT STEPS

Category : Electricity – Consolidation of spend (UT02)

Date: December 2018

Version: Final

Author: Richard Cockburn

EXECUTIVE SUMMARY
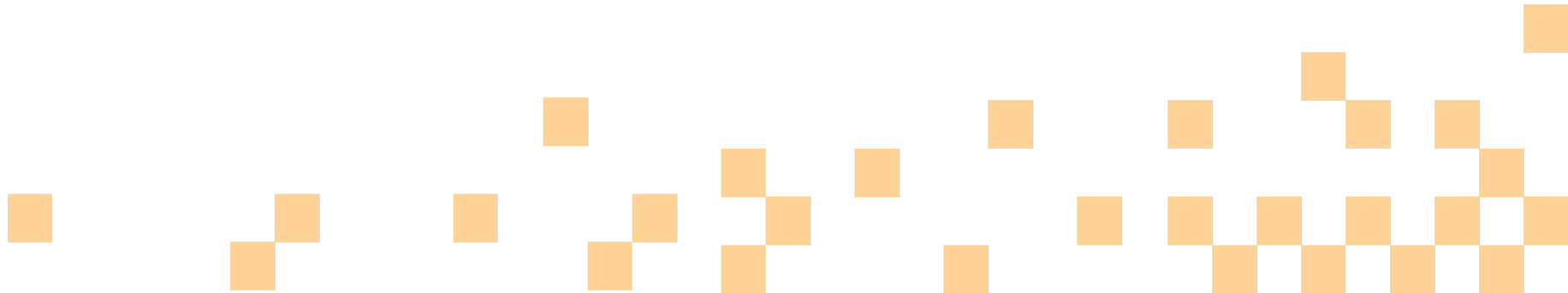
CLEP must decide if a more centralised approach with better operational management in house is the way forward given both the changes within the energy markets and the demands of Police Forces.

Key Findings	**Wholesale change is required, a fragmented localised approach with pockets of expertise is ensuring that costs are higher than they should be. Quick wins will not work without a significant change of approach** • Forces have a wide ranging approach to buying energy, buying organisations are not transparent in their pricing. Lack of knowledge and an inconsistent approach to managing suppliers has meant that this category could be improved with a centralised consistent approach • A new strategy which lays out roles and responsibilities across all the forces and which centralises key areas and which sets a new structure for buying is key • CLEP is best placed to lead in ensuring that the forces sign up to a new approach for strategic delivery – reliance on buying organisations is not working
Current Situation	**There is a fragmented, disjointed inconsistent approach to energy buying. Which is hidden behind a mirage of outsourcing to buying organisations often not measured on performance of buying but more on the "noise" around delivering bureau services** • Fragmented, localised approach. Reliance on buying organisations. Pockets of expertise, often mis-directed. Poor data quality, low systems support • A changing energy market and a potentially huge change in demand with the electrification of vehicles – Police Forces need to change both their approach to buying organisations and suppliers • Too much focus on reducing management fees, and operational delivery. Not enough focus on what will deliver long term savings through robust price risk management, and a proper risk committee structure which measures manages and monitors performance consistently across the forces.
Proposed Approach	**CLEP must take the lead and develop a restructuring plan, implement a new 5 year strategy and start to deliver long term savings** • CLEP must set a strategy for the next five years. This will identify where key elements of electricity category management should be centralised • CLEP must start to build operational metrics which can be used to measure performance and which can be used consistently across all Forces. • Price risk, volume risk and Bureau services should be separated and managed through three distinct strategies • Relationships with suppliers should be enhanced to ensure that they can provide management information direct to key stakeholders • Buying organisations need to be used to provide simple bureau services across all of the forces with a clear set of KPI's and SLA's.
Recommendations	**CLEP must create a clear strategy and encourage all the forces to buy-in to a new approach** • Create clear strategy – decide how far, and quick change can be implemented. There may be some resistance both from forces and buying organisations, but energy costs are increasing and without better control, savings will not be secured for the long term. • Some forces may wish to opt out of this new approach – CLEP should set a consistent measure of operational deliveries which will ensure that all forces are united in the delivery of the five year strategy (those that are not delivering are under threat from being controlled centrally) • Define and agree implementation plan for change, reassess savings targets, create league tables.
Next steps	**CLEP must ensure that they engage the forces and bring them on the journey for a more centralised approach to managing this category** • Create document for Forces to highlight the reason for a change. • Draft CLEP group wide strategy – identify key areas which need structural change. • Engage key stakeholders and agree implementation plan • Create RFP from buying organisations • Create RFP for preferred suppliers

FORCES NEEDS

All forces require low admin and cost contracts with flexibility to adapt to market and internal change

REQUIREMENTS

Across the 43 forces the requirements are similar. Each force wants cheap electricity, with low administrative burdens, and the ability to flex requirements to meet changing forces requirements. However, there is a tendency within the forces to "outsource" all elements of energy category management. As the markets evolve, and you as a customer need to know more, it is important that police forces re-assess their positions.

- **Low price – this is achieved in three key ways.**

    - Wholesale price management (40-50% of overall costs) – risk management at the understanding of how markets move is critical to delivery of low wholesale prices. Today all the forces have outsourced to a buying organisation, and are reliant on their approach to risk management. There is no measurement of performance and there is no consistency of approach across the forces.

    - Low management fees (1-2% of overall costs) – in general management fees are well controlled through framework agreements with the buying organisations. But there is a "scope" issue which is that low management fees are often commensurate with a low level of service.

    - Non commodity costs – (50%-60%) – these costs are best mitigated through energy management and reducing consumption (see previous strategic overview). There are small other ways of reducing consumption including self generation behind the meter.

- **Low administrative burden** – this has been achieved by mainly outsourcing to a buying organisation.

    - All Forces use a Framework provider but when it comes to billing reporting and analysis of data, there is a wide range of responses suggesting that this is inconsistently outsourced across the forces.

    - Technology can be implemented to reduce administrative burdens, this could include databases of price information, site lists, spend cubes etc. This is inconsistent and not coherent across the forces. In fact much of the data we have collected has to be done through a questionnaire and to individual forces which is driving additional administration.

- **Flexible requirements** – markets and the forces needs are changing and flexibility is required to marry this changes commercially.

    - Electrification of vehicles could significantly increase both demand and costs in these key areas.

    - Estate consolidation – the move to larger single sites is seeing the closure of smaller sites across the estate.

Assumptions

What forces assume with regards to providers/suppliers.

- Some forces believe that their local requirements are different (in the case of electricity and gas – we do not see this)

- Some forces have differing risk profiles – some lock out early and do fixed term fixed price contracts others are looking for shorter term hedging scenarios

- Budgets for energy are controlled at local level and there is little cross comparison between forces

STRATEGIC ROADMAP

The greatest opportunity exists in the consolidation of the forces' volume – there are several ways to do this.

Each strategic consolidation option can be defined by 5 pillars which enable for consideration of the strategy in the context of the forces' capabilities and desired operational control[9]

Pillar	Options				
	Bring In-House	**Partnership w/ Supplier**	**Hybrid Approach**	**Framework Provider**	**Outsource**
Strategy	• Bring all operations in house under a single forces-wide unit	• A strategic relationship is built with a single supplier	• Outsource some operations whilst centralising some in-house [10]	• All supply and operations under one supplier via a framework provider	• Completely outsource to a 3rd party procurement organisation (e.g. INENCO)
Structure	• Completely centralised	• Some operations are outsourced to the supplier, but majority are centralised in-house	• Outsource majority of operations whilst developing a "light" in-house core group	• Operations sit within framework provider	• Outsource all operations to a 3rd party; completely outsources
Skills & staff	• Up skill in key areas to deliver overall value	• Assign skills by needs within partnership • Maximise on strengths of supplier	• High dependence on outsourced skills	• Minimal required – leveraged or outsourced • Central single line of reporting within CLEP	• None required – leveraged or outsourced • Central single line of reporting
Governance & systems	• CLEP will require centralised data repository • Linkage with A/P	• Leverage suppliers systems • Process for data anomalies	• Split requirements between inhouse and outsourcing based on strengths	• Utilise provider's in house systems (assess if these are white label supplier systems)	• Use 3rd party systems – but need to ensure test against suppliers
Culture	• Group approach where efforts are made for the benefit of the forces as a whole	• Group approach still needed but less dependence on in-house skill	• Some inhouse skills needed but external skillsets are leveraged	• Full "pass the buck", with some involvement from CLEP	• Full "pass the buck"

[9] *Operations refer to risk management, buying/hedging strategies, administrative activities, reporting, bill reconciliation etc.*

[10] *For example, making use of a framework provider but "deskilling" that dependence (e.g. only use them for reporting/admin) or using a supplier for hedging/buying operations and risk management whilst centralising other operations*

AN EXAMPLE ENERGY STRATEGY MAP

Vision & mission

Vision
- To be a leading edge energy management team
- To reduce costs through adaptability, understanding of the forces key stakeholder requirements and the evolving markets

Mission
- To provide energy solutions and predictable energy performance to both the Home Office and the Forces in this key category area, in a streamlined and consistent manner

Finance perspective

Productivity strategy
- Systematised, streamlined and technology enabled processes, minimising the need for head count
- Consistency of service levels to customer groups, using consultative skillsets and behaviours
- Price risk management

Growth strategy
- Continuously evolve and expand the service provided to the Forces through a combination of a track record of adding value, and developing new services in response to the ever changing energy market
- Offer the same, consistent, high quality service to consolidated Forces
- Develop a consultancy service for Forces which demonstrates best in class category management

Customer perspective

Service attributes

Team has multiple customers to serve:
1) Home Office
2) CLEP central team
3) Finance
4) Development teams
5) Buying Organisations
6) Suppliers
7) The Forces

- Many service attributes are delivered in a 'self-service', technology enabled manner
- Customer focused technology enables an efficient and consistent service – making info available on-demand, so they get what they need, and know what to expect

- When technology doesn't provide the solution, the team acts as an internal consultancy, providing expertise, insight and advice
- High levels of service to Forces, providing routes to market, and giving them access to the best p/kWh

Brand – what famous for?
- A world class energy team within government
- Has expertise, and is a loud voice in government (knows its limits)
- Represents all police forces
- Is famous for great cost control leveraging suppliers and routes to market

Key strategic operations

Price risk management
- In conjunction with a preferred supplier, operate effective price risk management - risk modelling, daily monitoring of markets and timely trading enables– achieving upper quartile performance

Energy operations
- Manage energy and renewable contracts, monitoring billing, cash flows, metering, data and contracts
- Work with internal customers to ensure revenue stream
- Manage customer operational delivery, and minimise commercial risks

Customer management
- Manage customers using consistent, repeatable and streamlined processes - so they get what they need, and know what to expect
- Both 'push' info to customers, and make other info easily available on-demand – in a self-service way that minimises the need for resource

Adapt to an ever changing market
- Constantly monitor the energy market, energy prices and regulatory changes
- Proactively participate in industry discussions and debate

People perspective

Culture
- A risk management culture, de-risking the overall exposure
- CLEP- one group approach
- Make best use of people's skills, giving the responsibility to act, but within a defined framework of how to operate

Skills
- Key skills for the team: teamwork, communication skills, customer focus, change management and commercial acumen
- Use third parties to access skillsets either not affordable or attainable in-house

Technology, knowledge & management systems
- Leading edge, user friendly systems to free up resources
- A single system to 1) collect and allocate consumption and production data, and integrate with financial data, 2) run reports, and 3) manage trades
- Subscribe to external news flows and forward curves to monitor the market

A motivated and prepared team

THE ENERGY MANAGEMENT STRATEGY MAP

Strategic objective – coordinated and sustained savings across the 43 forces under CLEP

Vision & mission

Vision
- CLEP, and the 43 forces under it, engage in strategic energy saving activities in a coordinated and sustained manner to facilitate ongoing reductions in energy consumption across the estate in a way which is complimentary to, and does not negatively impact on, daily operations

Mission
- Achieve X%* savings across the CLEP estate by 20XX* and thereafter sustain savings of X%* on an annual basis (*to be defined by CLEP)
- Make Energy Management an innate part of each force's strategic operations
- Develop CLEP-wide Energy Management structures and standards to ensure forces-wide efforts are based on the correct financial (i.e. ROI), technical (i.e. technology) and operational (i.e. timing) criteria

Customer perspective

Project selection – quality & price
- Facilitate sustained savings for the forces without compromising daily operations or relying on behavioural actions
- Link with maintenance projects and account for changes to the estate
- Authorised by CAPEX & Energy Committees - acceptable ROI and qualifies for funding (SALIX)

Speedy fulfilment & on-time delivery
- Speedy delivery of project from concept inception to implementation
- Project completed in line with project timeline as authorised by the CAPEX & Energy Committees
- Implementation does not interfere with delivery of operational activities

Strategic relationships
- Within each force across departments (Estates & Maintenance, Finance and Sustainability)
- Between forces to share knowledge and experience
- With the CAPEX Committee and Energy Committee
- With suppliers, consulting third parties and funding bodies

Finance perspective

Growth strategy
- Money saved from projects reinvested to fund new projects and drive further savings
- Make use of previous projects' performance reports to optimise cost/funding structure and inform/persuade widespread adoption of projects

Productivity strategy
- Streamlined "project application and implementation" processes
- Make use of external funding (i.e. SALIX Finance Ltd.)
- Select and plan projects based on ROI assessment

Key strategic operations

Project selection & implementation
- Comprehensive process for identification, selection and scheduling of energy saving projects
- Consideration for trial/pilot projects by looking at project performance reports
- Planning and resource allocation
- Linking with BMS

Project monitoring & reporting
- Assessing the success projects have in line with what is expected in terms of savings achieved vs savings expected
- Make use of BMS to quantify performance
- Use results of monitoring to report on success of project
- Develop reports to act as reference for future similar projects

Relationship management & external stakeholder engagement
- Engaging with CAPEX & Energy Committees as well as with external third parties (suppliers, consultancies etc)
- Sharing experiences across forces
- Engaging within forces across departmental areas

People perspective

Culture
- Proactive attitude to identifying, assessing, implementing, monitoring and reporting energy saving opportunities
- Desire to innovate and take ownership of energy saving projects and initiatives
- Team work - willingness to work across functional areas (Operations, Estates & Maintenance)

Skills
- Financial modelling (e.g. ROI, budgeting)
- Technical understanding (e.g. BMS)
- Relationship management (e.g. intra and inter force)
- Planning and resource scheduling (e.g. project timelines)
- Communication - reporting and monitoring (e.g. project performance reports)

Technology, knowledge & management systems
- Building Management Systems (BMS) integration
- Outsourcing/contracting of equipment/technology
- Equipment/technology examples - LED lights, motion sensors, BMS, temperature/light sensors
- Understanding of the importance of non-behavioural dependent initiatives and projects
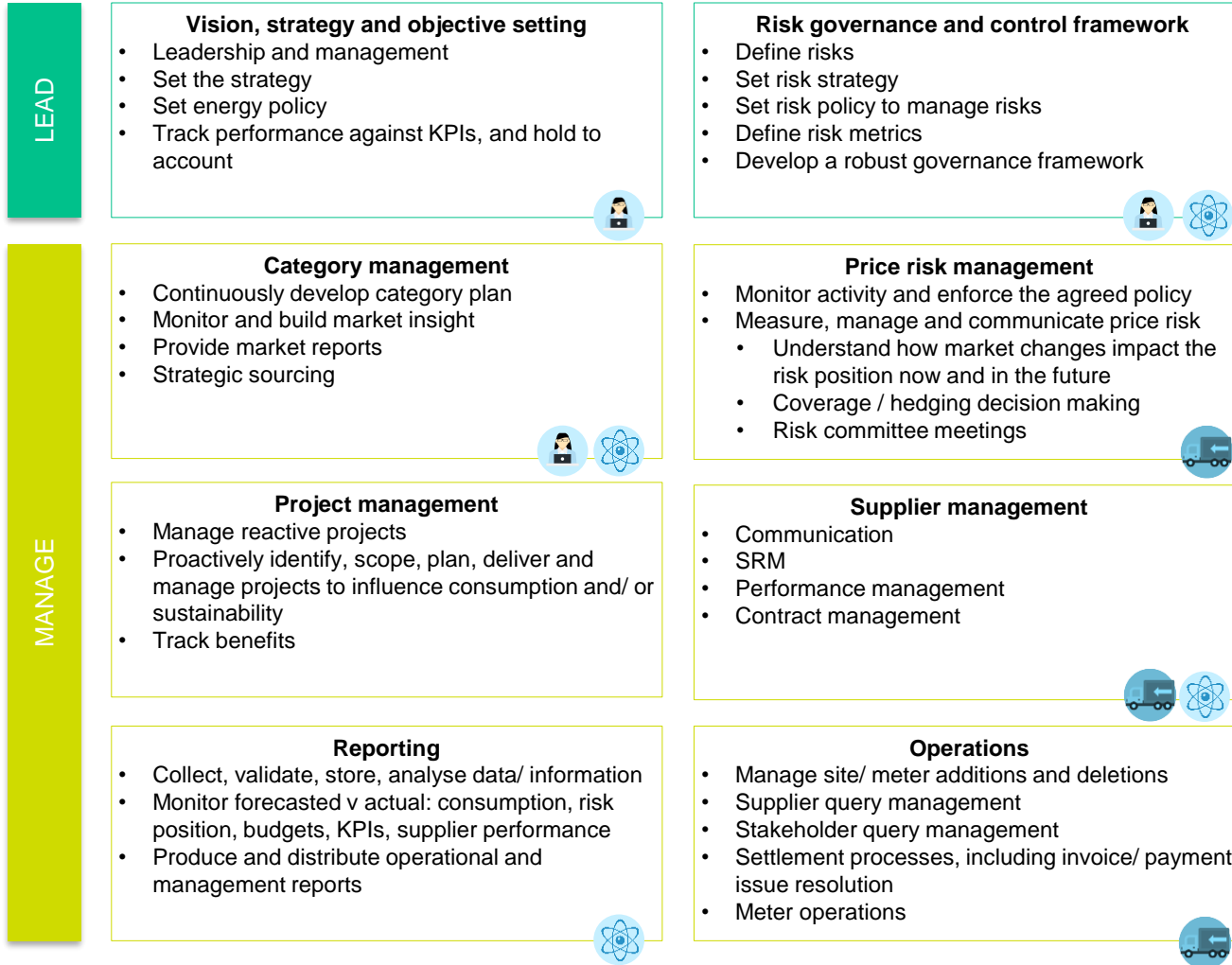- Management systems for project planning

A motivated and prepared team

THE ENERGY MANAGEMENT EVOLUTION

CLEP's journey to excellence

The Energy Management journey

Control/coordination of projects across the CLEP estate

Excellence

Leading

Today

Digitisation

- AI and patterns of energy consumption drive projects for the future
- Apps for tracking projects/performance at local level

- Centralised repository of projects, performance, suppliers etc,
- No centralised repository for forms/data; no automation

- CLEP has control over sign-off of projects
- Projects are coordinated in alignment with strategy

- CLEP has some input via frameworks
- CLEP-wide strategy developed

- Forces identify and select

- Ownership is only at force-level

Commercial Oversight

- Savings achieved via Energy Management are tracked within the energy contract
- Concept of achieving savings is built into budgeting
- None – Energy Management efforts are "lost in the noise"

- Energy and CAPEX Committees are active
- CLEP and Home Office are proactively invested and engaged

Integration / acting as one company

- Fragmented; not group-wide
- None – CLEP oversee

- Amount of energy saved across CLEP is quantifiable (kWh, therms)

- Key project sponsors - show progress and savings analysis

- Energy Management process is linked with statutory carbon reporting requirements

- Home Office buy-in creates – framework across all sites

Monitoring & reporting

Executive buy-in/ Governance

Metaphor

WHAT DOES GOOD UTILITIES MANAGEMENT LOOK LIKE.

Effective utilities management requires a structured approach with clear delineations of responsibility

LEAD

Vision, strategy and objective setting
- Leadership and management
- Set the strategy
- Set energy policy
- Track performance against KPIs, and hold to account

Risk governance and control framework
- Define risks
- Set risk strategy
- Set risk policy to manage risks
- Define risk metrics
- Develop a robust governance framework

MANAGE

Category management
- Continuously develop category plan
- Monitor and build market insight
- Provide market reports
- Strategic sourcing

Price risk management
- Monitor activity and enforce the agreed policy
- Measure, manage and communicate price risk
  - Understand how market changes impact the risk position now and in the future
  - Coverage / hedging decision making
  - Risk committee meetings

Project management
- Manage reactive projects
- Proactively identify, scope, plan, deliver and manage projects to influence consumption and/ or sustainability
- Track benefits

Supplier management
- Communication
- SRM
- Performance management
- Contract management

Reporting
- Collect, validate, store, analyse data/ information
- Monitor forecasted v actual: consumption, risk position, budgets, KPIs, supplier performance
- Produce and distribute operational and management reports

Operations
- Manage site/ meter additions and deletions
- Supplier query management
- Stakeholder query management
- Settlement processes, including invoice/ payment issue resolution
- Meter operations

Third party possibilities

- Consultants/ advisors
- Managed service
- Technology

8

VALIDATION/IMPLICATIONS ON FORCES

The sales pitch to forces should be as follows:

Q: Why this strategy?

A: CLEP believe that we should centralise many parts of energy category management, in order to set up the right strategy for the future and ensure that long term savings are delivered across all forces.

A: The current approach is no longer fit for purpose given the changing way in which forces use electricity and the way the energy markets are changing. CLEP will lead in ensuring that all forces have the opportunity to set and deliver better savings for the long term.

Q: How much, and via what mechanism do we think our current providers get paid? We need to reference what we believe to be the charging model so we can assess margins etc.

- The buying organisations get paid by a combination of meter points, or volume. Our estimate (and it is only an estimate) is that CCS are being paid ~£120k p.a..

- Suppliers we don't know the data was not forthcoming – however, we believe that the management fee will be small and reasonably competitive.

- Proxima's view is you have a reasonable "bureau service" from the buying organisations but they are providing little added value. You need to separate out what the buying orgs do, get SLA's, management information and a programme for good SRM in place.

This all suggests that there is significant value (£2.5m to £12m) to be had from a restructure. How much of this saving you achieve is down to your appetite for change.

Q: **How much resource, in day/monetary terms can we place against the next steps?**

- We have not changed the resource plan associated with this.

- Proxima will require 40 days – 50days to complete this work.

- We believe that you will augment this resource with a further 44 days.

Q: Why as a force should I partake?

A: The opportunities for savings and sharing of knowledge will enhance the way in which this category is managed.

A: Energy is commoditised, and the CLEP programme is designed to deliver significant savings through better management and operational delivery of this category. This will mean that we are working towards a centralised budget for all utilities spend with key champions designed to implement energy savings projects across the forces.

Q: Are we mandated to have to accept this new way of working?

A: *This needs to be decided by CLEP.*

Q: **Will there be a need for changes to jobs and the way people work locally?**

A: At this stage it is envisaged that there will be no need for job cuts and that staff will

SIZE OF THE PRIZE

Its difficult to assess the value of the savings with the lack of commercial data presented by the buying organisations. However, our estimates based on category insight suggest the following is attainable

Strategy – Total Spend ~ £50m

Saving
5%-25%

Price
- Risk and Governance
- Price Risk Management

Saving Estimate – 2.5%-10%

Price
- Centralised co ordinated risk management approach
- Long term view on market prices
- Reporting of wholesale prices and non-commodity prices will be separated
- Risk profile developed in line with budgets
- Co-ordinated response in conjunction with suppliers

Volume
- Projects
- Category Management

Saving Estimate – 2.5%-10%

Volume
- Define projects which lead to reductions in energy consumption
- League table production from central source pushing data to inform energy management plans
- Unite energy management strategy (as previously defined) into overall energy strategy
- Work with finance to create capex budget for energy consumption programmes
- Leverage FM suppliers

Operations
- SRM
- Operations/Bureau Services

Saving Estimate – 0%-5%

Operations
- Defined scope centrally, with co-ordinated approach across all forces.
- Work with preferred suppliers to meet overall strategic aims
- Reduce micro management and localised management
- Outsource key bureau services and unite suppliers and BO's to deliver KPI's and SLA's as defined within the strategy.
- Build drumbeat of performance

NEXT STEPS

The current set up is unlikely to yield long term savings and strategic and structural change is required

1. Agree preferred strategic option – CLEP sign up to new ways of working

2. Agree implementation plan
   - Identify stakeholders across all forces
   - Inform BO's that a change of approach is coming
     - Create tender scope for Suppliers
     - Create tender scope for bureau services
   - Create and setup structures which include new ways of working
     - Risk Committee meets
       – Set up risk metrics and how success/failure will be measured
     - Agree key stakeholders and influencers
   - Choose preferred suppliers – Contract and set up new terms
     - Identify migration process with forces
   - Choose preferred bureau service provider
     - Identify migration process with forces

3. Set up tracking of delivery beyond April 2019

APPENDIX C

BlueLight
Commercial

Proposal for LASER's Zero Carbon Services: BlueLight Commercial

15 March 21

Table of Contents

Executive Summary

Following our discussions LASER have tailored our Zero Carbon Service offerings to meet our understanding of Blue Light Commercial's requirements. If however you have any questions or require any alterations then we would be happy to discuss this.

This proposal details two levels of service, one High Level Analysis giving a carbon footprint, forecast of emissions to 2050 and a model for the potential impact of a standard set of actions including a brief report to summarise outputs. This is designed to be carried out for numerous forces to provide horizontal coverage across the Force as a whole.

The second level is a Deepdive Analysis which would then provide the vertical coverage by carrying out an in depth exercise for any interested Forces. This is a bespoke service that, in addition to the High Level Analysis, will include a scoping exercise, consideration of a wider range of emissions sources and an options appraisal workshop to gather detailed information on current, proposed and potential projects. The output from this would be far more detailed and LASER would work with the individual Force to create up to 4 separate scenarios to allow them to assess the impact of different courses of action on emissions as well as finance. This output includes high level cashflow modelling in addition to modelling of emissions and the Force will receive a Carbon Descent Plan; a substantive document providing background, details of the process and insight into the carbon footprint, forecast, actions, pathways, offsetting, green energy, finance as well as numerous other areas.

In the Proposal Outline below you will find a top level summary of each option including Scope of Works, Coverage and Costings. Further information regarding each option is provided in the Proposal document.

Proposal Outline

	High Level Analysis	Deepdive Analysis
Output	Standardised for all Forces	Bespoke per Force
Scope of Works	Standardised: Data Collection Carbon Footprint Forecast Pathway/Forecast with Actions Output Report Summary Report for BlueLight	Bespoke: Stage 1 - Footprint & Forecast: Scoping, Data Collection & Carbon Footprint, Forecast Stage 2 – Options Appraisal: Meeting/Workshop, Modelling of Scenarios, Tailoring Stage 3 – Carbon Descent Plan: Substantive Report, Strategic Options Appraisal, Findings & Recommendations
Standard coverage	Electricity, Gas, Road (Diesel & Petrol & Electricity), Grey Fleet	As per Force requirement
Optional coverage	Water, Waste & Liquid Fuels (chargeable)	As per Force requirement
Standard Costings (exc VAT)	£9,000 per Customer	Up to £25,000 per Customer
BlueLight Proposal Costings (Exc VAT)	Fixed Fee of £8,945 plus £1,500 per Force	Bespoke, ranges from £16,000 to £21,000

Introduction

In 2015, the EU and 196 nations signed on to the first truly global commitment to address climate change, namely the Paris Agreement. The aim of this was to limit global warming well below 2°C and in pursuit of 1.5°C.

On 27th June 2019, the UK became the first major economy to pass a net zero emissions law which required the UK Government to bring all greenhouse gas emissions to net zero by 2050. Following this, a number of other public bodies determined to take action of their own. Many declared a climate emergency with net zero target dates following for the majority of these.

Since that point, on the 12th December 2020, the UK government announced its target to reduce emissions by 68% by 2030, compared to 1990 levels. This is termed the UK's NDC (National Determined Contribution) to the UNFCCC (United Nations Framework Convention on Climate Change) as committed to in the Paris Agreement and meets the recommendation made by the CCC (Climate Change Committee).

As of October 2020, around 75% of councils across the UK had declared a climate emergency*, with the majority of these setting target dates to be carbon neutral either for their own operations or across their area as a whole. Numerous other public bodies have also made declarations or are putting plans in place to begin this transition. For Police Forces, the level of ambition and action is understood to vary significantly.

BlueLight Commercial are now looking to take positive action to understand their current position in relation to their commitments and look to formulate a strategy to set and achieve targets and objectives. LASER hope that the services outlined in this proposal will constitute vital steps in the early stages of this journey.

LASER believe that we, and in particular our Zero Carbon Team, are uniquely well positioned to assist BlueLight Commercial in their aims of providing an insightful, high quality and valuable service to their customers.

LASER's expertise in conjunction with compliant frameworks means that we are well equipped to not only assist in the carbon footprint and planning stages but are also able to offer compliant procurement routes to support public bodies through the buying of green energy and in the implementation of emissions reduction projects and initiatives.

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* Declare a Climate Emergency | Go Zero Carbon by 2030

High Level Analysis

Aim

The different stages of the proposed service are set out in the section below and are designed to give individual Forces a better understanding of their carbon footprint and emissions, both now and into the future. It will give them insight into the scale of the challenge facing them and the potential impact they can have on their emissions.

The Footprint and Forecast will provide participating Forces with a view of current emissions and allow them to compare the significance of different emission sources at the current point in time and into the future. The Pathway will provide a theoretical course of action which will allow Forces to see the impact of an indicative set of carbon reduction options on their emissions in the short, medium and long terms. This will be based upon a set of assumptions agreed between LASER and BlueLight Commercial. A short report will be provided summarising the findings of all forces summated and drawing out any unexpected noteworthy differences.

There will not be an organisational boundary or scoping exercise provided for each individual force within the high level exercise. LASER will provide some guidance around which sites/entities to include/exclude but data for each Force will be provided as a single figure for each emissions source. We have also not made allowance for any meetings or direct communication with individual forces.

The footprint will include gas, electricity, road fuels, and grey fleet and data will be provided by Blue Light Commercial in the following format:

Emissions Source	Data Format	Fee
Electricity	Σ kWh	Standard
Gas	Σ kWh	Standard
Road Diesel	Σ litres	Standard
Road Petrol	Σ litres	Standard
Road Electricity	Σ kWh (not inc in above)	Standard
Grey Fleet	Σ miles (assume average cars)	Standard
Water	Σ supply litres (sewerage will be assumed at 90% of supply volume)	£350 per Force
Waste	Tonnes by category (template provided)	£550 per Force
Heating oil / generator fuel / wood pellets / biomass	Σ litres/tonnes of fuel as relevant	£350 per Force

Data Collection

LASER will provide a data collection template in line with the table above and explanation to facilitate the process. Data will be collected by Blue Light Commercial and returned completed to LASER in the agreed format.

For each Force where completed data is obtained LASER will provide the following elements.

Carbon Footprint

Once all applicable data has been collated, LASER will carry out analysis and convert them into equivalent quantities of emissions. LASER will provide a breakdown by:

- emissions scope (as defined by the GHG Protocol)
- emissions source (each individual contributor)
- sector (buildings, transport and/or operations as agreed)

This will give the Forces insight into their emissions and enable them to see which operations and emissions sources are most significant. It allows comparisons to be drawn across operations, sectors, scopes and individual emissions sources. This stage is generally extremely thought-provoking as it gives an easy understanding of a Forces' emissions that may not have previously been available.

Forecast

The forecast takes into account factors such as the diminishing emissions associated with electricity generation in order to provide visibility of how emissions would naturally change over time without any significant action being taken by the Forces. This proves to be an interesting exercise as it highlights how the carbon footprint could be comprised in the longer term and which emissions sources might prove more difficult to abate over that period. This is sometimes referred to as a BAU (Business As Usual) Scenario.

This exercise can also acts as a gap analysis, showing the scale of the reductions required to meet any commitments that have been made. Furthermore the forecast provides the baseline against which LASER will model potential actions to reduce emissions going forwards

Pathway / Forecast with Actions

LASER will build a model to assess high level action and impact of a uniform set of agreed actions for each Force to be included. This set of actions and the scale of these actions will be agreed with BlueLight Commercial at the outset of the project and will be applied to all Forces. As an example, they could include:

- Switch to EV
- Reduced mileage grey fleet
- Assumed movement of grey fleet to EV
- Switching building heating to heat pumps and upgrading insulation
- Installing LED lighting
- Installing rooftop PV
- Green electricity procurement options

It should be noted that although estate rationalisation has a great bearing on estate emissions and potential projects this will not be built into this high level model as it is likely to be bespoke for each Force.

Output Report

Each force will receive a brief output report which will be a short document containing the following elements (an example of this report will be provided with this proposal) :

- Carbon Footprint – 3 pie charts as defined above
- Forecast – 3 bar charts providing breakdown of emissions to 2050, categories as per the carbon footprint.
- Pathway / Forecast with Actions
  - o Chart showing impact of agreed set of carbon reduction options on emissions
  - o Chart showing high level assessment of cashflow implications of agreed set of actions
  - o Detail of actions, assumptions, caveats etc.
- Summary – there will be a brief summary which will be bespoke for each Force. This will provide commentary on the charts and actions, drawing out the key points and takeaways from the exercise.

In addition to this BlueLight Commercial will receive a project summary document highlighting important information and findings, key takeaways and potential next steps.

Deepdive for Specific Forces

The High Level Service will give good overview for each Force and to complement this work LASER are proposing that a Deepdive Service is provided for one, or a handful of individual Forces. As well as being beneficial to the individual Forces for whom this exercise is carried out, it will also provide great context and further considerations when assessing the outputs of the High Level Service that will add value for BlueLight Commercial.

In addition to the High Level Service the Deepdive Service has key benefits such as a high level cashflow analysis and creation of up to 4 scenarios to demonstrate the impact of a number of different courses of action on emissions and finance. As well as these benefits, the Deepdive Service would include a full scoping exercise, specific analysis of emissions sources and specific consideration of targets, commitments, action planning etc. An Options Appraisal stage including a workshop will ensure that the modelling and outputs are tailored to the customer.

Footprint & Forecast

This first stage of the project will be broken down into 3 separate exercises as follows:

- **Scoping Exercise** – the aim of the scoping exercise is to ensure that all relevant parts of the organisation and operations have been considered and handled appropriately. This will allow LASER to determine which emissions for organisations, operations and assets should be included within the scope of the project. This is done in line with the global GHG Protocol and the steps taken and decisions made will be recorded to demonstrate that the process has been carried out in line with the protocol. As well as assessment of the organisational structure, this will include consideration of outsourced services, operations and Scope 1, 2 and 3 emissions sources as defined by the GHG Protocol.

  Input will be required from the Force in confirming the extent of the organisation and operations and helping to determine how the chosen consolidation approach can be applied to the organisation. It is likely that the Finance Team will be best placed to assist in this process. LASER may choose to conduct this exercise in a meeting or workshop format if deemed appropriate following initial discussions. All decisions made will be recorded to ensure that there is a firm record of both decisions and reasoning.

- **Data Collection and Carbon Footprint** – following the confirmation of the scope, LASER will work with BlueLight and/or the Forces to gather the data required. LASER are able to

define the data required and provide templates and guidance where possible but may rely on BlueLight personnel to provide data that LASER do not hold already. LASER will monitor the data collection to ensure that all relevant emissions are included and provide an assessment of the data quality both for information and also to guide improvements in collection processes and data quality in future years.

Once all applicable data has been obtained, LASER will convert it into equivalent quantities of emissions and display this data in a number of different formats to provide insight into the data. This will enable the Force to see which operations and emissions sources are most significant and allow comparisons to be drawn across operations, sectors, scopes and individual emissions sources. This stage is generally extremely thought-provoking as it gives an easy understanding of an organisations emissions that may not have previously been available.

- **Forecast** – the forecast takes into account factors such as the diminishing emissions associated with electricity generation in order to provide visibility of how emissions would naturally change over time without any significant action being taken by the Force. This also proves to be an interesting exercise as it highlights how the carbon footprint could be comprised in the longer term and which emissions sources might prove more difficult to abate over that period.

  This exercise acts as a gap analysis, showing the scale of the reductions required to meet commitments and consequently the forecast provides a baseline against which LASER can model emissions reductions going forwards.

The output of this stage will be graphical representation illustrating the current position and future position, broken down by emissions source, in a business as usual scenario.

Options Appraisal

Once the initial footprint and forecast has been completed, LASER will work with the Force to understand the specific situation and appetite with the aim of generating a list of potential projects that could be implemented to bridge the gap between any target and the current trajectory. As part of this process, LASER would run a workshop to discuss current and potential projects, different technologies and other important factors such as estate rationalisation, green energy procurement options and large scale renewables.

LASER would then build these different projects and initiatives into our model, along with wider industry assumptions to demonstrate the cumulative effect of the chosen options. The long term

effect on emissions of each initiative would be assessed and projects added or prioritised according to the results of this analysis.

LASER can utilise our experience from first hand work done with other public sector customers to advise on potential carbon reduction projects and assist in realistic modelling of costs and impacts. This includes rooftop solar, ground mounted solar, LED lighting (including car parks and streetlighting), battery storage, Green Energy, Power Purchase Agreements (PPAs) and moving to electric vehicle fleets. It should be noted that for other projects LASER may require input in order to estimate costs and savings or this may constitute a separate exercise outside of the scope of this proposal.

The modelling would undergo a number of iterations, building in different projects and options, assessing impacts, costs and carrying out gap analyses to compare the cumulative impact of the projects against the targets/budget. At each stage we would identify other key carbon reduction opportunities and/or increase the scale or range of projects accordingly.

A key advantage of LASER's approach is the ability to generate a number of varying scenarios based upon the same central model, for example we can help to demonstrate the impact on carbon emissions and energy costs of different levels of estate rationalisation or create separate scenarios for a handful of different strategic approaches. LASER's high level financial profiling which also forms an important part of this modelling has proved extremely popular and these facets can significantly help to inform decision making and strategy. The graphical output from this modelling is very powerful and can be taken to senior officers or members to explain the work that has been done and the proposed approach.

Carbon Descent Plan

This stage involves the generation of substantive, formal document which pulls together and expands upon all of the steps detailed above as well as setting out LASER's findings and recommendations stemming from this work. The plan will also provide background, both scientifically and politically, details of the project methodology and references where appropriate.

Ambitions can also be detailed along with an action plan determined following the Options Appraisal and targets for the future if so desired.

The output of this stage will be an extensive report including graphical representation of the scope, footprint & forecast and modelling of different scenarios along with pertinent commentary. This document takes readers through the process in a clear and logical way, setting out the work and findings in a manner that can be easily digested. It provides evidence of progress along with

reasoning behind any decisions made and provides a robust and considered base from which the Force can move forwards.

Summary of Deepdive Service

Stage	Description
Footprint & Forecast	Advising on organisational boundary and scoping, potential data sources
	Checking and processing of data
	Production of carbon footprint
	Production of forecast showing future emissions in Business as Usual (BAU) scenario to 2050
	Analysis, break-down and communication of results to identify and illustrate the relative significance of each emissions source at present and into the future. Grouping to display the significance of different operations or undertakings. Follow up and further breakdown as required
Options Appraisal	Initial meeting or workshop with officers, follow up and proposed selection of initial projects for modelling
	Modelling of impacts on emissions and finance of different projects and interactions of projects under a number of different scenarios (up to 4), modelling of industry changes and assumptions
	Communication, subsequent iterations of models to tailor to requirements and preferences
Carbon Descent Plan	Generation of substantive, formal document setting out and detailing the work done to date. The plan will also provide the background, detail the methodology and give references
	Document details and provides explanation of different potential strategic options available to achieve net zero, including both direct carbon reduction options and green energy procurement
	Details findings and recommendations stemming from the project

Fees

For the provision of the High Level Service LASER would charge a fixed fee of **£ 8,945** plus an additional fee of **£1,500 per Force**. Some Forces may wish to include additional emissions sources over and above the standard set and the cost for these are detailed in the table below (as per the High Level Service section above). Please note that all fees are exclusive of VAT.

Emissions Source	Fee
Water	£350 per Force
Waste	£550 per Force
Heating oil / generator fuel / wood pellets / biomass	£350 per Force

For the provision of the Deepdive Service, LASER would charge in the range of £16,000 and £21,000, depending on scope. There are also additional service option that Forces may like to consider detailed in the next section. This service could be provided for one or more Forces as desired.

If you have any questions regarding anything contained within this proposal then please get in touch.

Assumptions:

- It is assumed that the BlueLight will be responsible for ensuring data is provided to LASER in a timely manner.
- Any additional emissions sources for inclusions will need to be agreed before project commencement.
- This piece of work is designed to provide an insight into current and potential future emissions and inform decision making at a strategic level. Modelling is carried out at a portfolio level based upon assumptions and industry rules of thumb and LASER do not, for example, carry out surveys of buildings and therefore rely upon the customer to provide any building specific information to be built into the modelling.

Timescales

We anticipate that production of the high level model will require 4-5 weeks from date of Order. Once the model is produced, data entry, modelling and report production will require 3 days per force plus 5 days for the final summary. We would anticipate the high level exercise for around 30 forces could be completed in 20 weeks. The timeline can be firmed up once we have a clear picture of the number of Forces participating and the data collection process.

Timescales for the deep-dive are harder to define because they are more dependent on availability and engagement of staff at the customer Force. Typically the full exercise takes between 3 and 6 months.

Additional Options

The following piece of work is not included within the scope of this proposal however LASER would be happy to provide a separate quotation if that would be of interest:

Stage	Description
Science Based Targets & Pathway	Generation of bespoke report to provide a science-based carbon budget in line with the Paris Agreement, aimed at limiting global temperature rises to "well below 2°C and pursuing 1.5°C". Quantifies a "fair" contribution to emissions reductions and defines pathway This element starkly demonstrates the extent of action needed and includes comparisons with current emissions and trajectory
Supply Chain (Purchase Ledger) Analysis	A high level screening report to understand associated carbon emissions from upstream activities within the supply chain. Using Environmentally-Extended Input-Output (EEIO) models and spend with suppliers, this report screens emissions and assesses significance and materiality in relation to the Council's indirect scope 3 emissions.
Senior Officer Engagement	Interactive engagement workshop to gauge attitudes and priorities of senior officers. Feedback gathered to evidence findings. Allowance for attendance and provision of updates at 3 meetings or working groups. Additional meetings can be attended at an additional cost.
Refining and Presentation of Chosen Scenarios	Refining of final model and presentation to members/senior management, generation of output, comment, communication and follow up (shorter output in LEIU of CDP)
Refining model with Finance Team	This element allows time for LASER to work with the force Finance Team to ensure that they have a good understanding the model outputs. LASER can refine financial outputs to ensure that they meet the Finance Team's requirements. As well as encouraging engagement and buy-in, this ensures that the modelling is widely understood and all parties have confidence that they can utilise the outputs.

LASER's Zero Carbon Services

LASER has extensive experience in assisting our wide public sector customer base to reduce, monitor and report on their ongoing consumption of energy and related carbon emissions. This experience ideally positions us to guide you through the process and assist you in both preparing and implementing a response to your organisation's climate emergency declaration.

The steps below outline our recommended process to progress towards achieving your targets:

1. **Footprint & Forecast**

   Define, scope and quantify current emissions and forecast a future trajectory.

2. **Options Appraisal**

   Present the options to bridge the gap between the current trajectory and the Climate Emergency target.

3. **Carbon Descent Plan (CDP)**

   Provide extensive document detailing background, scientific context and action plan.

4. **Implementation**

   Manage or support delivery of the Carbon Descent Plan.

5. **Annual Reveiw**

   Monitor progress, provide an annual footprint, report and update of plan.

LASER is uniquely placed to assist you on this journey as we have the experience, technical expertise and understanding of the public sector to advise you and ensure the accurate production of the initial carbon footprint and forecast of the ongoing path of your GHG emissions. We can help you appreciate the scale of the commitment and work with you to tailor a plan that is suited to your authority's situation environmentally, geographically, socially, financially and politically. Our experience of public sector machinations ensure that our outputs will be designed for all parties including officers, senior officers and members.

Key People

Name	Description
Steve Marks Carbon Strategy Lead	Steve has a strong background in energy and carbon management having worked in the industry for over a decade after graduating from Loughborough University with a degree in Business, Economics & Finance. He has worked as an Energy Engineer for Schneider Electric and as a Carbon & Compliance Manager for ENGIE. Throughout this time Steve conducted energy surveys across a wide range of sectors and has also dealt with numerous environmental schemes including CCAs, EUETS, GQCHP, CDP, CRC and ESOS. Steve is a CIBSE Low Carbon Consultant and remains an accredited DEC Assessor and ESOS Lead Assessor. Steve managed LASER's team of Energy Surveyors and has led LASER's response to assist the public sector in addressing the climate emergency declarations and carbon net zero targets enacted by many authorities.
Helen Cartledge Zero Carbon Advisor	Helen has over 10 years of experience within the energy industry, having worked in the marine, timber, gas and electricity sectors. Helen procured fuel for the fleet at P&O Ferries and researched alternative fuel types and technologies to help reduce carbon emissions. Helen has also worked for a national timber company and in energy procurement and undertaken a carbon reduction project for a local charity, identifying financially advantageous sustainable power alternatives.
Andy Morgan Head of Energy Management	Andy has over 25 years' experience in energy efficiency and procurement since graduating as an Energy Engineer. He has previously worked for Matthew Hall, procuring energy and operating EPCs for large clients, and the City of London Corporation, taking responsibility for saving and procuring energy for the City portfolio. Now Andy manages LASER's Bureau Services, LED Lighting Services and other energy management and water services. As a CMVP, Andy is expert in handling and analysing data and also specialises in energy efficiency, renewable energy, energy supply markets, energy industry infrastructure and Government energy policy and schemes.

Company Background

LASER Energy Buying Group was formed in 1989 by Kent County Council (KCC) with the aim of assisting Local Authorities and other public bodies to benefit from lower energy prices through deregulated gas and electricity markets and to offer management services that focus on reducing energy spend, saving time and hassle for our customers.

LASER Energy has grown to become one of the leading energy procurement and energy management service providers in the UK. Today our mission is to deliver unique end-to-end solutions to our customers helping reduce energy costs, manage market risk and provide OJEU compliance in an increasingly volatile market.

LASER's success and reputation has helped it to grow organically to its current position serving 200 public sector customers and buying in excess of £500m of energy per annum. We work with a large number of public sector bodies including NHS Trusts, Blue Light Services, Universities & Colleges, Local Authorities and Housing Associations.

Terms & Conditions

These standard terms and conditions form part of the Agreement.

Version 0.2 3/12/2020

1.   Prior to the commencement of any project, LASER (the "Service Provider") and the Customer shall agree on the scope, timing and associated fees of the project.

2.   Assumptions, analysis and recommendations made by the Service Provider during or as a result of the project apply specifically to the Customer's circumstances at the time of the project unless specifically stated otherwise by the Service Provider.

3.   Any project reports, papers and documents (either in print or electronic media) and software that are provided by the Service Provider to the Customer during the project are prepared specifically for the agreed scope of work and the Service Provider shall own all right, title, and interest in such materials. The Service Provider grants the Customer a license to use and reproduce such materials for use in connection with its internal business purposes on condition the Service Provider copyright is acknowledged.

4.   All Intellectual Property Rights in the Service Provider's Products, which includes all software and documentation developed by the Service Provider including, without limitation, the Service Provider's Tender documentation, carbon tools and web portals, will always remain with the Service Provider. The Service Provider's Products may only be used in accordance with the licensing agreements included in them, or other written agreement between the Service Provider and the Customer. All Intellectual Property Rights to any modifications to the Service Provider's Products, which may be made from time to time, shall always remain with the Service Provider.

5.   Subject to any agreement between the Customer and the Service Provider to the contrary, any extract from the Service Provider Material, which means all marketing and related material developed by the Service Provider containing descriptions of the Service Provider's Products which is published by the Customer, must contain acknowledgement of the Service Provider's copyright; and any use or promotion of the Service Provider's Products (including under another brand name) must include acknowledgement of the Service Provider's copyright.

6.   The Customer, its employees, agents, subcontractors or representatives may not use, or publish the Service Provider's logo or brand name in the public domain in association with the implementation of this project, without the prior written consent of the Service Provider. The Service Provider's logo and brand name cannot be used in a way that is misleading, likely to adversely affect the interests of the Service Provider, or that brings the Service Provider's name into disrepute.

7.   If, during the term of the project the Service Provider or the Customer discloses to the other material or information which it informs the recipient is confidential and which is not in the public domain ("the Confidential Information"), the receiving party must hold the Confidential Information in strictest confidence and not disclose or otherwise make it available or allow any of its employees, agents, subcontractors or representatives to divulge, provide or otherwise make available the Confidential Information in whole or in part to any person other than with the prior written consent of the disclosing party or by operation of law, or if it is passed into the public domain otherwise and not due to the default of the receiving party. The receiving party shall not use the Confidential Information for any purpose other than the implementation of the project and shall procure its employees to enter into a confidentiality agreement with the disclosing party in a form acceptable to that party if it so requires.

8.   The Service Provider will nominate project staff who will be assisting with the delivery of services. The Service Provider reserves the right to vary or substitute staff as necessary from time to time without prior approval from the Customer.

9.   Should the Service Provider or the Customer become aware of any matter which has changed or may change the scope or timing of the project and associated deliverables, notice will be given to the other party on the particulars of the change.

10.   The prices quoted are valid for 30 days from date of submission and the Service Provider reserves the right to review and modify its fees for projects that exceed 3 months in duration.

11.   Payment terms are 21 days from receipt of invoice. The fees payable do not include taxes, and the Customer is responsible for all value-added, sales, use, property or other taxes, VAT or any future tax which may be payable pursuant to the

fee for the services provided by the Service Provider. Where the project is greater than 1 month in duration, the Service Provider may invoice the Customer in monthly milestones until the full fees are invoiced.

12.	Where projects fees are varied due to the scope of the project changing, the Service Provider will advise the Customer in writing of the variation. The Customer's written acceptance of the variation will be treated as binding.

13.	Travel and associated meals and accommodation will be charged at cost, in addition to the project fees, unless otherwise waived in writing by the Contract Authority. Some project related expenses may be billed later than the period in which the corresponding services were rendered. These expenses may be presented in a subsequent invoice.

14.	In no event shall either party be liable for any loss of profit, savings, customers, contracts, revenue, interest or goodwill or for loss of, or loss of use of, any software or data, loss of use of any computer or other equipment or plant, or for losses or liabilities under or in relation to any other contract or for any consequential, indirect, incidental or special loss, damage or expenses.

15.	Any notice required to be served under the Agreement shall be deemed to have been delivered at the time of dispatch in the case of electronic transmission or on the third day after posting if sent by post.

16.	During the term of this agreement and for 12 months after all matters regarding the assignment have been completed, the Customer may not, either directly or indirectly, solicit or offer employment or engagement, or entice away on behalf of itself or any other person, any of the Service Provider personnel, without paying the Service Provider an engagement fee equivalent to 12 months final salary of that person.

17.	Either party may only assign its rights under this Agreement with the prior written consent of the other.

APPENDIX D

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Vehicle Fuel Mix Analysis – Electric Volumes

Electric % by Vehicle Type

Electric vehicle volumes per force
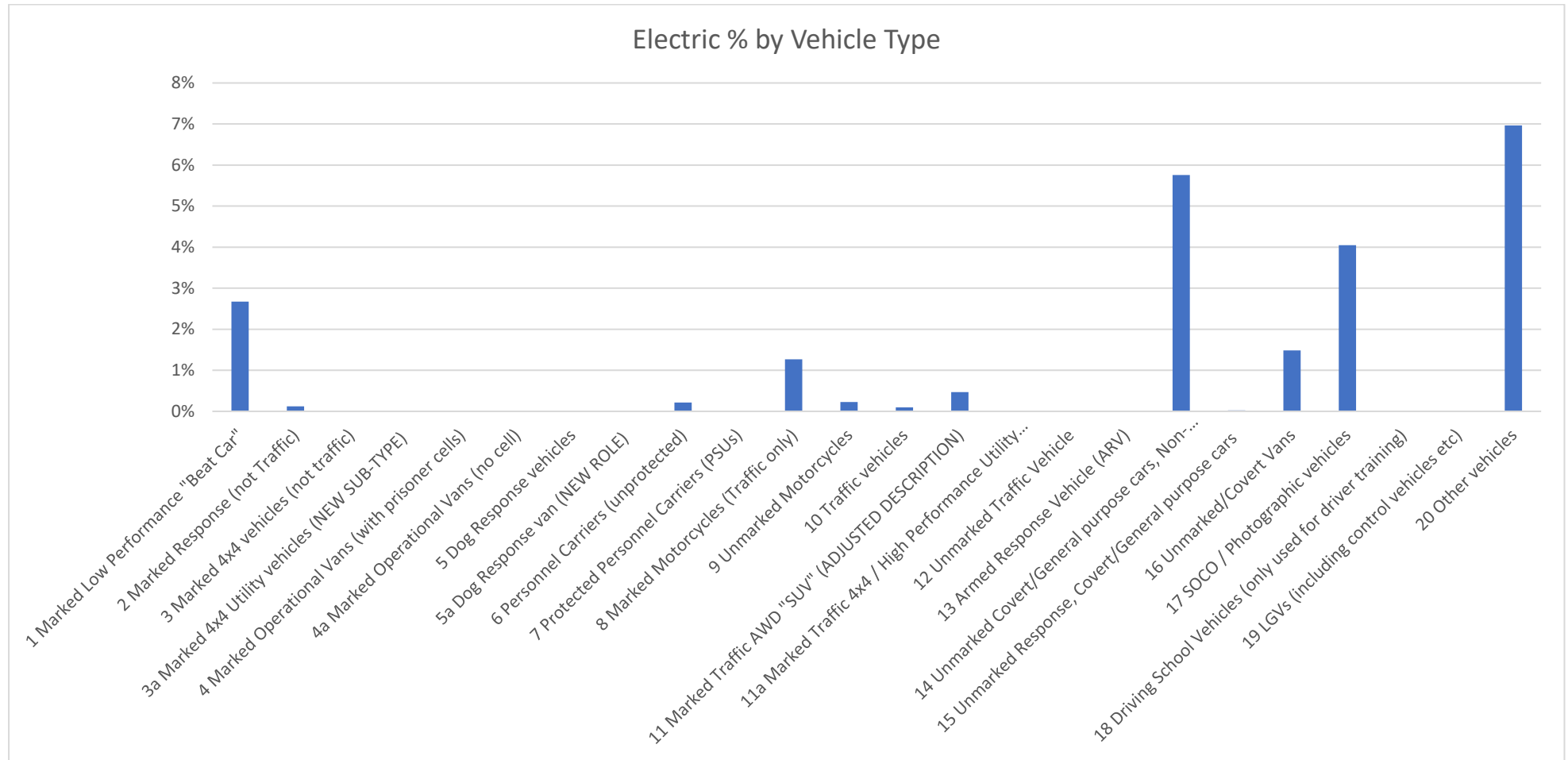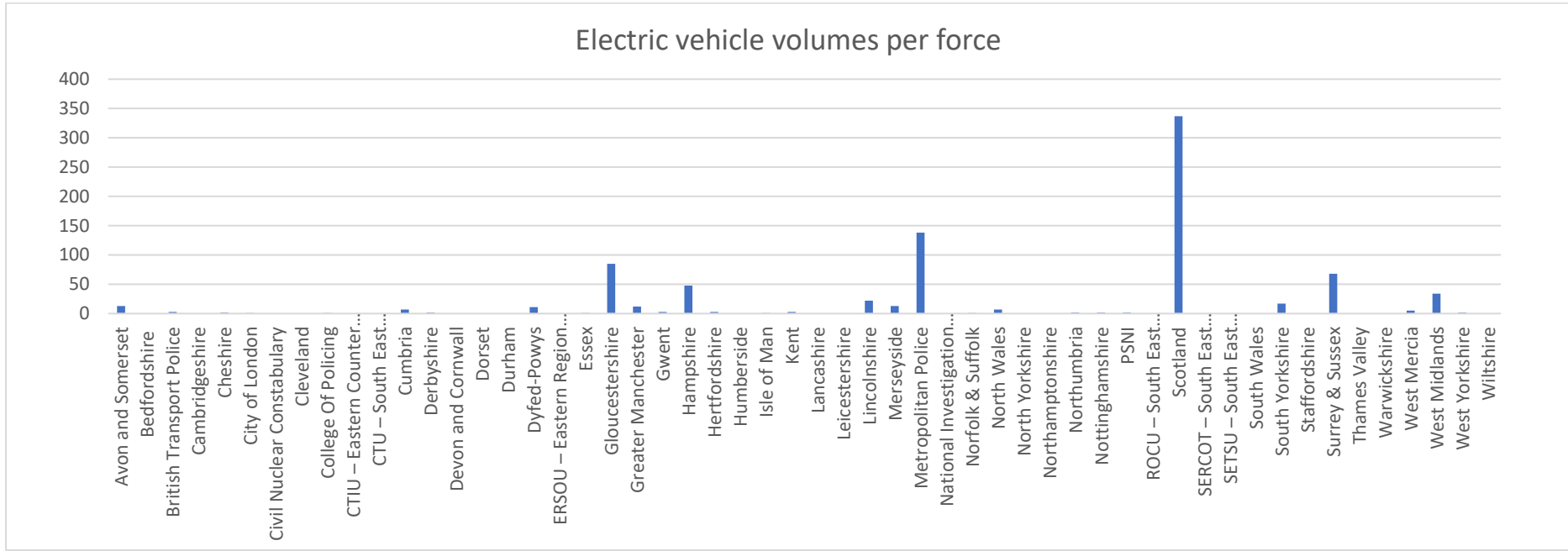
APPENDIX E

Electric Vehicle Infrastructure

May 2021

Abbreviations used

EV	Electric Vehicle
EVCI	Electric Vehicle Charging Infrastructure
EVCP	Electric Vehicle ChargePoints
FCEV	Fuel Cell Electric Vehicle
HRS	Hydrogen Refuelling Stations
CPO	ChargePoints Operator
DNO	Distribution Network Operator

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Introduction

The Government has a stated aim for no new petrol or diesel cars from 2030 and for all cars to be zero emission from 2035.

There have been multiple strategies and policies to support this aim since 2011 including a total spend of £1.1bn. Despite this level of attention over the last decade less than 10% of the spend has been on EVCI and without a significant step change the targets will not be met.

At the outset (2011) the Government set a vision for ECVI that ultimately it would not be reliant on public subsidies on the basis that once there is sufficient volume of electric and hydrogen cars, EVCPs for them will be commercially viable. The Government recognised that some funding would initially be required to attract private funding in the early stages when there is not sufficient demand to make all EVCPs profitable. The theory is that once there is a national recharging infrastructure in place then people will more confidently move from petrol and diesel to electric or hydrogen, and the zero-emission target will be achieved.

Reality has not lived up to this intention. Despite multiple schemes (PIP, GUL, CIFF, ORCS) there are still significant gaps in the national EVCI.

Early expectations that charging would happen on private driveways or at places of work supported some installation points (133,000 off street chargers and 8,500 workplace chargers) but by definition, roll-out on these terms is limited. 40% of the population does not have a private driveway.

More relevant are publicly placed EVCPs. However, there are greater barriers to installing these and whilst the supply is increasing (doubling in the last two years to c.20,500 at the start of 2021) without a significant increase in the rate of roll-out the goal of zero emission cars from 2035 will not be met.

The obstacles to a wider roll-out include (1) Funding: private companies are very selective of the sites they view as viable and without sufficient volume of relevant vehicles these are few and far between (2) the Grid: significant upgrades to the national electricity grid are required before certain sites, especially by motorways, will support EVCPs (3) Local Government: whilst some funding is centralised, access to it tends to be via local authorities without a common approach.

The zero-emission target is relevant to both electric and hydrogen technologies but to date the infrastructure for recharging electric vehicles has had more focus. Attention is now turning back to hydrogen with the Government ear-marking significant levels of funding including £240m for low carbon Hydrogen production, £1bn Net Zero Innovation Portfolio and £33m low hydrogen supply competition.

To access this funding requires private sector buy-in (and often co-investment) however the government is yet to launch their Hydrogen Strategy and without this and a corresponding legislative framework it is not credible. These elements are not likely to come together before early 2022.

Overall, whilst some progress has been made, to attract the additional c.£5-10bn of private sector funding needed to achieve the required rate of installation will require a more holistic approach.

The abbreviations used: The Plugged-In Places (PIP), The Go Ultra Low Cities (GUL); The Charging Infrastructure Investment Fund (CIIF); and On-Street Residential ChargePoint Scheme (ORCS)

Key findings

Policies

Multiple policies and schemes with no holistic approach:

- **PIP scheme 2011-21013**
- **The City Scheme in partnership with GUL 2015-2020**
- **The CIIF 2018**
- **The Project Rapid 2020**

Despite all these programmes the rate of installation of EVCPs needs to increase five-fold for the 2035 zero emissions target to be met.

Public funding

£1.1bn spent in 10 years to incentivise the take-up of ULEV.

Only 9.7% of that spend contributed to deployment of public EVCI.

Funding schemes viewed as difficult to bid for by many local authorities.

As a result, there are substantial regional variations in funding the roll out of public EVCPs.

Private funding

Private funding has fueled the supply of public EVCIs to date (reaching 20,455 EVCPs by the start of 2021).

Despite nearly doubling in the last two years, this rate of growth is not sufficient.

An estimated £5-10bn of further private funding is still required to achieve the 2030 and 2035 deadlines.

With the infrastructure needed to be in place to attract take-up, private companies need to be incentivised to invest.

Partnerships

EV charging is still not profitable at present.

Achieving the roll-out will take a shared risk and reward approach from private companies and local authorities working in partnership.

New partnerships are being forged, and various ownership models and revenue share arrangements are emerging.

However, there is no single common approach.

Technology

The Government is agnostic as to the type of zero emission vehicle (electric or hydrogen).

This technology-neutral approach should lead to infrastructure for both.

To date financial initiatives have focused on electric cars (as the most market-ready zero-emission technology).

Strategy and funding for hydrogen is lagging behind and not expected until early 2022.

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Conclusions: local authorities

A holistic plan is required

Local authorities needs to:

- Collaborate with central and regional authorities and other key delivery bodies on strategies and plans

- Engage with suppliers, assess deployment models, and decide on their preferred approach – considering private investment vs grant funding opportunities

- Liaise with DNO and assess the grid capacity available at each selected site along with connection options

- Run relevant procurement exercises based on the outcomes of the actions above.

Reassessing throughout deployment

To put the plan into action, Local authorities must:

- Assess site specific costs for installing EVCPs including grid connection upgrade costs to deploy both fast and rapid EVCPs along with general installation costs

- Use these costings to identify high cost or no-go sites and as a result, adapt their deployment plan

- Assess the growth in demand and utilisation of previously installed EVCI to inform decisions as to when, how and at what pace the next phase of roll-out should be carried out

Conclusions: at a force level

A series of questions should be asked around key inputs:

Total cost of ownership   Local regulatory policies   Operational preparedness   Infrastructure availability   ROI requirements

What is the true cost of owning an EV and when total cost of ownership parity can be achieved?

What are the current government tax incentives, rebates, and grants?

Is existing public EVCI adequate to support on route charging?

What are requirements (Level 2 or DC fast charging, quantity)?

What are the compatibility considerations for EVCI?

Are there additional planning requirements for EVCI?

What is the closest substation, and could it support the new electric load?

Is there a plan to pay for the utility infrastructure, or is there some sort of a utility program roll out?

Is the utility going to put in local storage or generation?

Does the utility have the bulk power capability to support full fleet electrification in each service area?

Does the utility want to offer charging as a service? Will the regulatory environment support it? If so, does it have the operational technology systems and contracts to support charging, including demand response measures?

Policy and public funding

10 years of policies and funding has shaped the development of EVCI

Making the Connection: The Plug-In Vehicle Infrastructure Strategy
Lead: OZEV

Driving the Future Today: A Strategy for ULEV in the UK
Lead: OZEV

Investing in ULEV the UK 2015 to 2020
Lead: OZEV

The Road to Zero:
Lead: DfT

2011	2012	2013	2014	2115	2016	2017	2018	2019	2020	2021

Action for Roads, A Network for the 21st Century
Lead: DfT

UK Plan for tackling Roadside Nitrogen Dioxide concentrations
Leads: Defra and DfT

Future of Mobility: Urban Strategy
Lead: DfT

The Clean Air Strategy
Lead: HE

10-Point Plan for Green Industrial Revolution
Lead: Cross government

The Clean Growth Strategy
Lead: BEIS

Transport Decarbonisation Plan
Lead: DfT

Ultra-low emission focused

Broader focus

The abbreviations are used in the diagram as follows: The Office for Zero Emission Vehicles (OZEV); Ultra Low Emissions Vehicles (ULEV); Department for Transport (DfT); Department for Environment, Food & Rural Affairs (Defra); Department for Business, Energy & Industrial Strategy (BEIS); and Highways England (HE)

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Success of the EVCI policy is highly dependent on private sector investment

In 2011, the government set out its initial vision for EVCI in the UK and the steps that it and other industry players needed to take to deploy it. At that point, the government's expectation was that the future provision of public EVCI would be primarily finanaced by the private sector with the government would only needing to subsidise cases which lack commercial viability of any deployment. To this end, through the OZEV programmes they created a range of private match funding schemes. Most of these were led by local consortia including local authorities and private organisations aiming to secure early investment in infrastructure for their areas, e.g., the Plugged-In Places (PIP) scheme 2011-2013, and the City Scheme run in partnership with Go Ultra Low (GUL) 2015-2020. In 2018, it also launched the Charging Infrastructure Investment Fund (CIIF) to kick off investment in the double rapid charging network.

Recognising the early nature of the market, The government made available £37m in matched funding to support the trial and installation of EVCI in eight pilot cities and regions across the UK through the PIP programme.

The £35m City Scheme ran in partnership with Go Ultra Low (GUL) – with winning 12 cities. Go Ultra Low is a jointly funded partnership between the government and several car manufacturers.
The GUL City Scheme, focused on cars, was complemented by other OLEV schemes, such as the £20m Taxi Scheme and the £30m Bus Scheme.

CIIFA public-private £400m investment fund focused on investment in public EVCI. The £200m of the government's funding, matched by private investors (Willis Towers Watson's investment funds and Morgan Stanley Investment Management's Climate Impact Fund). It reached a total of £380m in signed commitments. To date, investments have been made in rapid (Instavolt) and on-street residential (Liberty) EVCPs.

The abbreviations used: The Office for Zero Emission Vehicles (OZEV)
The On-Street Residential ChargePoint Scheme (ORCS)

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The PIP and the City Schemes were trialling different delivery models, testing different levels of risk sharing between the parties

Own & Operate:

Publicly owned and operated network with local authorities responsible for maintenance.
They retain all revenue and pay for hardware/ software support in order to run the network.
Local authorities choose where EVCPs are installed and sets tariffs.

External Operator:

Essentially Own & Operate but engage a 3rd party CPO contractor to provide a full O&M service, alleviating the local authority of this responsibility.

Concession agreement:

These vary from council to council. Supplier and council agree a split of capital costs, ownership and risks. Supplier typically takes on full O&M responsibility.
Council will receive a revenue share.
Typically used to deploy relatively high EVCP volumes.

Private sector match funding:

Specific case of using government grant schemes, which typically provide
75% of funding, to deploy EVCPs .
CPO funds remaining 25%, and the two parties negotiate arrangements around ownership of network.
CPO will take on full O&M responsibilities.

No upfront, Low costs or Lease arrangement:

Supplier funds, owns, operates and maintains the EVCPs .
This service can be leased to the council based on a long-term agreement.
Council may be able to negotiate ownership of below-ground infrastructure.
Suppliers will target attractive locations.

| High risk and very resource and capital intensive – unlikely to be an attractive option for many local authorities | O&M de-risked. If local authorities have appetite for asset ownership and associated risk this could be an attractive option, but it is capital intensive. | De-risked approach with good revenue share but so far suited to city cases with high potential profitability and EVCP volumes – may be difficult to set up in some areas. | De-risked approach that could deliver a range of charging speeds and may offer groundwork ownership. This is a promising option for councils if grant funding is available. | Fully de-risked option, quick and simple to set up. If councils can agree to the lease lengths and the supplier is willing to install at desired locations – this would be attractive option. |

Increasingly attractive to Council

The abbreviations are used in the diagram as follows: Electric Vehicles EVCPs (EVCPs), EVCPs Operators (CPO), Operate and manage (O&M)

Private investment has started the roll-out, however, a significant proportion of on street charging remains unaddressed

A large amount of private capital to date has been mobilised towards the deployment of rapid EVCI, predominantly at primary and secondary locations, such as fuel forecourts, and 'destination charging' locations e.g., retail centres and car parks. These installations provide a higher ROI, despite demand risk, due to the ability to charge higher prices for rapid charging. However, a significant proportion of on-street overnight charging or development of rapid network along motorways remains largely unaddressed due to two key challenges: 1) utilisation and price 2) grid constraints and upgrade costs. To overcome these obstacles, government's intervention is required.

To address this, the government, through the OLEV programme has implemented: On-Street Residential ChargePoint Scheme (ORCS), which runs from 2017-2021, Highways England rapid scheme along SRN and more recently in December 2020 introduced The Project Rapid.

ORCS grants award funding to local authorities for up to 75% of the capital cost of procuring and installing slow/ overnight EVCPs. Between 2017-2020, OZEV allocated £8.5m[1] contributing to installation of 690 public on-street EVCPs. 80% of all on-street EVCPs are publicly owned by local authorities, indicating that while the ORCS has seen limited uptake, nearly most of the on-street EVCPs have been deployed through public money.

As part of the first Road Investment Strategy (2015-2020), HE committed £15m to support the development of rapid EVCPs along 95% of the SRN in England. This is to ensure the network has an EVCP at least every 20 miles.

To date, HE has distributed £4.8m, including £2.8m for 50 new EVCPs awarded to bp Pulse and Swarco.

The £950m Rapid Charging Fund was set up to ensure future proofed charging capacity along SRN. It will also pay for grid upgrades along SRN and will support the development of rapid EVCPs.

The fund will also pay for connection upgrades that are likely to be needed for hubs of rapid and high-powered EVCPs in urban areas.

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Local authorities criticise the OSRC scheme for lacking clarity around the funding process or the available budget, resulting in uneven funding per capita

Funding by Nation plus London (£m)

- England
- Scotland
- London
- Wales

Donut chart values: 18.8, 6.5, 3.6, 2.0
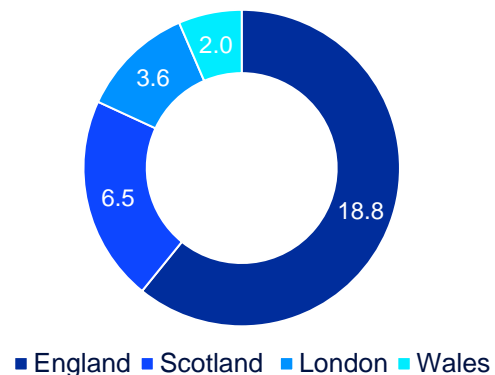
- In 2020, the UK councils[1] collectively received £27.8[2]m of funding from the UK government for EVCI.
- England secured close to £19m – of which almost £3.6m was allocated to London – Scotland close to £7m and Wales just over £2m.

Funding per Capita (£m)

England £0.45 | London £0.49 | Scotland £1.91 | Wales £0.91 | £0.58 UK average

- When broken down by budget per capita, English councils lag significantly behind their devolved counterparts, receiving just £0.45 of funding per capita, compared to £1.91 of funding per capita in Scotland and £0.91 in Wales.

Councils that haven't received any funding (%)

England 62% | London 23% | Scotland 6% | Wales 38% | 57% UK average
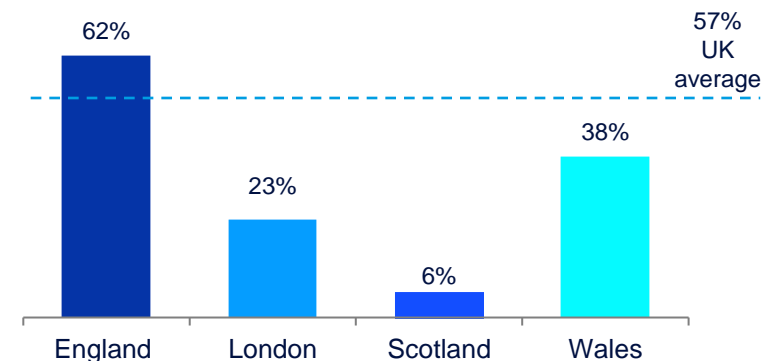
- Almost two thirds (62%) of English councils haven't received any government funding in 2020, compared to just 6% of the Scottish councils and 38% of the Welsh councils.
- Only a quarter (23%) of London councils haven't received any funding in the same period, meaning that England without London shoots up to 67%.

Whilst the total funding given to English councils for EVCI seems quite high on the surface, the nation is underfunded (in per capita terms) when compared to Scotland and Wales

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The lack of clarity around funding has led to uneven planning and deployment across the UK

New EVCPs to be Installed by the end of 2021

25.7%

20,455 — Total number of charge points in 2020

25,687 — Total charging points by EoY 2021

5,232 — New charge points by EoY 2021

London 2,657
England 4,481
Wales 195
Scotland 556
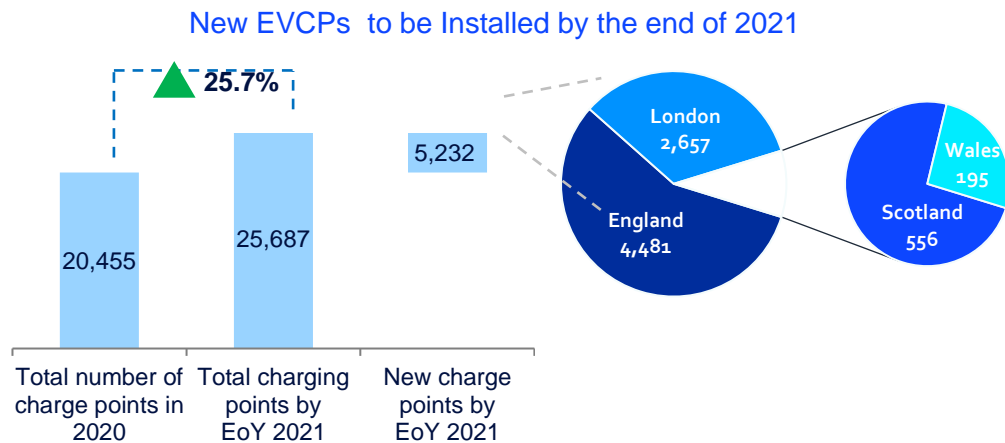
- Across the UK, councils plan to install a further 5,232 EVCPs by the end of 2021. When added to the total number of EVCPs operated by councils and private companies already in circulation (20,455), a total of 25,687 EVCPs across the UK is estimated by the end of 2021 – an increase of 26%.
- England will be installing the majority of these (4,481) but 59% of these will be deployed in London.
- Scotland is looking to install 556 new EVCPs by the end of next year, and Wales 195.

Residents per planned EVCPs

9,424 — England
19,159 — England w/o London
2,741 — London
6,449 — Scotland
11,621 — Wales
9,189 UK average
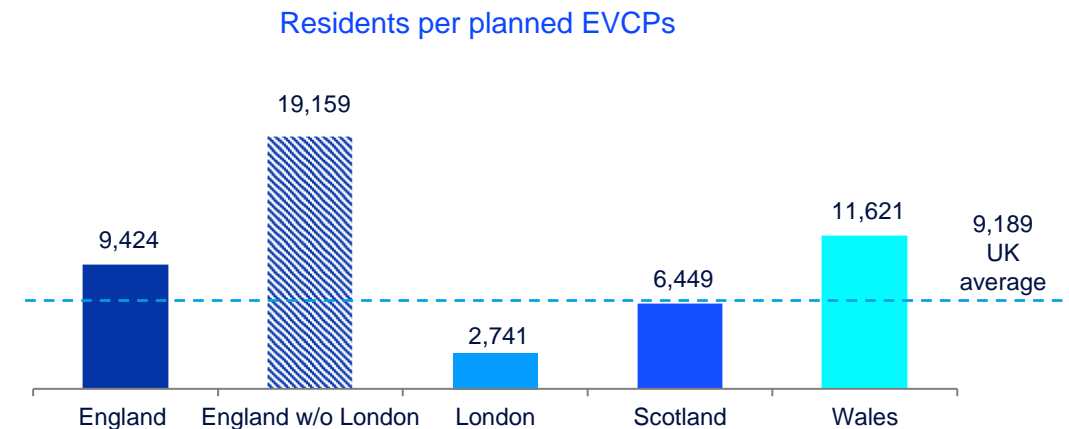
- The UK's average for the number of residents per planned CP is 9,189, but there are significant discrepancies across regions.
- Taking London out of the English figures makes a notable difference to the country's results, with one new charging point per 19,159 residents to be built by the end of 2021. This is double the national average and close to three times the figure for Scotland.
- Councils in the capital are planning to deploy c.51% of the total UK projected EVCPs by the end of 2021, with one charging point to be built for every 2,741 residents.
- Scotland is planning a new charging point for every 6,449 residents, and Wales one for every 11,621 residents.

England, due to its population density, lags behind the national average when assessing the number of planned EVCP installations vs the number of residents

Only 29% of councils have a long term strategy in place with London and Scotland ahead of this average

% of Councils with an EVCI rollout strategy
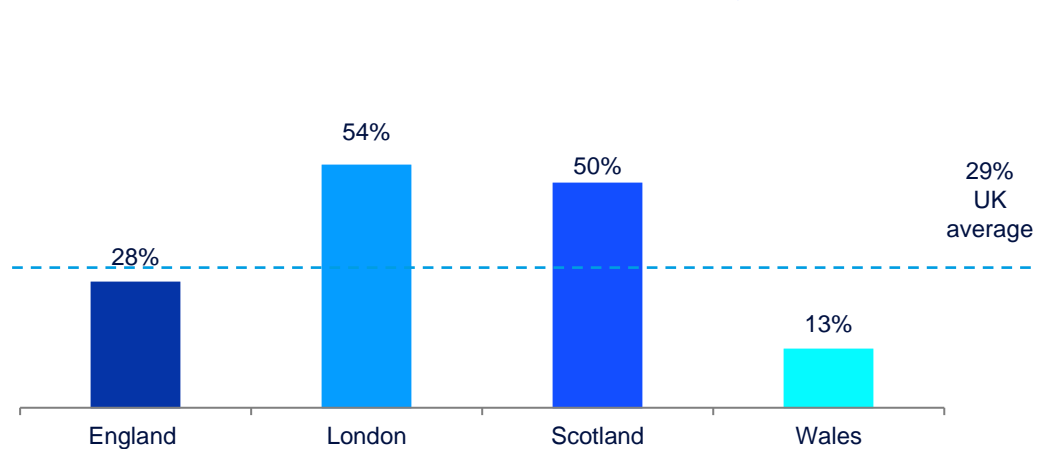
- On average, Scottish councils have plans as far ahead as 2023, whilst London councils have, on average, plans through to 2025.
- Meanwhile, just 13% of Welsh councils have an EV roll-out plan in place.
- Additionally, across the UK, just 20% of councils have planned their long-term EV charging rollout strategy to 2025 or beyond.

% of Councils wanting to install rapid EVCPs
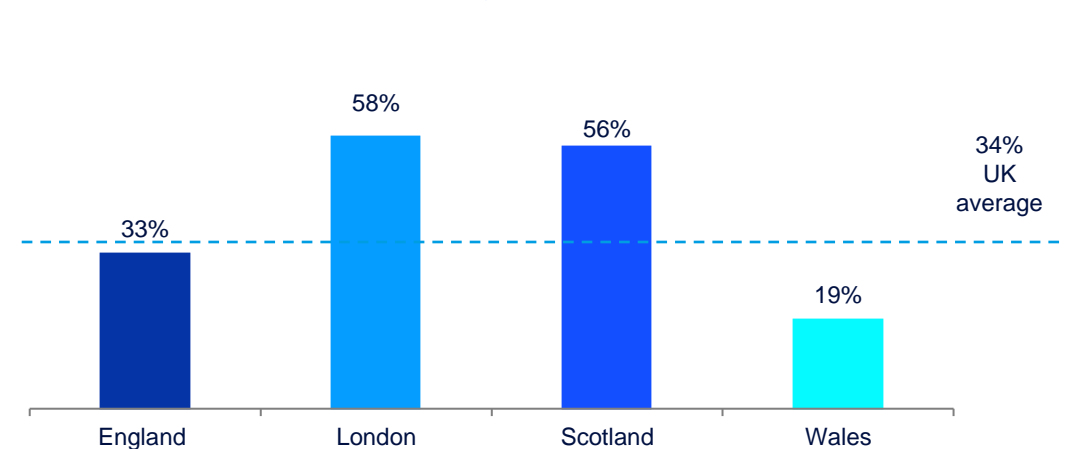
- When analysing which councils are making provisions for rapid charging, nationally, just over a third (34%) of councils confirmed it is an objective to install rapid EVCPs .
- Again, London and Scotland lead the way, with 58% and 56% of councils planning for rapid charging, whilst less than a fifth (19%) of Welsh councils are planning on installing rapid EVCPs .

London and Scotland are leading the way, around half of their councils have a plan in place for the next few years for the roll-out of EVCPs including rapid charges

Private investment in public EVCI

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The supply of public EVCI has nearly doubled in the two years ending 2020

Devices

10,309

20,455

2018

2020

Connectors

19,118

37,895

2018

2020

Locations

6,669

13,861

2018

2020

The number of devices - the equipment that goes into the ground; the number of connectors - the cables that come off the devices and plug into the car, usually between one and three per device

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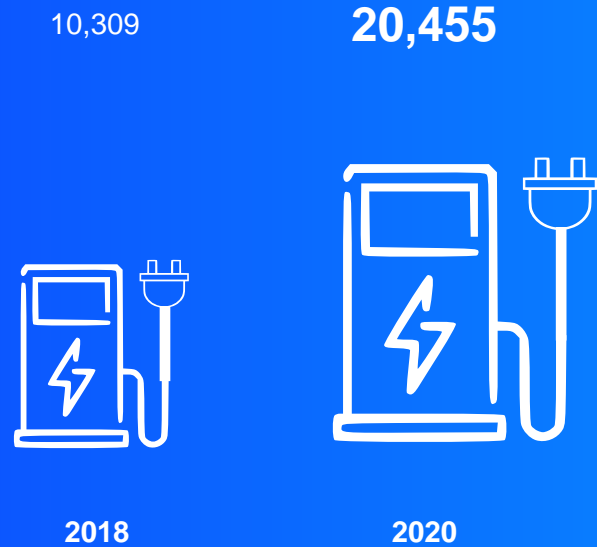
The Ultra rapids (100kW+) were the fastest−growing segment in 2020

Number of public devices by speed (cumulative)

Chart showing number of public devices (cumulative) by year with totals: 2016: 6,546; 2017: 8,193; 2018: 11,054; 2019: 16,971; 2020: 20,455; 2021 (YTD F): 23,130

Legend: ■ Slow ■ Fast ■ Rapid ■ Ultra Rapid
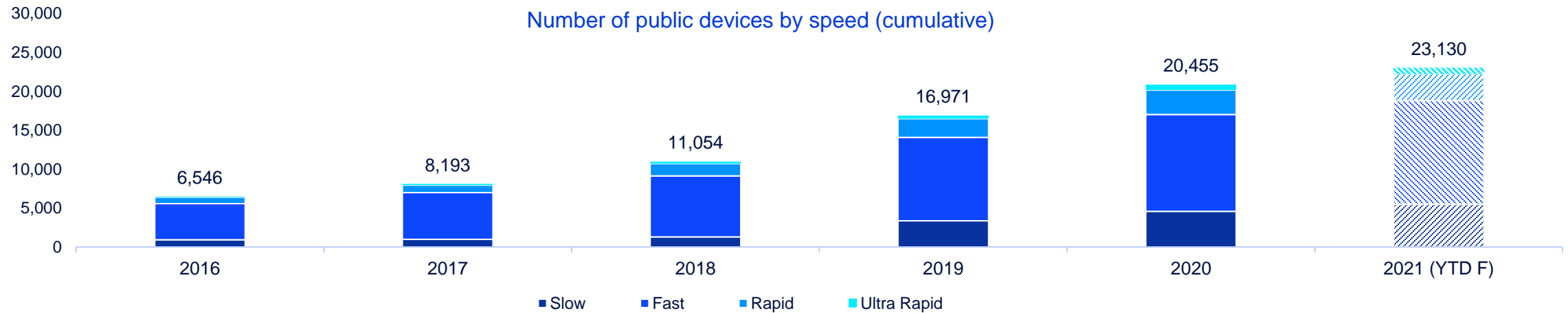
Ultra rapid
(100kW+)

The fastest−growing segment − up by 65% in 2020 (from 476 connectors in 2019 to 788). Several providers, such as bp Pulse, Shell Recharge, Ionity, InstaVolt and Gridserve have entered the market and opened ultra-rapid charging hubs since 2019.

Rapid
(50kW DC/43kW AC)

Growing at a steady rate of c.2,000 new connectors per year, benefiting from the government's substantial support through its 2020 Rapid Charging Fund. The Fund aims to fill any EVCI gaps not commercially viable for the private sector, financing connection costs for 350kW chargers across the strategic road network.

Fast
(7-22kW AC)

The largest segment by number of connectors. Makes up the bulk of the 'Around Town' segment, and include chargers located at workplaces, car parks and other places where people are expected to 'dwell'. Most EVs on the road today can take this speed of charging, and Fast devices have relatively low installation costs, especially when it comes to site preparation and grid upgrades.

Slow
(3-6kW AC)

Makes up about 20% of total connectors installed, due largely to the increase in on-street (mainly, lamp post) charging. This segment currently represents about 4-5% of the public market by use and is estimated to grow to about 14-15% by 2030, as more people without access to charging at home or work seek to charge close to home.

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Several private companies have entered the public EVCI market

bp Pulse

Operates 7,000 public EVCPs across the UK with plans to double its network by 2030. In March 2021, bp Pulse formed a partnership with infrastructure development company The EV Network to deliver a 'significant number' of new ultra-rapid EV charging hubs in areas with high volumes of traffic, including alongside motorways. The first site will open later this year, featuring 24 ultra-fast EVCPs.

InstaVolt

InstaVolt is on track to be the largest owner−operator of rapid EVCPs in the UK. To date, 570 rapid EVCPs have been installed, as part of a £50m investment with plans to install 5,000 rapid EVCPs by 2025. In March 2021, InstaVolt opened the UK's largest public rapid charger motorway hub in the Midlands.
Backed by £12m equity investment from private equity house Zouk Capital.

Shell Recharge/ubitricity

Operates 2,700 on behalf of local authorities. The unique feature about ubitricity is the use of a lamppost or
bollard, equipped with Type 2 AC charging sockets to reduce costs and provide charging options on-street for EV drivers without their own parking space.
Ubricity was acquired by Shell in January 2021.
Shell Recharge has 1,000 fast/ultra-fast EVCPs installed at 430 Shell retail sites.

Shell Recharge/ Ionity

Shell's agreement with Ionity - a joint venture between BMW, Daimler, Ford and Volkswagen - initially brought 11 rapid station to the UK, with further 30 sites secured to rollout throughout 2021.

Gridserve

In December 2020, Gridserve launched the UK's first Electric Forecourt, representing a breakthrough for massive expansion of EVCI in the UK. The £10m site in Essex is the first of over 100 Electric Forecourts being built by Gridserve over the next five years, part of a £1bn UK-wide programme.
The Electric Forecourt features 36 ultra-fast EVCPs.
The project has been funded in partnership with Hitachi Capital (UK) PLC, Innovate UK and OZEV.
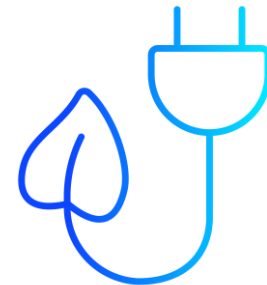
Growth in public EVCI is primarily driven by commercial viability leading to significant regional disparities

Devices per 100,000 population

Color	Region
	Northern Ireland 17
	Yorkshire & the Humber – 19
	NW England – 19
	W Midlands – 20
	E England – 21
	Wales – 26
	SW England – 28
	SE England – 31
	NE England – 31
	Scotland – 40
	London – 69
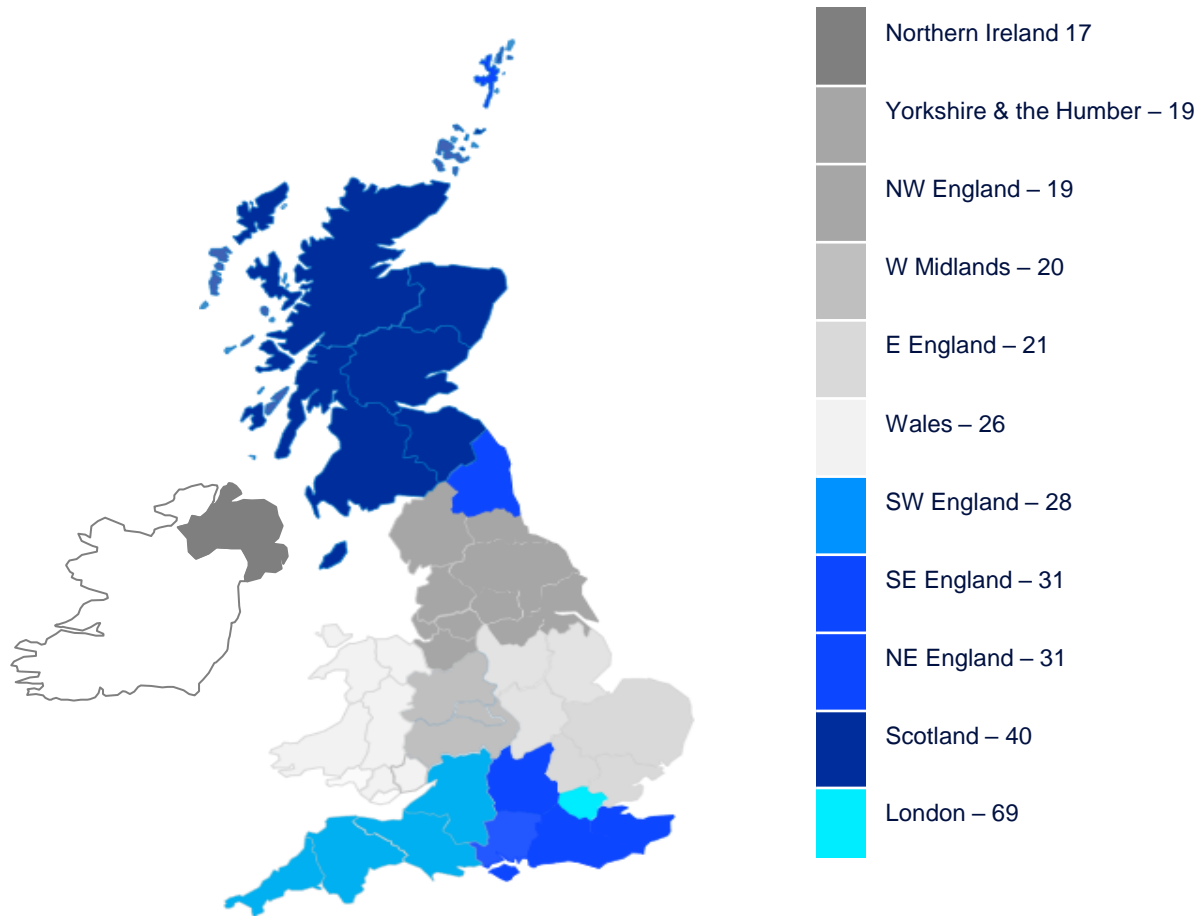
- Overall, the UK has started to see progress in its EV infrastructure, however as most of the provision of EVCPs has been market-led (except for Scotland), with CPOs and other businesses, such as hotels, choosing where to install devices, installation to date has varied across the regions.

- London and the South-East are leading the way for availability of charging device provision per 100,000 of population. Higher adaptation levels, and dense population (meaning that many car owners do not have access to off-street parking/home charging), make it an attractive market.

- Scotland is also ahead of many parts of the UK for EVCPs . Scottish councils benefit from automatic allocation of public funding for EVCI, with the amount dependent on their population density.

- North-East is in third place, with some commercial projects being rolled out by the Electrified Powertrain Technology Group, helping with expansion of EV technology in the region.

- Northern Ireland, Yorkshire and the Humber, and the North-West have the fewest number of EVCPs. The challenges include high upfront costs and uncertain demand mean it is still prohibitive to the development of a robust private market in these regions, suggesting more needs to be done by the government in these regions.

The commercial viability of on-street charging infrastructure requires greater adoption of EV
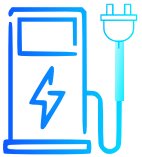
- The installation of on-street charging infrastructure may require significant upfront investment, particularly to facilitate the installation of the underground network connection infrastructure. This is particularly prevalent within inner-city areas, in which demand for EVs is likely to be the highest. The cost required to upgrade the grid infrastructure to facilitate the installation of on-street charging points could render the project financially challenging. Further, on-street slow-charging and fast-charging prices (between 15p and 22p/kW) are also lower than rapid-charging, thus impacting the commercial viability of any deployment.

- In addition, all charging infrastructure, including on-street, needs a minimum threshold of utilisation in order to be commercially viable, and this requires more EVs to be on the roads. The current utilisation uncertainty characterising on-street charging infrastructure acts as a significant barrier to wider deployment.

- As a result, the installation of charging infrastructure can be capex intensive, and ROIs can be spread over a long-time horizon.This has resulted in locations that facilitate 24/7 access; have amenities on site or nearby; have a direct customer demand for utilisation or a straightforward grid connection; are being prioritised as 'prime and easy sites' for the installation of charge points (e.g., taxi ranks, council-owned car parks and car clubs), even though none of these locations provide for the crucial overnight on-street charging.

Yearly cashflow for CP[1]

Y5: First positive cashflow

Payback period >10Y

Revenues   Capex   Opex   Net cash flows
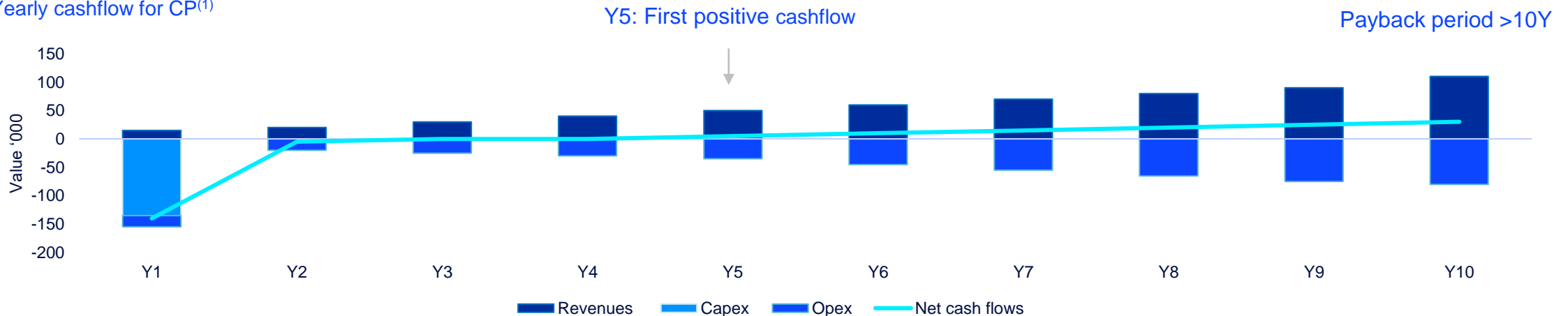
Notes: 1. A CP is assumed to have two public slow (L2) chargers (6.6 kW each) and two high-powered DC fast (L3) chargers (50 kW each). For this analysis, only revenues from EV charging are included. Capex includes costs for installation, host site identification, screening and design, and billing systems. Opex includes land rent, electricity, software, maintenance, warranty and selling, general and administrative expenses

Source: EY, Northeast Group

Whilst growth is being achieved, the rate of growth will need to increase for the UK to meet its 2030 target

Projected EVCI Demand

37,895

400,000

2020

2030F
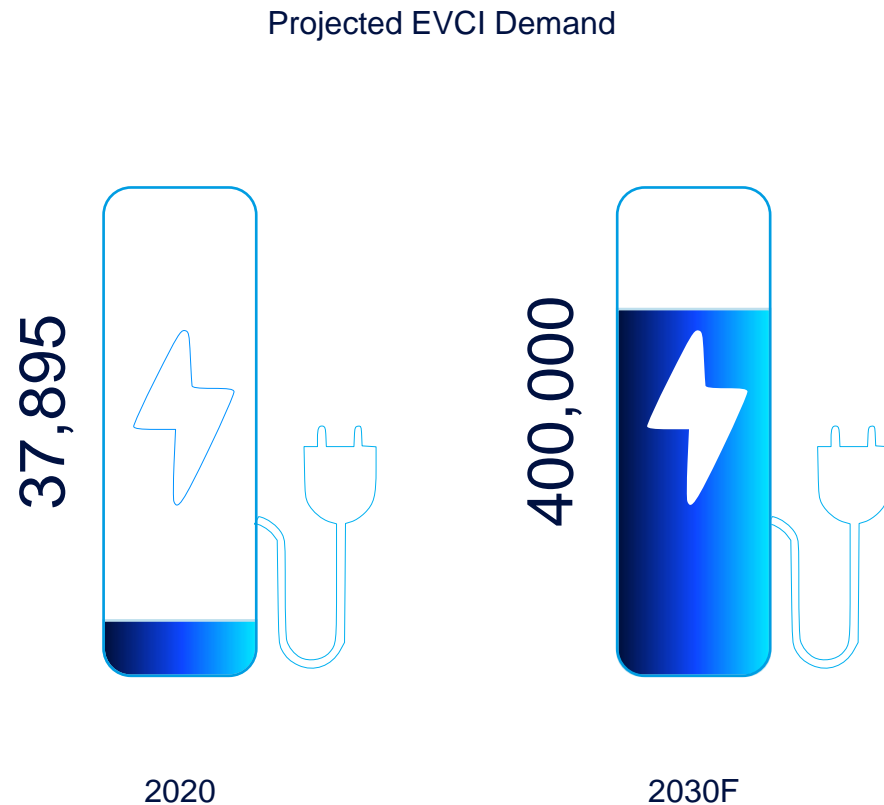
- The UK will need to install public EVCI five times faster than the current rate over the next decade.

- Currently, the UK has c.38,000 public connectors, with CPOs installing around 7,000 new connectors per year.

- According to a report[1] by thinktank Policy Exchange, the UK is likely to need around 400,000 public EVCPs by 2030, with 6,000 of these being high-powered EVCPs.

- To install enough public EVCPs to meet this, the rollout will need to occur five times faster at a cost of between £5bn and £10bn by 2030.

- This will require significant private investment and government intervention. Whilst CPOs are broadly on track to deliver the 6,000 high-powered EVCPs required, there are likely to be issues installing these at key locations such as motorway service areas that may require costly new connections to the grid.

- This is an area that will require more government attention. The Government Rapid Charging Fund has been announced in the 2020 Budget. The fund is to finance connection costs for 350kW chargers across the strategic road network, aiming to have six rapid chargers installed on each motorway service area site by 2023, however the details of its deployment are still in early stages.

Note: 1.Policy Exchange: "Charging Up"

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Energy

Policies and funding that have shaped the development of EVCI

Net Zero Innovation Portfolio
Lead: BEIS

Rapid Charging Fund
Lead: BEIS

Energy Innovation Programme
Lead: BEIS

Decarbonisation Action Plan
Lead: Ofgem

Energy white paper: Powering our net zero future
Lead: BEIS

| 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |

EV Strategy
Lead: WPD

EV Strategy
Lead: UKPN

EV Strategy
Lead: SSEN

☐ Public focused
☐ DNOs focused
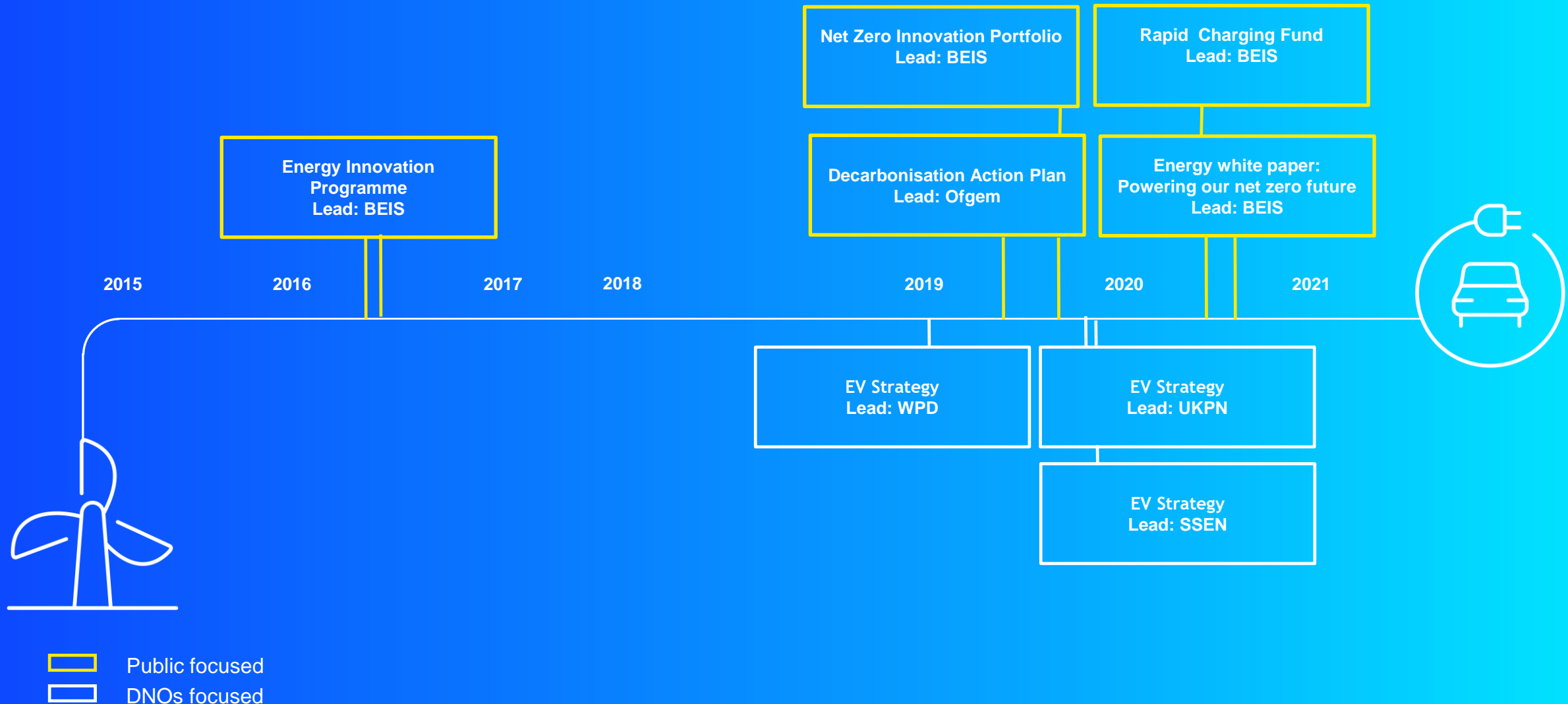
The abbreviations are used in the diagram as follows: Hydrogen Advisory Council (HAC)

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Government and Ofgem sets out a plan to boost investment in local electricity grids in a bid to support the uptake of EVs

In terms of Energy the UK government's policy has shifted substantially with last year's publication of the Government's Ten-Point plan and the Energy White Paper. The white paper sets out a plan for investment targeting several key areas including committing to EV infrastructure and hydrogen, among others. The government's emphasis on the importance of the energy sector in the green industrial revolution, also led to intervention from the BEIS to Ofgem to change its approach from their stance of policing and reducing bills, to working and engaging with the industry in a more collaborative and receptive manner to address the challenges the sector is facing in achieving Net Zero.
This move was welcomed by DNOs, with Ofgem loosening its grip and being more receptive to the wider implications of the sector. This gives DNOs a significant opportunity to be the catalyst for change to a Net Zero future.

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The Energy White Paper

£950m Project Rapid Fund investment in future proofing grid capacity at motorway and major A road service areas. This will ensure the private sector can continue to expand the EVCPs at pace in the 2020s.

2020 RIIO-ED1 Green Recovery Scheme

£300m investment, a partnership between Ofgem and the ENA, who represent all UK DNOs. To date, DNOs accelerated £80m of projects to start in 2020, bringing forward planned investments from future years to support new connections as well as preparing the grids for Net Zero and the predicted increases in electricity demand, including from EVs.

2020 RIIO-2 Strategic Innovation Fund

£630m funding, part of the networks price control, will support network innovations and to drive R&D into green energy projects, including trialing of hydrogen in a wide range of applications.

The abbreviation used: Revenue = Incentives + Innovation + Outputs) (RIIO) − the electricity distribution price control model for network regulation.

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At regional and local level DNOs have already begun to take a more active role in the development of EVCI

WPD's EV Strategy

WPD is teaming up with motorway service operators to develop charging solutions at roadside fuel filling stations. During Phase 1 of the Project Rapid, WPD helped to roll out rapid charging solutions at motorway service stations in the UK, providing the electrical capacity for 48 chargers to be installed across its network. As part of Phase 2, WPD is aiming for further EV charger installations.

A trial project is planned in cooperation with Moto Services at one of their motorway service areas. The focus will be utilising rapid charging with new technology that requires significantly less space than current chargers.

UKPN's EV Strategy

UKPN places emphasis on smart solutions and strategic investment over infrastructure upgrades, including ensuring it is technically ready by using its smart solutions and required capacity for EV uptake.

Set up the 'smart toolbox' initiative, a collection of over 18 smart projects designed to respond to the rapid EV uptake.

SSEN's EV Strategy

£7.5m investment in a strategic partnership with TS to deliver more EVCPs in Scotland, that are clean-energy-based. The pilot project will develop a model to increase the pace, accessibility and efficiency of the deployment of public chargers, in central and southern Scotland and along the route of the Electric A9.

Set up a suite of tools available to support widespread EV uptake, including use of data and analytics to anticipate issues, support decision making and make sure SSEN's networks are ready for EV uptake.
.

DNOs play an important role on innovation projects, often partnering with local authorities through their Innovation Network Allowance scheme and Competition. Some DNOs have a separate enterprise business, separate from the regulated business, such as SSE Enterprise which has greater freedom to partner with local authorities on commercial projects.

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abbreviations used: Western Power Distribution (WPD); UK Power Networks (UKPN); Scottish and Southern Electricity Networks (SSEN), Transport Scotland (TS)

Technology

Policies and funding that have shaped the development of EVCI

Industrial Strategy White Paper
Lead: BEIS

The UK H2Mobility
Lead: OZEV

The Faraday Battery Challenge (part of the ISCF)

The APC Programme (repackaged as the ATF in 2020)

10-Point Plan for Green Industrial Revolution
Lead: Cross government

2013 2014 2015 2016 2017 2018 2019 2020 2021

Hydrogen Transport Programme
Lead: OZEV

The Hydrogen Supply Programme
Lead: BEIS

Industrial Decarbonisation Strategy
Lead: BEIS

Hydrogen Strategy
Lead: HAC

- Battery focused
- Hydrogen focused
- Broader focused

The abbreviations are used in the diagram as follows: Department for Business Energy & Industrial Strategy (BEIS); The Industrial Strategy Challenge Fund (ISCF); The Advanced Propulsion Centre (APC); The Automotive Transformation Fund (ATF); Office for Zero Emissions Vehicles (OZEV); Hydrogen Advisory Council (HAC)

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The government is agnostic between electric and hydrogen as a route to ZEV, however, to date the focus has been on investment in electric

Until mid 2020, the Government's financial initiatives have focused on battery electric cars rather than hydrogen (as this has been the most market-ready zero-emission technology). As part of Industrial Strategy, the Automotive sector deal partnership between the government and industry launched the Faraday Battery Challenge, a £274m investment between 2017 and 2021, and additional investment of £43.7m is due between 2021 and 2022, to support technology development and manufacturing scale-up capability for batteries in the UK.

The deal also reconfirmed a £1bn matched funding commitment for R&D of low-carbon emission powertrain technologies at the APC until 2023, along with further R&D funding commitments from 2023 to 2026.

Government key commitments:

£318m funding for the Faraday Battery Challenge projects:

- **Research:** funded through the EPSRC, part of UKR&I, the Faraday Institution is a £80m research institute that will accelerate the fundamental research needed for future battery development.
- **Innovation:** delivered by Innovate UK, part of UKR&I, £90m of funding is available for businesses to lead feasibility studies and collaborative research and development projects in battery technologies.
- **Scale up:** delivered by the APC and hosted by Coventry and Warwickshire LEP in collaboration with Warwick Manufacturing Group the £120m UK Battery Industrialisation Centre (UKBIC) will enable companies of all sizes to develop manufacturing capabilities for battery technologies.

APC:
- £500m investment over 10 years to 2023 to support R&D and industrialise new low-carbon automotive technologies; and up to £225m from 2023 to 2026.
- In 2021, it announced UK to invest £30m into battery technology via the Automotive Transformation Fund.

Industry key commitments:

- £59m match funding for the Faraday Battery Challenge Innovate UK programme;
- £80m funding over the working lifetime of the National Battery Manufacturing Development Facility.

APC: £500m match funding for collaborative R&D projects; and match funding to support APC and its core activities.

The abbreviations used: The Advanced Propulsion Centre (APC); The Engineering and Physical Sciences Research Council (EPSRC); UK Research and Innovation (UKRI)

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Hydrogen policy in the UK: assessing the strategy and state of play in the UK today

- There is large political buy-in for hydrogen in the UK, with the government putting funding at Hydrogen's disposal – £240m which will provide capital co-investment in early low carbon Hydrogen production; £1bn Net Zero Innovation Portfolio (which it estimates may be complemented by up to £3.5bn of funding from industry and academia); and a £33m low carbon hydrogen supply competition.

- The Scottish government has set a 5GW target for hydrogen production that matches the UK government's own target, and the leaders in Wales and Northern Ireland are becoming increasingly enthusiastic, with local mayors and council leaders in Teesside, Aberdeen, the Midlands, South Wales and the North-West and East of England are all helping to design major hydrogen projects in their regions.

- There are also several organisations, which bridge the public-private sector divide that support the development of hydrogen: the APPG on Hydrogen – which is the interface for the private sector with Parliament – and HAC – which is the forum for Ministerial engagement with representatives from the hydrogen sector. Both groups play a role in building support for large-scale hydrogen projects in the UK and in discussing policy options and actions to help the development of hydrogen as a strategic decarbonised energy carrier.
- Both groups support parallel development of blue and green hydrogen in the UK, on the basis that blue Hydrogen could become a 'pathway' to green hydrogen.

- However, despite this impressive list of activities in the hydrogen sector, the UK currently lacks a legislative hydrogen framework (including a legal definition of 'low carbon hydrogen'); an effective business model; and a defined revenue support mechanism (probably a CfD) for projects in the 2020s – all of which are needed to create a credible investment framework. These elements are not likely to come together before early 2022.

> The HAC is currently drawing up a road-map for cross-sector hydrogen deployment which will support the government's UK's delayed Hydrogen Strategy which is due to be launched in Q2'2021

Regions- and city-led infrastructure

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Table of contents

England

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England current EV charging infrastructure

- As of January 2021, there were 17,459 public EVCPs available across England, with average 28.9 devices per 100,000 population
- London have benefited disproportionately from the installation of new EVCPs, having more than double the average of the rest of England – although other regions with a lower proportion of urban residents may be able to depend more on charging at home in off-street parking spaces
- In contrast, the West Midlands and East of England have 20.5 and 20.7 EVCPs per 100,000 respectively, and the North West England and Yorkshire and the Humber have just 19.2 EVCPs per 100,000 population

Devices per 100,000 population

Yorkshire & the Humber – 19

NW England – 19

W Midlands – 20

E England – 21

E Midlands – 22

SW England – 28

SE England – 31

NE England – 31

London – 69
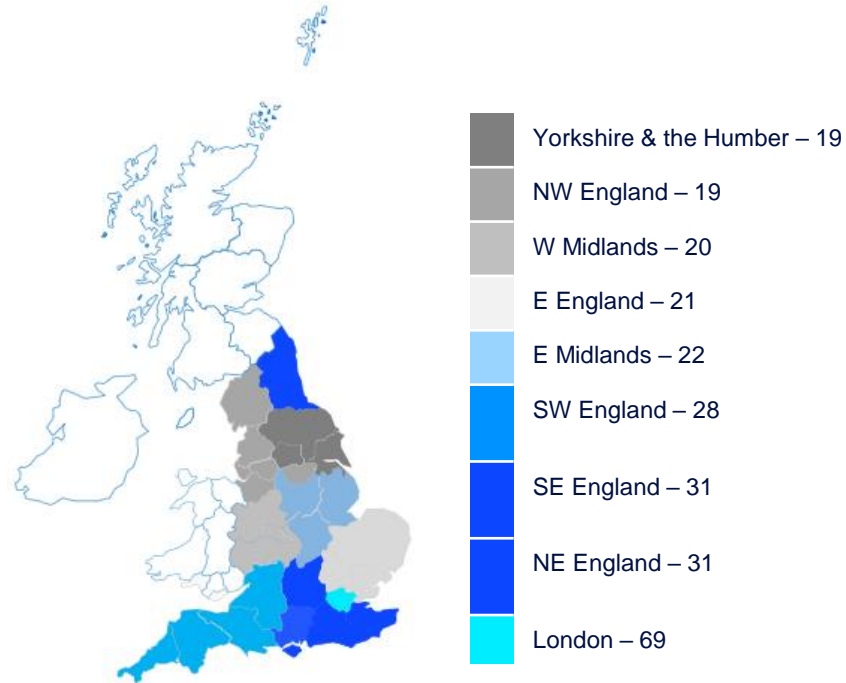
Total EVCPs in England in 2020[1]
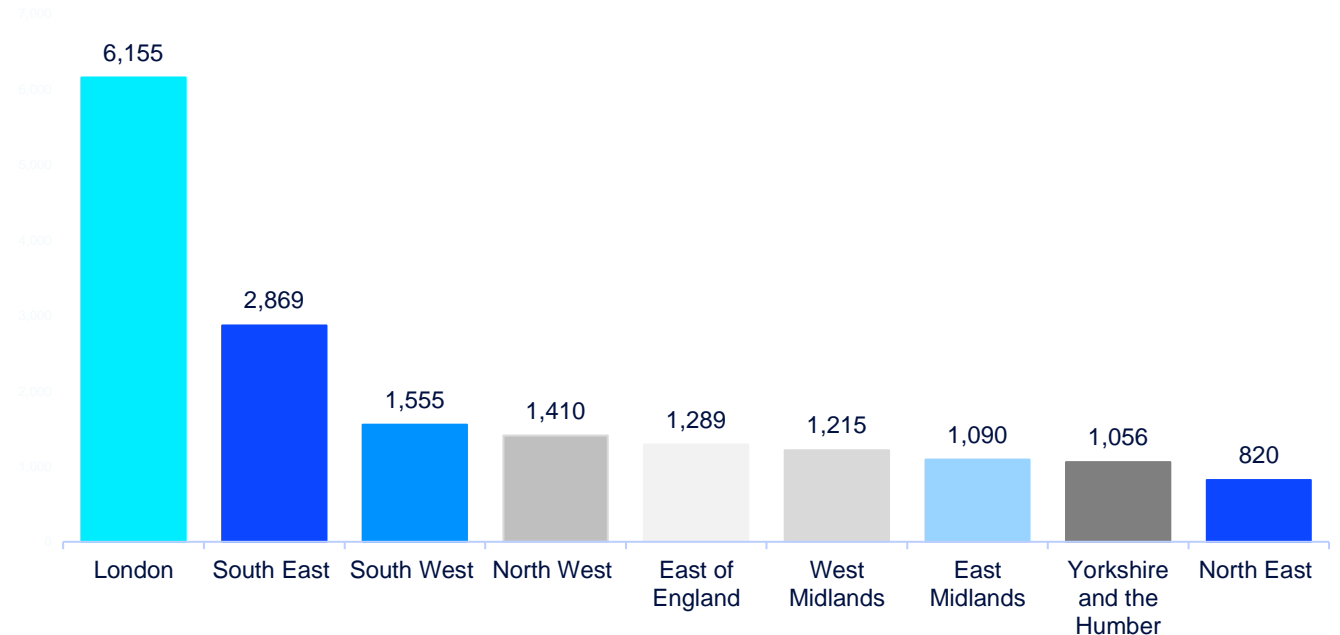
Region	Value
London	6,155
South East	2,869
South West	1,555
North West	1,410
East of England	1,289
West Midlands	1,215
East Midlands	1,090
Yorkshire and the Humber	1,056
North East	820

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London

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London current EV charging infrastructure (1/2)
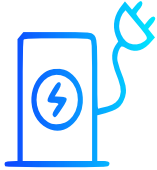
- London leads the way in the EVCI deployment in the UK – with 1/4th of all the country's EVCPs located in the capital
- As of January 2021, public EVCPs available across London witnessed ~9% CAGR over October 2020–January 2021, to reach 6,155 devices – of which ~75% have been funded via public investments – with an average of 82.7 devices per 100,000 population indicating sufficient supply of EVCPs in the region
- Further, TfL in partnership with bp Pulse and ESB Energy as the CPOs, completed its goal to install 300 rapid EVCPs by December 2020, despite halt in installation between April and June 2020 due to the Covid-19 pandemic

Growth in EVCPs (October 2019–January 2021)
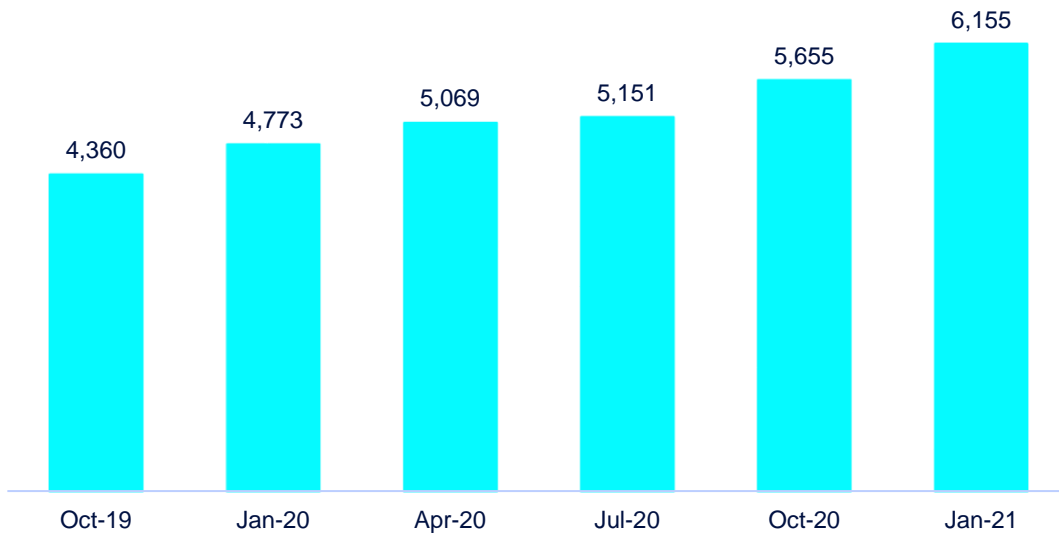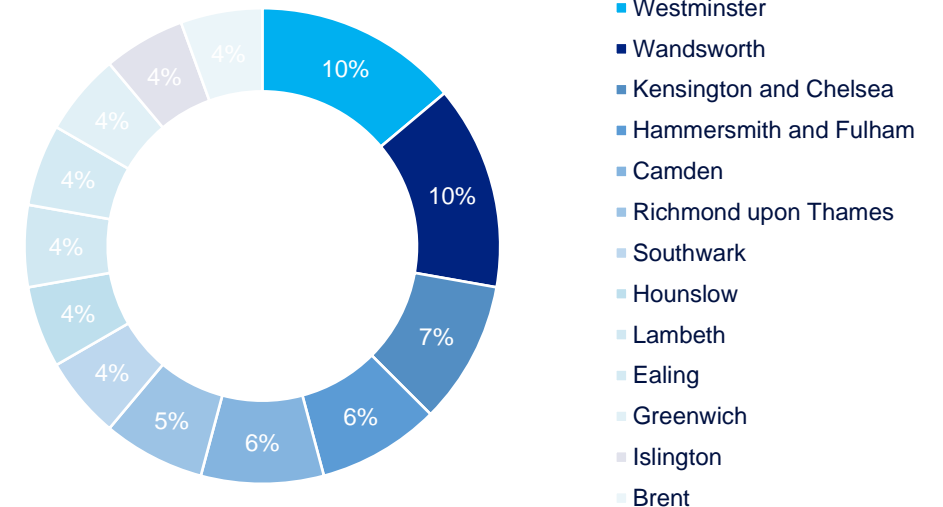
Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
4,360	4,773	5,069	5,151	5,655	6,155

2020 CP Distribution – by Local Authority (%)

- Westminster — 10%
- Wandsworth — 10%
- Kensington and Chelsea — 7%
- Hammersmith and Fulham — 6%
- Camden — 6%
- Richmond upon Thames — 5%
- Southwark — 4%
- Hounslow — 4%
- Lambeth — 4%
- Ealing — 4%
- Greenwich — 4%
- Islington — 4%
- Brent — 4%

London current EV charging infrastructure (2/2)
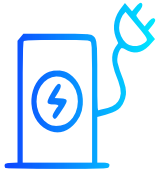
- As of January 2021, Inner London reported comparatively matured EVCI with 3,705 public EVCPs, with average 130.3 devices per 100,000 population; whereas, Outer London has 2,450 public EVCPs with an average of 47.6 per 100,000 population
- Inner London boroughs witnesses higher demand for pubic chargers from daytime taxi and private hire vehicle activity driving demand; whereas, Outer London boroughs have higher private car ownership and therefore, a mix of public and private residential EVCPs

Inner London EVCPs in 2020

Borough	Total devices	per 100,000 population
Westminster	646	247.2
Wandsworth	594	180.2
Kensington and Chelsea	420	269
Hammersmith and Fulham	386	208.5
Camden	361	133.7
Southwark	267	83.7
Lambeth	247	75.8
Islington	236	97.3
Hackney	134	47.7
Lewisham	119	38.9
Newham	100	28.3
Haringey	82	30.5
Tower Hamlets	78	24
City of London	35	360

Legend: Total devices; per 100,000 population

Outer London EVCPs in 2020

Borough	Total devices	per 100,000 population
Richmond upon Thames	327	165.1
Hounslow	261	96.1
Ealing	247	72.3
Greenwich	240	83.4
Brent	233	70.7
Hillingdon	202	65.8
Merton	168	81.3
Barnet	139	35.1
Waltham Forest	115	41.5
Croydon	96	24.8
Bromley	80	24.1
Barking and Dagenham	60	28.2
Enfield	54	16.2
Kingston upon Thames	52	29.3
Sutton	52	25.2
Redbridge	49	16.1
Bexley	40	16.1
Havering	19	7.3
Harrow	16	6.4

Legend: Total devices; per 100,000 population

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London's Go Ultra Low City Scheme (GULCS) bid was awarded £13.2m in capital funding to drive the uptake of ULEV in the period 2015/16 - 2019/20

Framework: To reduce the time and cost burden of procuring and maintaining EVCPs on boroughs, London Councils developed a tailored, multi-supplier framework. This framework covered slow and standard EVCPs (up to 7kW), with TfL offering a separate concession framework for rapid EVCPs (over 43kW). The framework included a concession contract in which the supplier, rather than the borough, is responsible for O&M costs of the EVCPs over the lifetime of the contract.

Benefits: London used the combined scale of several boroughs to reduce costs. Also, this approach overcome 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

Project funding breakdown: £5.2m for ORCS; £2.6m for150 rapid EVCPs; £2.9m for retrofitting EVCI at car club bays; and £2.3mf or six ' Neighbourhoods of the Future' projects encouraging the uptake of ULEV . Additional to £13.2m, a £2.3m of the ORCS funding was awarded for 700 slow and fast EVCPs across 14 boroughs for 2021.

Phase 1: Since the Go Ultra Low City scheme's (GULC's) inception in 2016, 1,902 on-street residential EVCPs have been installed across 18 boroughs.

The original target to install 1,150 EVCPs was exceeded by July 2019. As part of the second round of GULCS, approximately 1,000 more residential charge points will be installed across 27 boroughs.

Phase 2: A proportion of funding was transferred from the GULCs initiative to TfL RCP project. This transfer was carried out to especially help meet demand from commercial and professional drivers.
TfL installed 300 RCPs throughout London by 31 December 2020, with 232 delivered to date

Phase 3: There have been 26 dedicated car club bay EVCPs installed by the end of December 2020. Fewer EVCPs were being installed at car club bays than originally planned. This was due to state aid constraints as well as feedback received from the industry relating to the commercial viability of this operating model and associated user requirements.

Given the above, the GULCS Project Board agreed to divert funding to install more residential EVCPs that, in some circumstances, would also be available for car club operators to use.

London EVCI expansion

London EVCI delivery plan

- In May 2018, the Mayor of London announced a climate emergency plan, to support its target of carbon-neutrality by 2030. To implement it, the EVCI Taskforce was formed, comprising members from both public and private sectors.
- The Delivery plan: By 2020, 200 to 400 rapid and 3,400 to 4,700 slow to fast EVCPs; and by 2025, 2,300 to 4,100 rapid and 33,700 to 47,500 slow to fast EVCPs to be installed
- In 2020, further analysis was completed by the ICCT on the charging infrastructure needed to fulfil London's electrification goals up until 2035. It builds on the work undertaken for the Delivery Plan by looking at London's infrastructure needs at a borough level. It also expands the timeframe of the Delivery Plan to look at EV charging infrastructure needs up until 2035. The analysis will be used by the Taskforce to inform GLA and TfL modelling and future EVCI planning in London.

rapid Charging Initiatives

- London's first rapid hub was setup in December 2019, in Stratford International carpark. It was jointly funded by TfL, HighSpeed 1 and Engenie. A total of six EVCPs were installed, contributing to the 276 rapid EVCPs across London
- Further, 4 networks are responsible for installing, operating and maintaining rapid EVCPs on public land across London – GeniePoint, ESB EV Solutions, POLAR and Source London

State of London on the basis of its current charging point infrastructure, EV adoption and total aggregated generated power capacity

EV Readiness Parameters – London

	Parameter	Strong	Moderate	Weak
	Charging Infrastructure (Number of Charging Devices/100,000 population)	>200	70–200	<70
	EV Adoption Levels (Number of EV Vehicles/100,000 population)	>1,000	500–1,000	<500
	Grid Infrastructure (Total Generated Capacity (MW) within the local authority)	>100 MW	50–1,00 MW	<50 MW
	Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Strong   Moderate   Weak

Legend

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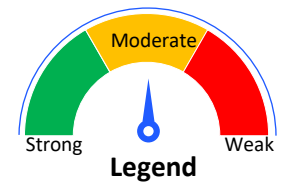
Overall EV readiness in all the local authorities in Inner London is moderate to weak

Overall EV Readiness – Inner London (1/2)

Inner London (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority) (MW, 2021)	Overall EV Readiness
Camden	100%	134	741	28	
City of London	100%	360	2,747	27	
Hackney	99.7%	48	341	45	
Hammersmith and Fulham	100%	209	1,172	616	
Haringey	100%	31	499	81	
Islington	100%	97	543	71	
Kensington and Chelsea	100%	269	1,143	36	
Lambeth	100%	76	369	133	
Lewisham	100%	39	312	55	
Newham	100%	28	323	12	

Note: 1. UK Power Networks is the distributor network operator in the London region of England and date has been taken from the distributor's website

Source: Based on publicly available information from the councils' websites

However, Westminster and Hammersmith and Fulham are comparatively more EV ready due to adequate charging infrastructure and high EV adoption levels

Overall EV Readiness – Inner London (2/2)

Inner London (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority) (MW, 2021)	Overall EV Readiness
Southwark	100%	84	467	52	
Tower Hamlets	100%	24	491	225	
Wandsworth	100%	180	584	14	
Westminster	100%	247	1,208	400	
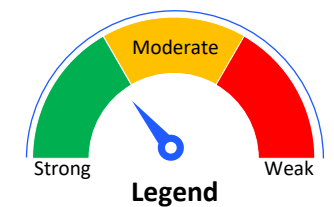
Legend

Strong — Moderate — Weak

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Outer London areas are in their nascent stages w.r.t. overall EV readiness due to insufficient EVCPs and EVs

Overall EV Readiness – Outer London (1/2)

Outer London (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority) (MW, 2021)	Overall EV Readiness
Barking and Dagenham	100%	28	357	13	
Barnet	100%	35	873	18	
Bexley	99.9%	16	416	2,122	
Brent	100%	71	572	13	
Bromley	98.9%	24	507	262	
Croydon	100%	25	411	81	
Ealing	100%	72	763	0	
Enfield	99.5%	16	425	335	
Greenwich	100%	83	376	11	
Harrow	99.7%	6	535	0	
Havering	99.2%	7	422	666	

Legend

Moderate

Strong — Weak

Note: 1. UK Power Networks is the distributor network operator in the London region of England and date has been taken from the distributor's website

Source: Based on publicly available information from the councils' websites

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Moreover, grid infrastructure in Outer London is considerably bleak, with limited generation capacity estimated for 2021 in most of the council areas

Overall EV Readiness – Outer London (2/2)

Outer London (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority) (MW, 2021)	Overall EV Readiness
Hillingdon	97.3%	66	878	2	
Hounslow	100%	96	606	0	
Kingston upon Thames	99.7%	29	519	1	
Merton	100%	81	644	2	
Redbridge	100%	16	469	1	
Richmond upon Thames	100%	165	831	13	
Sutton	100%	25	421	104	
Waltham Forest	100%	42	326	4	
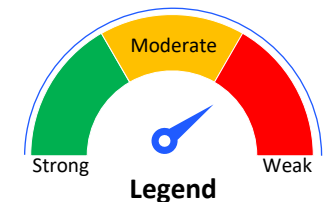
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Strong — Moderate — Weak

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South East

South East current EV charging infrastructure (1/4)
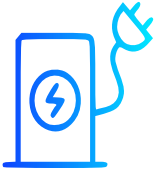
- As of January 2021, there were 2,869 public EV charging devices available across the South East England with average 28.5 devices per 100,000 population

Growth in EVCPs (October 2019–January 2021)

Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
1,966	2,143	2,437	2,478	2,649	2,869

2020 CP Distribution – by Local Authority (%)

- South East Unitary Authority(1) — 44%
- Hampshire — 14%
- Kent — 12%
- Surrey — 10%
- Oxfordshire — 9%
- West Sussex — 6%
- East Sussex — 3%
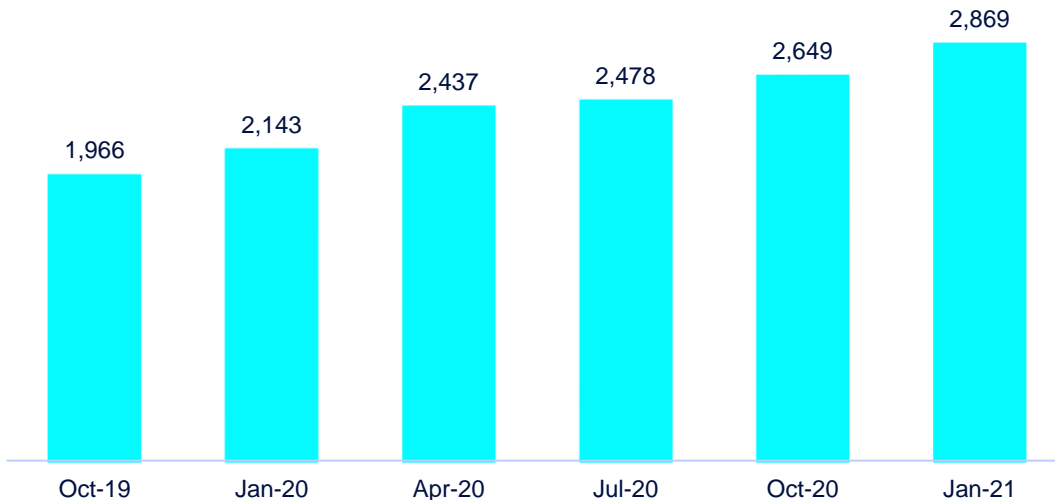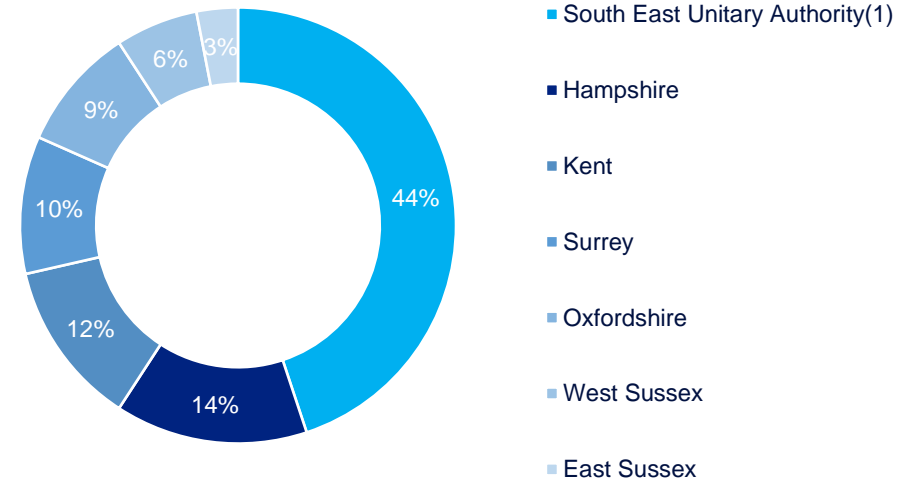
Note: 1 South East Unitary Authority includes Bracknell Forest, Brighton and Hove, Isle of Wight, Medway, Milton Keynes, Portsmouth, Reading, Slough, Southampton, West Berkshire, Windsor and Maidenhead, Wokingham and Buckinghamshire
Source: Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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South East current EV charging infrastructure (2/4)

- As of January 2021, South East Unitary Authority[1] had 1,269 public EV charging devices available across with average 42.8 devices per 100,000 population; whereas, Oxfordshire had 256 public EV charging devices with average of 35.6 devices per 100,000
- In contrast, East Sussex reported average of 18.0 devices per 100,000 population
- The county-level disparities demonstrates the scale of the challenge ahead to make the whole region ready for electric cars

South East Unitary Authority[1] EVCPs in 2020

	Milton Keynes	Brighton and Hove	Buckinghamshire	West Berkshire	Portsmouth	Southampton	Slough	Reading	Wokingham	Isle of Wight	Windsor and Maidenhead	Bracknell Forest	Medway
per 100,000 population	121.4	88.7	25.6	61.8	33	28.1	44.1	35.2	32.7	31.7	21.8	26.1	5.7
Total devices	327	258	139	98	71	71	66	57	56	45	33	32	16

- ■ Total devices
- ▬ per 100,000 population

East Sussex EVCPs in 2020

	Eastbourne	Lewes	Wealden	Hastings	Rother
per 100,000 population	31.8	21.3	11.1	15.1	10.4
Total devices	33	22	18	14	10

- ■ Total devices
- ▬ per 100,000 population

Oxfordshire EVCPs in 2020

	Cherwell	Oxford	South Oxfordshire	Vale of White Horse	West Oxfordshire
per 100,000 population	42.5	61.7	32.4	24.3	17.2
Total devices	64	94	46	33	19

- ■ Total devices
- ▬ per 100,000 population

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Go Ultra Low Oxford's framework trailed multiple technologies to optimise their city-wide infrastructure roll-out
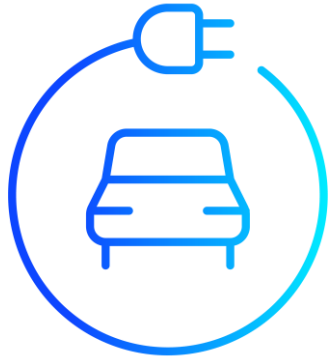
The project followed an £800,000 grant from the OZEV) in partnership with the county council to develop the scheme.
The first Phase of the project, which took place from July 2017 – June 2019, saw 46 charge-points installed across 28 locations, and the use of 10 electric Co-Wheels car club vehicles. The council is now working on preparations for phase two of the project, which will see the project size increase by up to 100 chargers.
The next phase of the project will see up to 100 further EVCPs installed across the city for residents without off-street parking.
Franklin Energy will take on the maintenance and operation of all Go Ultra Low Oxford.

Project funding breakdown

£800k capital
£16k revenue funding

Framework: Oxford City Council developed a tailored concession framework that considered relatively lower income typically generated by on-street residential EVCPs, when compared to rapid EVCPs.

Through the OZEV funding, Oxford City Council covered all capital costs (including equipment and installation) and has retained ownership of the CPs.

The EVCPs have been leased to CPOs for four years, with the option to extend the contract by a further four years.

The council did not pay a monthly fee to cover operational costs. Instead, the operator is responsible for the O&M of the EVCPs.

CPOs operate the EVCPs for profit, returning a revenue share to the council once the EVCP was profitable.

Benefits: Minimised costs and risk for the local authority while provided a functional charging infrastructure network

Allowed trialling six types of EVCPs with an option to remove the EVCPs, at the cost of the operator at the end of the trial, if the technology was not fit for purpose.

The region is also pioneering a model of rapid transport and heat electrification that can be rolled out to other cities

The Smart Local Energy Systems Demonstrators will explore how the growth in local renewables, electric vehicles (EVs), battery storage, and demand side response can be supported by a local, flexible, and responsive electricity grid unlocking new opportunities for consumers and market providers.

The projects are funded by UK Research and Innovation through the Industrial Strategy Challenge Fund.

Oxford's Energy Superhub

Led by Pivot Power, the installation of the world's first transmission-connected lithium ion and redox-flow hybrid battery – 41 other UK sites have already been identified as potential sites for replication

Cloud hosted software and AI powered software taking an algorithmic approach to forecasting and energy demand/supply optimisation, management of battery degradation

EDF Energy's V2GO

Led by EDF Energy R&D UK, the 'V2GO' is a large-scale demonstration of V2G charging in Oxford using 100 electric fleet vehicles (cars and vans) from several organisations including several delivery and taxi companies.

The project will develop, trial and evaluate potential business models for fleet operators' use of electric vehicles and their suitability for V2G charging.

The consortium is made up of 8 organisations with expertise in energy and power markets and systems, fleet operation value chains and electric mobility: EDF Energy R&D UK, University of Oxford, Oxfordshire County Council, Arrival, EO Charging, Upside Energy, and Fleet Innovation.

Project Leo

Led by SSEN P, the project will take a DNO approach to implementing new energy projects across the city, and to facilitate future forecasting and planning. A local energy marketplace will be created which will enable virtual aggregation of loads and the ability to dispatch flexibility across a range of projects, as well as execute local peer-to-peer trading. A data interface with the DSO will enable better active network management and visibility/forecasting of local constraints.

Smart Hub SLES, West Sussex

Led by Cloud Infinity, the project will integrate energy management across housing and transport infrastructure The proposed project is will deploy several innovative technologies (a hybrid hydrogen/EV filling station and mesh networks for power management) alongside more established but not widely deployed technologies such as heat networks.

Southeast Unitary Authority: 2021 new initiatives and demonstrator projects

Milton Keynes

- The Milton Keynes Council Domestic Energy Balancing EV charging project is investigating ways to balance the peaks of electricity use associated with charging EVs at home. Three technologies are trialled utilising CrowdCharge's demand management platform: smart (V1G) charging, vehicle to grid (V2G) charging and stationary home battery storage.
- CrowdCharge is delivering the trial on behalf of Milton Keynes Council, with Flexitricity as the energy demand response partner.

Buckinghamshire

- Buckinghamshire Council have been awarded £105,000 funding from the OZEV be used to install 32 new EVCPs over the next few months.

Portsmouth

- Portsmouth City Council received £6.6m of government funding for development of CAZ.
- The funding also includes £500,000 to install rapid EV charging points in the city and, at first, these will be available for drivers of electric taxis and private hire vehicles.

Slough

- The council was awarded £370,035 from the Defra Air Quality Grant Fund towards an electric taxi and private hire vehicle demonstration project
- The council was also awarded £157,500 by the Office for Zero Emission's Ultra Low Emission Taxi Infrastructure Scheme to install seven rapid EV charge points – which be installed this year – in Slough for taxi priority use..

The abbreviations used: Clean Air Zones (CAZ)

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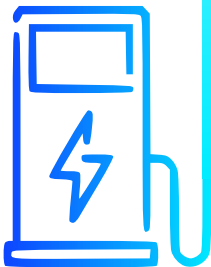
East Sussex: 2021 new initiatives and demonstrator projects
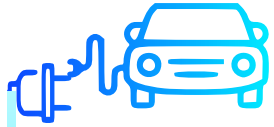
Wealden

- Wealden District Council is looking for business partners to expand the network of EVCP. Wealden is one of the biggest districts in the South East but, as a largely rural area, commercial investment in public EVCI has been slow. This leaves it at risk of lagging behind in the EV transition.
- However, the District Council owns and operates 36 public car parks. Some of which could be used to provide EVCPs. There are currently 17 publicly accessible car-charging connections across eight locations in Wealden.
- Partnerships: Looking to find private sector partners to share both the revenue and the risks involved in expanding the EVCI. It will also enable the Council to seek grant funding for areas where EVCPs won't initially be commercially viable. The council will work with neighbouring councils where possible, and it will pursue the grant options available through the OZEV.

Hastings

- The Hastings Borough Council agreed to provisionally allocate £50,000 funds to install 12 EVCPs in two town centre car parks through the government's Town Board Accelerator Fund programme.
- However, the Council also have challenged East Sussex County Council to install these CPs, as the responsibility, and the power lies with the County Council
- East Sussex County Council is one of the very few councils across the UK that does not currently provide on-street charging points for EV.
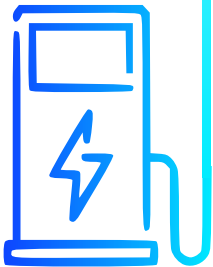
Oxfordshire: 2021 new initiatives and demonstrator projects

Oxfordshire

- Oxford's Local Authority Trading Company (LATCO) has won a £160,000 grant awarded by Innovate UK, part of UK Research and Innovation to collaborate with Oxfordshire County Council to develop a device allowing households without off-street parking to charge EVs at home. The funding will enable the joint team to build on the concept originally piloted in Oxford as part of Go Ultra Low Oxford.

- The Ox Gul-e project is the latest in a suite of projects putting Oxfordshire at the forefront of innovation in EV charging; the IHub's county-wide Park and Charge, VPACH and Vehicle-to-Grid Oxfordshire projects are piloting over-night charging hubs for drivers without off road parking, new models for EV charger ownership, and the potential for EV fleets to support the grid through acting as energy storage units.

- Oxford City Council, and Oxfordshire County Council are also planning to introduce the ZEZ, which will begin with the ZEZ Pilot in August 2021. The Zero Emission Zone is part of a wider local transport plan which aims to improve connectivity, reduce emissions and support sustainable growth across Oxford and Oxfordshire.

West Oxfordshire

- West Oxfordshire District Council approved joint strategy to accelerate EVCI. Developed in collaboration with Oxfordshire County Council and local authority partners, the OEVIS lays out the framework to realise a countywide vision for the charging of EVs.

- The OEVIS sets an aspiration for 7.5% of all local authority managed public car park spaces to be adapted to fast or rapid EVCPs.

- 140 units, able to charge 280 cars simultaneously, are due to be rolled out across the county through the government and private sector backed Park and Charge Oxfordshire project. 35 units, servicing 70 parking bays, will be installed in West Oxfordshire later this year.

- On top of this, the Council is currently in the process of evaluating tenders to appoint a partner to plan and install additional EVCPs in the district, to cover a wider and more rural geographic distribution.

The abbreviations used: The Zero Emission Zone (ZEZ); The Oxfordshire Electric Vehicle Infrastructure Strategy (OEVIS)
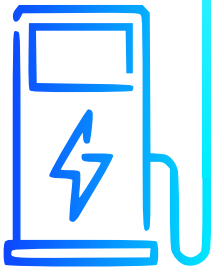
South East current EV charging infrastructure (3/4)
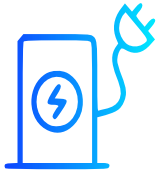
- As of January 2021, there were 415 public EV charging devices available across Hampshire with average of 29.2 devices per 100,000 population; whereas, Kent reported 352 public EV charging devices with average of 21.6 devices per 100,000 population
- Further in 2020, Kent City Council secured £60,000 to install ~300 charge points across the region over 2020–2021, as part of its strategic plan to achieve carbon neutrality in Kent by 2050; whereas, Hampshire City Council pledged to install 50 new on-street electric vehicle (EV) EVCPs in Eastleigh and Winchester in March 2021 as part of its innovative pilot scheme

Hampshire EVCPs in 2020

	New Forest	Basingstoke and Deane	Winchester	Hart	Test Valley	East Hampshire	Eastleigh	Rushmoor	Havant	Gosport	Fareham
per 100,000 population	41.1	34.5	46.5	47.4	34.1	26.2	21.7	29.6	19.8	13	6.9
Total devices	74	61	58	46	43	32	29	28	25	11	8

Legend: Total devices — per 100,000 population

Kent EVCPs in 2020

	Maidstone	Canterbury	Swale	Dartford	Tunbridge Wells	Ashford	Folkestone and Hythe	Thanet	Sevenoaks	Tonbridge and Malling	Dover	Gravesham
per 100,000 population	32.6	32.6	23.3	30.2	28.6	25.4	23.9	16.2	14.9	12.9	9.3	9.4
Total devices	56	54	35	34	34	33	27	23	18	17	11	10

Legend: Total devices — per 100,000 population

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Hampshire and Kent : 2021 new initiatives initiatives and demonstrator projects
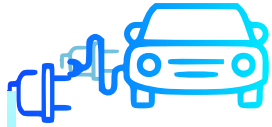
Hampshire

- Hampshire County Council will install 50 new on-street EVCPs in Eastleigh and Winchester as part of a pilot scheme. The move will see a pilot scheme involving the installation of two different types of on-street EVCPs streetlighting columns, which will be used in the Winchester trial; and bollards, which will be used in the Eastleigh trial.
- The pilot is partly funded by £125,000 OZEV and partly funded by the local authority

Kent

- Kent County Council was awarded £180,000 from the OZEV to install the rapid chargers and has been working with district and borough councils to get them put in place. Installations began at the start of 2021, with around 300 chargers to be installed by end of 2022
- Additionally, County Council are developing a project to create a Kent wide EV charger network with the district and borough council partners.

Dover
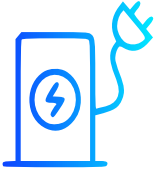
- Dover District Council is to install 49 EVCPs at 18 locations in Dover, Deal and Sandwich, including both council-owned public car parks and on-street in the biggest single investment in EVCPs in the district to date.
- The project is founded by the £224,270 from the OZEV

Canterbury

- Canterbury City Council is set to install c.650 EVCPs across the district over next four years.
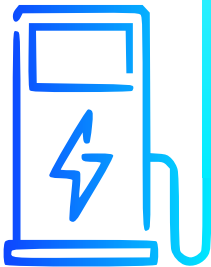
South East current EV charging infrastructure (4/4)
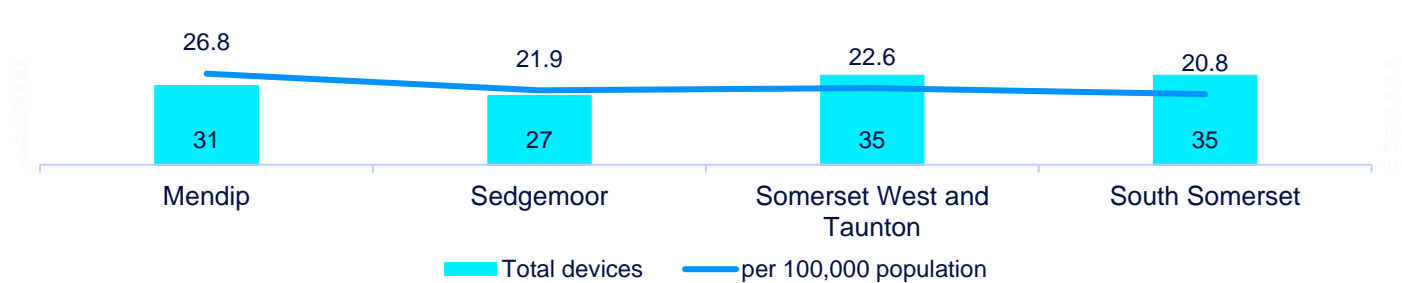
As of January 2021, there were 298 public EV charging devices available across Surrey with average of 24.8 devices per 100,000 population; whereas, 182 public EV charging devices available across West Sussex with average of 21.2 devices per 100,000 population

- Surrey County Council (SCC), under Low Emission Transport Strategy, is focusing on a 2 year (Nov 2019–Nov 2021) EV charging infrastructure pilot to install 80 fast chargers in urban and residential on-street sites across 4 boroughs Guildford, Woking, Spelthorne and Waverley
  - This initiative is funded Enterprise M3 Local Enterprise Partnership (EM3 LEP)

Surrey EVCPs in 2020

	Elmbridge	Epsom and Ewell	Guildford	Mole Valley	Reigate and Banstead	Runnymede	Spelthorne	Surrey Heath	Tandridge	Waverley	Woking
Total devices	37	15	44	21	27	27	48	21	13	28	17
per 100,000 population	27.0	18.6	29.5	24.1	18.2	30.2	48.1	23.5	14.8	22.2	16.9

Total devices — per 100,000 population

West Sussex EVCPs in 2020

	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing
Total devices	10	20	46	35	24	34	13
per 100,000 population	15.6	12.4	38.0	31.1	16.7	22.5	11.8

Total devices — per 100,000 population

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Surrey and West Sussex : 2021 initiatives and demonstrator projects

Surrey County Council

- The Transport Policy team in (SCC) is leading a two-year EVCI pilot, that will install 80 on-street fast (22kW) charging points across four boroughs in Surrey: Guildford, Working, Spelthorne and Waverley. The findings will be used to develop an EV charging design and policy guidelines.
- The phase one is funded by EM3 LEP and the second phase of the pilot will consider OZEV and private funding routes to expand the charging network in residential on-street areas serving areas without off street parking.

Mole Valley

- Mole Valley District Council (MVDC) has successfully bid for £115K from the Getting Building Fund from Coast to Capital LEP which will enable the installation of 90 publicly-accessible EV charging bays in car parks across Mole Valley.
- The grant funding matched by £115,000 from MVDC's capital programme for car park refurbishment, will see the new bays installed by spring 2022..

Spelthorne

- Spelthorne Council have been granted £256,686 from the government's Air Quality Grant, that will use to encourage take up of electric taxis through awareness campaign.
- The council is working in partnership with Elmbridge Borough Council, Epsom and Ewell Borough Council, Guildford Borough Council, Reigate and Banstead Borough Council, Waverley Borough Council, Working Borough Council, and Surrey County Council

West Sussex

- West Sussex County Council, in partnership with Horsham, Adur and Worthing, Mid Sussex, Arun and Crawley district and borough councils have released a tender to secure a supplier who will work with us to plan, then fund, install, market and operate a publicly accessible CP network across the county.
- This work helps to deliver the County Council's EV Strategy which was adopted in 2019
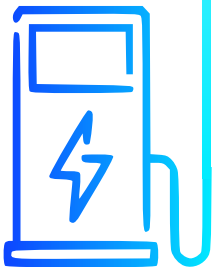
State of South East on the basis of its current charging point infrastructure, EV adoption and total aggregated developer capacity limit

EV Readiness Parameters – South East

Charging Infrastructure (Number of Charging Devices/100,000 population)	>35	20–35	<20
EV Adoption Levels (Number of EV Vehicles/100,000 population)	>700	400–700	<400
Grid Infrastructure (Total Generated Capacity (MW) within the local authorities)	>400 MW	200–400 MW	<200 MW
Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate

Strong   Weak

Legend
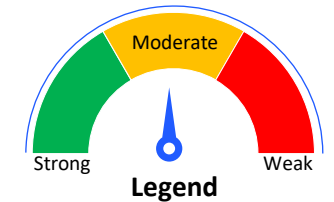
Overall EV readiness in all the local authorities in South East is moderate to strong, primarily due to presence of adequate charging infrastructure

Overall EV Readiness – South East

South East (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority] (MW,2021)	Overall EV Readiness
Bracknell Forest	98%	26	446	NA	
Brighton and Hove	98.4%	89	292	2	
Isle of Wight	0%	32	315	NA	
Medway	90.2%	6	320	153	
Milton Keynes	91.3%	121	4,738	0	
Portsmouth	100%	33	1,686	NA	
Reading	99.7%	35	359	NA	
Slough	100%	44	9,882	NA	
Southampton	100%	28	211	NA	
West Berkshire	62.7%	62	754	NA	
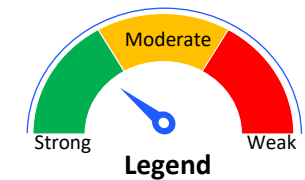
Moderate
Strong   Weak
Legend

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Moreover, the grid infrastructure in many councils is also developed with headroom for further ChargePoints

Overall EV Readiness – South East

South East (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] [Total Generation Capacity Estimates by Local Authority] (MW,2021)	Overall EV Readiness
Windsor and Maidenhead	90.5%	22	705	NA	
Wokingham	82.5%	33	658	NA	
Buckinghamshire	62%	26	838	568	
East Sussex	60.6%	18	406	2,545	
Hampshire	70.6%	29	620	NA	
Kent	66.7%	21	387	2,226	
Oxfordshire	44.8%	36	751	34	
Surrey	81%	25	762	499	
West Sussex	74.8	21	433	365	
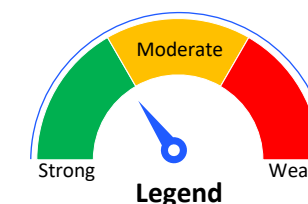
Moderate

Strong   Weak

Legend

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South West

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South West current EV charging infrastructure (1/3)
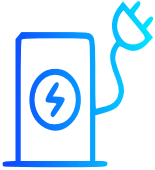
- The region accounts for ~7% of the public charging points in the UK and reported 1,555 public EV charging devices with an average of 27.2 devices per 100,000 population
- During Jan 2020– Jan 2021 , South West region reported a 21.4% increase in charging points with addition of 274 devices

Growth in EVCPs (October 2019–January 2021)
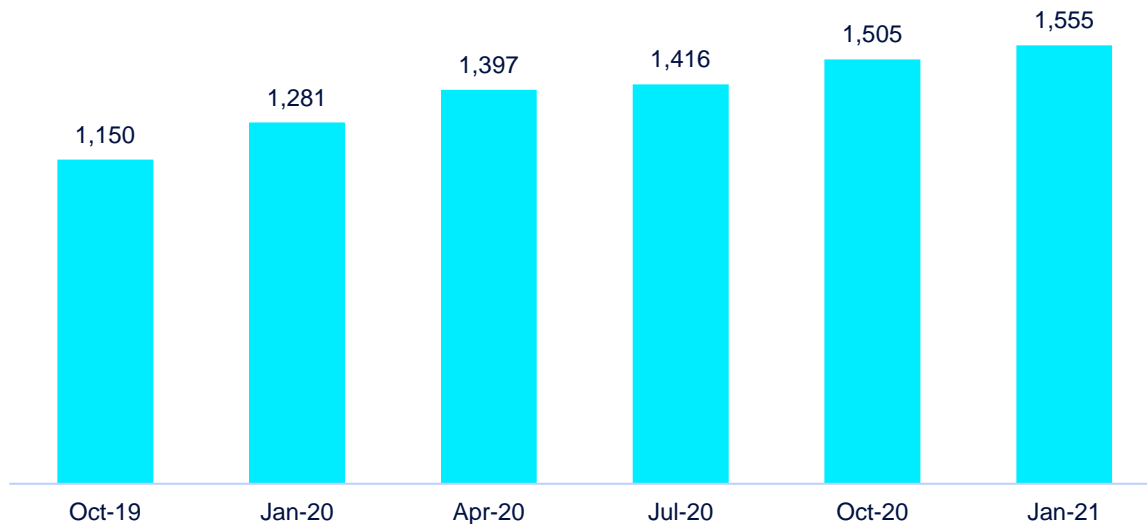
Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
1,150	1,281	1,397	1,416	1,505	1,555

2020 CP Distribution – by Local Authority (%)

- South West Unitary Authority1 — 64%
- Devon — 16%
- Gloucestershire — 12%
- Somerset — 8%

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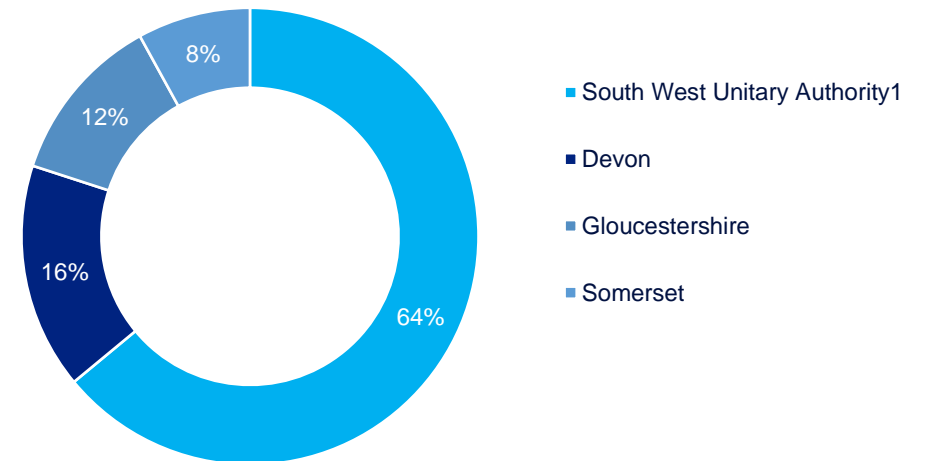
South West current EV charging infrastructure (2/3)
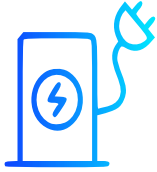
- As of January 2021, South West Unitary Authority[1] reported 995 public EV charging devices available with average 24.6 devices per 100,000 population; whereas, Devon reported 248 public EV charging devices with average 31.8 devices per 100,000 population
- Devon County Council, funded by the European Regional Development Fund, aims to install 25 electric vehicle charge points in car parks across Devon over 2020–2022

South West Unitary Authority[1] EVCPs in 2020

	Cornwall	Wiltshire	Bristol, City of	Dorset	North Somerset	South Gloucestershire	Bournemouth, Christchurch and Poole	Plymouth	Bath and North East Somerset	Swindon	Torbay
per 100,000 population	39.9	28	22.2	23.8	40.5	26.3	18.7	27.1	32.1	18.9	17.6
Total devices	227	140	103	90	87	75	74	71	62	42	24

Total devices ——— per 100,000 population

Devon EVCPs in 2020

	East Devon	Exeter	Mid Devon	North Devon	South Hams	Teignbridge	Torridge	West Devon
per 100,000 population	33.5	30.4	27.9	42.2	33.3	17.1	32.2	37.6
Total devices	49	40	23	41	29	23	22	21

Total devices ——— per 100,000 population

Note:1. South West Unitary Authority includes Bath and North East Somerset, Bournemouth, Christchurch and Poole, Bristol, Cornwall, Dorset, Isles of Scilly, North Somerset, Plymouth, South Gloucestershire, Swindon, Torbay and Wiltshire
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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South West current EV charging infrastructure (3/3)

- As of January 2021, there were 184 public EV charging devices available across Gloucestershire with average 28.9 devices per 100,000 population; whereas, Somerset reported 128 public EV charging devices with average 23.0 devices per 100,000 population

Gloucestershire EVCPs in 2020

	Cheltenham	Cotswold	Forest of Dean	Gloucester	Stroud	Tewkesbury
per 100,000 population	27.5	46.7	18.4	27.1	32.5	21
Total devices	32	42	16	35	39	20

Total devices — per 100,000 population

Somerset EVCPs in 2020

	Mendip	Sedgemoor	Somerset West and Taunton	South Somerset
per 100,000 population	26.8	21.9	22.6	20.8
Total devices	31	27	35	35

Total devices — per 100,000 population

2019 Go Ultra Low West's programme involves Siemens Mobility leading multiple partnerships to expand the council owned Revive network
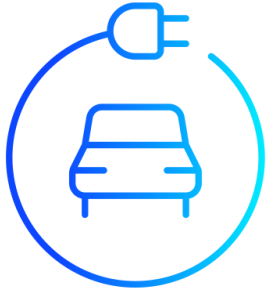
Following the launch of Revive, the EV charging network for the West of England, Siemens Mobility working with partner organisations Alfen and ENGIE EV Solutions (formerly ChargePoint Services) delivered a series of charging hubs and c.120 new EV connections across the region.

The new charging network is funded by the OZEV, which awarded the four West of England authorities £7.1m as part of the GULW programme.

Framework: Revive a council-owned public charging network serving: Bristol, Bath and North East Somerset, South Gloucestershire and North Somerset.

The scheme will feature four rapid CP hubs, with an additional 120 new or upgraded EVCPs connections across the region by 2021.

Siemens Mobility leading the supply, commissioning and operation of the network, and will be supplying more than 15 rapid charging systems at locations throughout the region.

Alfen, who will be supplying a minimum of 45 new dual-socket AC smart charge points, and ENGIE EV Solutions, who is responsible for operating the network and providing the interface with drivers.

As a result, drivers will have access to any GeniePoint Network charge point across the country with GeniePoint users also able to use Revive charge points.

Benefit: The Revive network demonstrates the success of multiple organisations coming together to develop EVCI provision across the West of England.

The GeniePoint Platform offers total interoperability, which allows drivers signing up to the Revive network to access ENGIE's wider GeniePoint Network that has nationwide coverage across the UK; additionally, existing GeniePoint Network drivers will also be able to utilise the Revive network

Other local authorities trailing 'no upfront or low costs' models
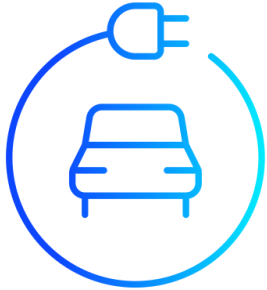
No upfront or low costs models — where CPOs or other private players approach local authorities with the offer of 'free' EVCPs .

Although the details vary, often companies will offer fast or rapid EVCPs at no cost, including equipment, installation, O&M.

The CPO is likely to be highly selective on locations, wanting only 'prime sites', a straightforward grid connection and no need for a grid upgrade.

2019, Suffolk County Council, working in partnership with EO and Bulb to build a new network, Plug In Suffolk

Local businesses are being encouraged to 'host' fast EVCPs that are open to the public. Businesses would pay £1.99 per EVCP per day and receive 90% of the revenue generated. The installation, O&M costs are covered by the network.

2017, Mid Devon District Council team up with InstaVolt to install rapid EVCPs across the county, at no cost to the taxpayer

InstaVolt installs the chargers for free, giving the council a rental income for housing them on their land and makes it money from the sale of electricity per kWhr. With no connection fee, drivers only pay for what they use.

2019, Swindon Borough Council enlisted the help of The Phoenix Works to provide an EV charging solution for their employees and the public

Providing a full turnkey solution, the project covering the site design, enabling works and installation of four new EVCPs situated at two different locations.
To deliver a future-proof solution, it was essential to upgrade the distribution board. This will enable additional charge-stations with Dynamic Load Management to be added later without the need for further upgrades, as the demand from EV drivers continues to increase.

South West Unitary Authority: 2021 new initiatives and demonstrator projects

Cornwall

- Cornwall Council will receive funding from the ERDF for £2.9m to cover the installation of more than 150 EVCPs. The council is contributing £725,000 to top up the funding.
- These new units will be installed in areas where there's currently limited availability, as well as in council car parks and offices

Bristol

- Bristol City Council has opened its latest public EV charge points as part of the Revive vehicle charging network.. The rapid (50kW) and fast (7-22kW) charging facilities for up to six vehicles iss one of the five sites that are currently being built across the city.
- Installed as part of the GULW project, funded by the OZEV, Bristol City Council has now installed 30 of the planned 50 fast and rapid public charging bays in convenient locations across the city.

Dorset

- Dorset Council announced 44 new EVCPs to be installed across the county.The installation and management costs of the EVCPs will be met by Joju Charging, an energy service provider, and their funding partners Gronn Kontakt, owned by Statkraft.
- In return, Dorset Council will receive a profit share generated by each CP for the next 15 years.

North Somerset

- The first in a series of New EVCP have been installed in North Somerset. The series of new EVCPs will see 30 EV charging bays installed, with both fast (7 and 22kW) and rapid chargers (50kW) in central locations or those with high visitor numbers, as part of the West of England local authority owned Revive network..

Swindon

- Infrastructure for 130 EVCP is currently being installed and an initial 20 active charging sockets are being set up in shared and visitor parking bays. The council was recently awarded government funding to install 22 EVCPs in residential streets within Swindon and new parking standards requiring developers to provide EV points where there is a requirement for parking spaces for both new residential and non-residential developments.
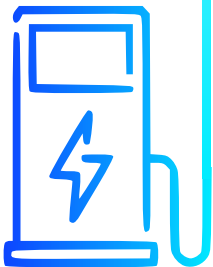
Devon, Gloucester and Somerset: 2021 new initiatives and demonstrator projects

The West of England Local Authorities as part of Go Ultra Low West (GULW) project

- Funding to install EVCPs across South Gloucestershire region has been awarded by the OZEV to the West of England Local Authorities as part of GULW project.
- 120 EV charging connections will be installed as part of the Revive vehicle charging network, with 42 of these located across South Gloucestershire.

East Devon

- East Devon District Council's (EDDC) backed the proposals, for the Innovate UK funded Exeter Rapid Charging Project Plans to install up to 30 rapid EVCPs across several district car parks..

Exeter

- Installation of 8 rapid EV charging hubs around Exeter is set to get under way. It is the first phase of a private sector-led scheme that includes Devon County Council (DCC) Regen, Co Cars, ZPN Energy and Gamma Energy.
- The project is funded by Innovate UK and the OZEV and aims to deliver 12 EVCPs across the city over the next two years. The locations for the first eight charging points have been given the green light by the Exeter Highways and Traffic Orders Committee (HATOC).

Teignbridge

- Teignbridge District Council secures funding from several schemes to encourage the move to EVs.
- Rapid charge points have already been installed as part of a Highways England scheme
- A further 4 rapid EVCPs will follow by Feb 2022 funded by the Devon Low-Carbon Energy Transport Technology Innovator Fund which used money from the European Regional Development Fund.
- A recent bid has been also made for a further 12 car park sites across Teignbridge as part of the OSRC Scheme..

Mendips

- Mendip District Council announced the installation of 24 EVCPs that will be placed across seven council car parks in the district, providing 56 bays for EV charging.

The abbreviation used: Go Ultra Low West (GULW)

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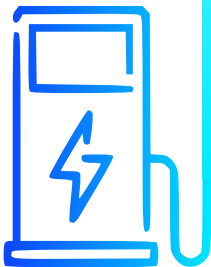
State of the South West local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

EV Readiness Parameters– South West

	Charging Infrastructure (Number of Charging Devices/100,000 population)	>30	16–30	<16
	EV Adoption Levels (Number of EV Vehicles/100,000 population)	>400	250–400	<250
	Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>90%	85–90%	<85%
	Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate
Strong   Weak
Legend

Source: Based on publicly available information from the councils' websites

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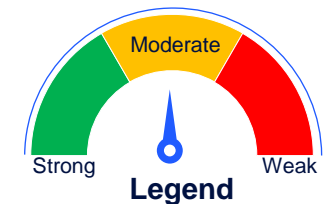
Bath, Cornwall, Devon and North Somerset have the highest EV readiness in the South West region

Overall EV Readiness – South West

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Bath and North East Somerset	63.5%	32	561	307	233	29	95%	
Bournemouth, Christchurch and Poole	99.4%	19	346	NA[2]	NA	NA	NA	
City of Bristol	100.0%	22	354	842	595	165	90%	
Cornwall	17.0%	40	297	1,012	703	208	89%	
Dorset	43.5%	24	441	85	57	13	92%	
Isles of Scilly	0.0%	0	1,619	9	7	10	62%	
North Somerset	61.1%	41	512	535	296	55	94%	
Plymouth	100.0%	27	134	525	354	53	94%	
South Gloucestershire	82.5%	26	1,732	337	225	22	96%	
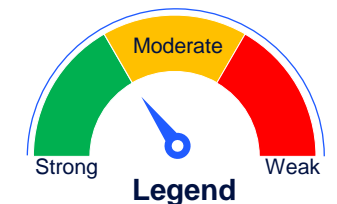
Moderate

Strong Weak

Legend

Note: 1. Capacity of these counties is sum of the districts under them, 2.'NA' stands for no information available on the public domain
Source: Based on publicly available information from the councils' websites

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Overall South West region has moderate-high EV Readiness

Overall EV Readiness – South West

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Swindon	88.6%	19	4,900	NA	NA	NA	NA	
Torbay	86.7%	18	279	304	236	47	92%	
Wiltshire	32.6%	28	504	NA	NA	NA	NA	
Devon	24.5%	32	445	1,726	1,186	201	94%	
Gloucestershire	51.6%	29	1,689	NA	NA	NA	NA	
Somerset	24.6%	23	358	861	597	98	94%	
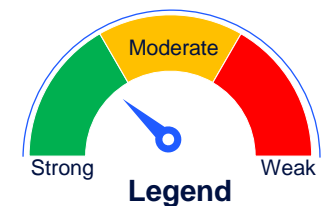
Legend

Note: 1. Capacity of these counties is sum of the districts under them, 2. 'NA' stands for no information available on the public domain
Source: Based on publicly available information from the councils' websites

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North West

North West current EV charging infrastructure (1/3)

- As of January 2021, there were 1,410 public EV charging devices available across North West with average of 22.1 devices per 100,000 population, which is lower than England's average of 28.9 devices per 100,000 population
- Over Jan 2020 – Jan 2021, North West reported an increase of 131 charging devices in the region

Growth in EVCPs (October 2019–January 2021)
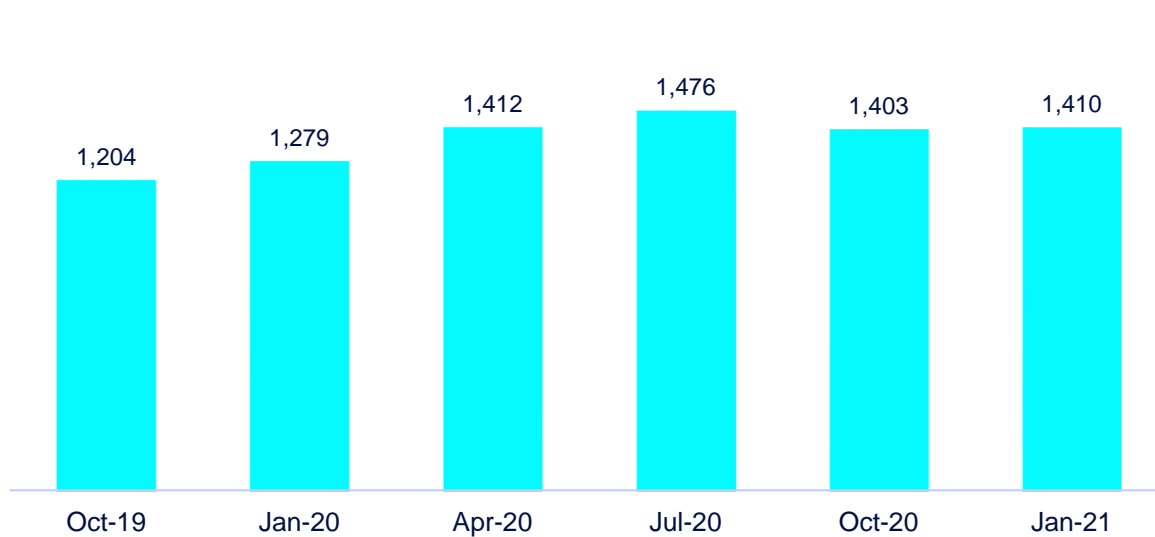
Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
1,204	1,279	1,412	1,476	1,403	1,410

2020 CP Distribution – by Local Authority (%)

- Greater Manchester (Met County): 28%
- Lancashire: 24%
- North West Unitary Authority(1): 20%
- Merseyside (Met County): 14%
- Cumbria: 14%
- 14%

Note: 1. North West Unitary Authority includes Blackburn with Darwen, Blackpool, Cheshire East, Cheshire West and Chester, Halton and Warrington
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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North West current EV charging infrastructure (2/3)
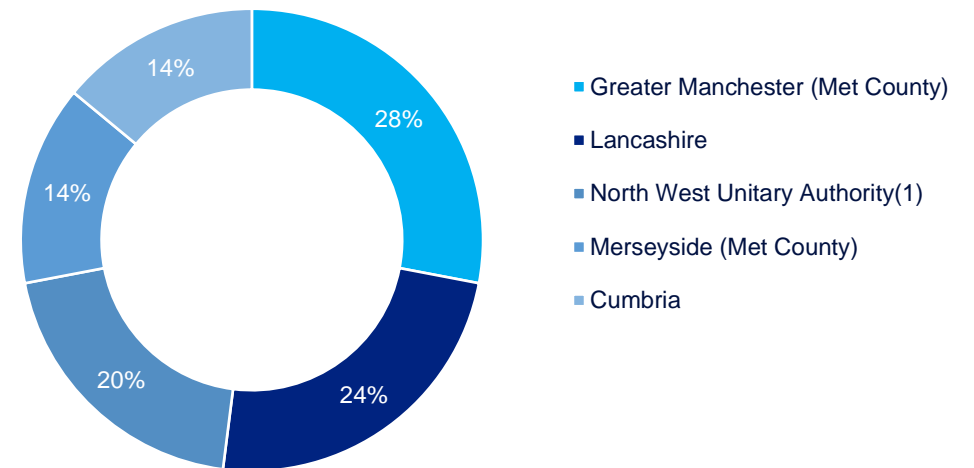
- As of January 2021, Cumbria reports sufficient EV charging points to meet the current EV charging demand with average of 39.3 devices per 100,000 population, which is higher than England's average of 28.9 devices per 100,000 population
- In contrast, Greater Manchester reports 395 public EV charging devices with average of just 13.6 devices per 100,000 population, and North West Unitary Authority [1] reports 279 public EV charging devices with average of just 20.0 devices per 100,000 population

North West[1] Unitary Authority EVCPs in 2020

	Warrington	Cheshire East	Cheshire West and Chester	Blackburn with Darwen	Blackpool	Halton
per 100,000 population	40.5	19.5	16.6	20	14.3	9.3
Total devices	85	75	57	30	20	12

Total devices — per 100,000 population

Cumbria EVCPs in 2020

	South Lakeland	Carlisle	Eden	Copeland	Allerdale	Barrow-in-Furness
per 100,000 population	73.3	35.9	69.5	32.3	20.5	4.5
Total devices	77	39	37	22	20	3

Total devices — per 100,000 population
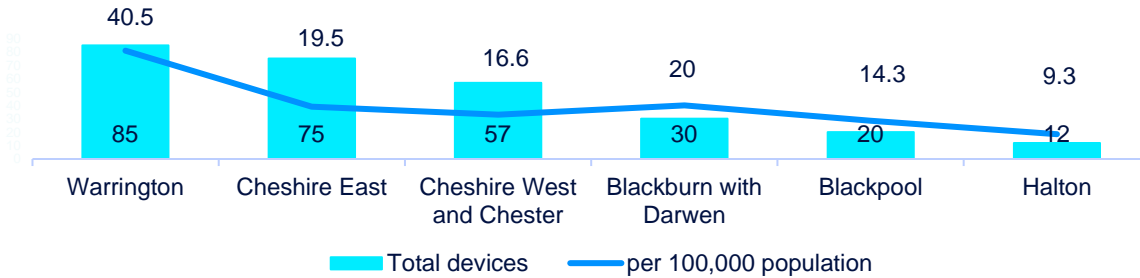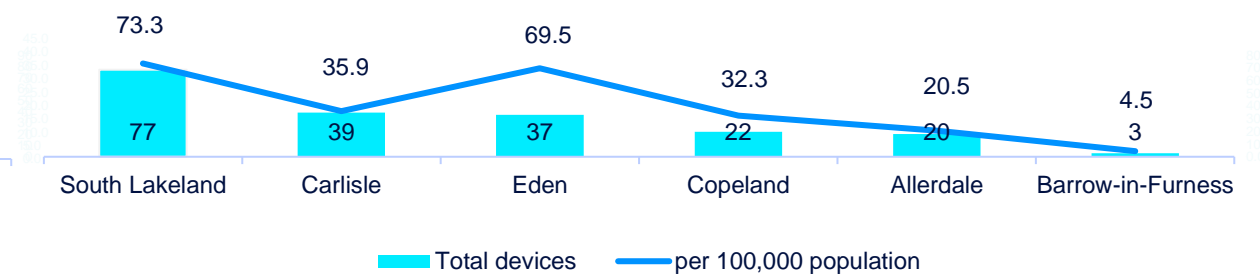
Greater Manchester EVCPs in 2020
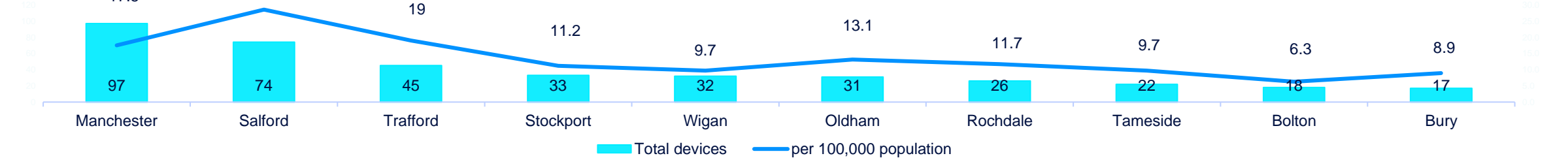
	Manchester	Salford	Trafford	Stockport	Wigan	Oldham	Rochdale	Tameside	Bolton	Bury
per 100,000 population	17.5	28.5	19	11.2	9.7	13.1	11.7	9.7	6.3	8.9
Total devices	97	74	45	33	32	31	26	22	18	17

Total devices — per 100,000 population

Note: 1. North West Unitary Authority includes Blackburn with Darwen, Blackpool, Cheshire East, Cheshire West and Chester, Halton and Warrington
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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GMEV[1] Network introduced a procurement framework with various engagement models to install EVCI in the Greater Manchester region
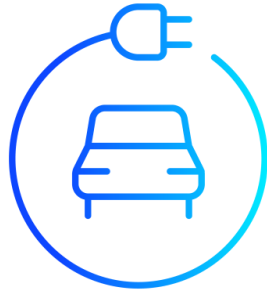
TfGM took over the GMEV Network in 2014.

TfGM identified that cost savings could be achieved through a regional framework that avoids market fragmentation and takes advantage of economies of scale and resulting in a more attractive private sector investment opportunity.

The GMEV framework contract was available to all AGMA and associated members,15 plus private landowners in the region.

In June 2020, the GMEV network was rebranded to Be.EV, and transitioned from being a free-to-use to a paid-for charging network.

As part of the rebrand, 24 new rapid chargers were to be installed and existing EVCPs replaced with new fast chargers. The new network is operated by Amey.

Framework: The procurement framework is set out for a duration of 13 years (7 years with the option to extend twice by 3 years at a time); the framework is structured into several sections:

Be.EV (publicly-owned) infrastructure	Supplier owned infrastructure	Electricity Supply
It covers the existing network and additional public-sector funded and owned EVCPs.	Be.EV 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 EVCP is on public land; in return, the supplier will set pricing and collect all revenue.	This involves an opportunity to supply the Be.EV (publically-owned) infrastructure at a capped kWh rate; however, there is a renewable energy stipulation. Operational and electricity supply costs are expected to be £2m a year for the duration of the framework contract (13 years)
Suppliers will be expected to upgrade, operate and maintain new and existing infrastructure and collect payments on behalf of Be.EV, at prices set by Be.EV.		

Funding: The total contract value was £58m, including £2m already awarded by the Joint Air Quality Unit (JAQU) as a part of Early Measures Intervention Funding, £1.8m awarded through the OZEV ULEV Taxi Infrastructure scheme and £1.89m awarded for bus charging infrastructure.

Future external funding applications by TfGM were expected to raise an additional £21m with a further £2m of external funding attained through applications from individual local authorities.

North West Unitary Authority, Greater Manchester and Cumbria: 2021 new initiatives and demonstrator projects

Greater Manchester

- An offer to fund the rollout of EVCI across Greater Manchester has been launched by Abundance Investment and Iduna Electric Vehicle Charging Infrastructure. Iduna is seeking to raise £4m to finance the installation of 50 new fast or rapid public EV chargers at high traffic locations across the region, delivered in partnership with Transport for Greater Manchester (TfGM).The five-year regulated and tradable bond will pay an annual return of 9% interest.

- The project is the first phase of Iduna's programme to install more than 160 charging points in the city by the end of 2022.

Cheshire West and Chester

- Cheshire West and Chester Council has confirmed that several new EVCPs will be installed across the borough.
- The project has been delivered by Council company Qwest Services in partnership with energy specialist, ENGIE, using funding from the Local Enterprise Partnership (LEP) and a Government OZEV grant, along with match funding from the Council.

Blackpool

- A total of £100,000 has been allocated to installing EVCPs in public car parks in Blackpool as part of the current local transport plan.

The abbreviation used: Go Ultra Low West (GULW)
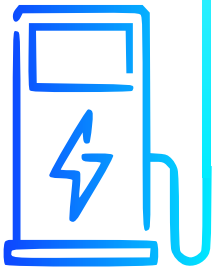
Led by Cumbria Action for Sustainability, the Scaling On-Street Charging Infrastructure (SOSCI) project delivering EVCPs across Cumbria & the North
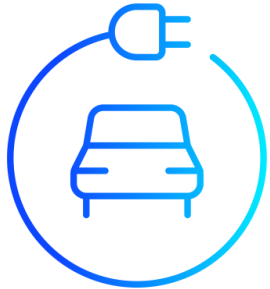
SOSCI

The SOSCI project was proposed as part of Innovate UK's electric vehicle charging for public spaces competition.

Launched in 2019, by Cumbria Action for Sustainability a partnership, led by Cybermoor and Charge my Street, is delivering the Scaling On-Street Charging Infrastructure (SOSCI) project is designed to address several EVCI challenges which currently inhibit the uptake of EVs.

Founding: £4,129,573

The first Phase successfully established the concept of community-funded EVCPs in areas under-served by larger CPOs. The first phase illustrated the feasibility of the chargers being delivered by a not-for-profit entity such as Charge My Street.

The second phase of the project is focused on scaling up the existing infrastructure that Charge My Street operates.

The aim is to install up to 200 EVCPs in Cumbria and Co. Durham that are accessible to Charge My Street users.

The EVCPs in the North West will be installed, maintained and operated by Charge My Street while those in Co. Durham will be installed and operated by Vattenfall.

The aim of the project is to successfully demonstrate that the business model, approach and processes identified can be sustainable outside of public funding with a view to either recreating the model elsewhere or expanding the network into other areas.

Partnership: It has 13 partners including Charge My Street, Cybermoor Services, EO Charging, Vattenfall, South Lakeland District Council

Carlisle Council, Durham County Council, Bay Camera and Communications, and Blackhall Mill.

North West current EV charging infrastructure (3/3)
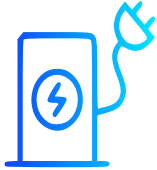
- In 2020, Lancashire County Council in partnership with bp Pulse, installed 150 on-street charging points in Lancashire to reach 335 public EV charging devices available across Lancashire in January 2021, with average of 27.5 devices per 100,000 population
- Merseyside (Met County) reported 203 public EV charging devices with average of 14.2 devices per 100,000 population; the region experiences high disparity in the installation of EV EVCPs as Liverpool contributes ~67% of total charging points in the region with other areas lacking behind in charging point development

Lancashire EVCPs in 2020

	Lancaster	Preston	Chorley	South Ribble	West Lancashire	Hyndburn	Burnley	Wyre	Fylde	Ribble Valley	Pendle	Rossendale
per 100,000 population	44.5	32.1	33.8	35.2	21	28.4	20.2	16.1	19.8	26.3	16.3	21
Total devices	65	46	40	39	24	23	18	18	16	16	15	15

Legend: Total devices — per 100,000 population

Merseyside (Met County) EVCPs in 2020

	Liverpool	St. Helens	Wirral	Sefton	Knowsley
per 100,000 population	27.1	11.1	6.2	6.9	6.0
Total devices	135	20	20	19	9

Legend: Total devices — per 100,000 population

State of North West England on the basis of its current charging point infrastructure, EV adoption and total aggregated developer capacity limit

EV Readiness Parameters – North West England

	Charing Infrastructure (Number of Charging Devices/100,000 population)	>30	15–30	<15
	EV Adoption (Number of EV Vehicles/100,000 population)	>400	250–400	<250
	Grid Infrastructure (Total Aggregated Developer Capacity Limit (MW) of the main grid supply point within the local authority)	>500 MW	250–500 MW	<250 MW
	Urban % defines the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate

Strong   Weak

Legend
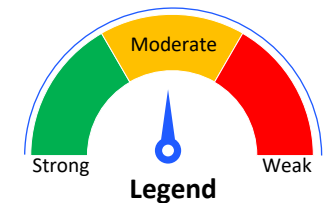
Overall EV readiness in all the local authorities in North West England is moderate to weak, primarily due to insufficient charging infrastructure

Overall EV Readiness – North West England

North West (Local Authorities)	Degree of Urbanisation (% of Urban Wards)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[3] [Based on Grid Supply Point (GSP) by Local Authority] Total Developer Capacity Limit(MW)	Overall EV Readiness
Blackburn with Darwen	95.3%	20	177	NA	
Blackpool	99.6%	14.3	213	NA	
Cheshire East	60.8%	19.5	563	97.9	
Cheshire West and Chester	73.8%	16.6	394	256.9	
Halton	97.5%	9.3	241	NA	
Warrington	87.6%	40.5	370	NA	
Cumbria	24.8%	29.6	219	965.8	
Greater Manchester	98.9%	13.9	1130	1804.9	
Lancashire	75.1	27.5	272	1977.6	
Merseyside	98.7%	14.2	180	233.3	

Legend: Strong — Moderate — Weak
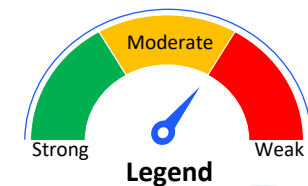
Note: 1. Electricity North West is the distributor network operator in the North West region of England and date has been taken from the company's website

Source: Based on publicly available information from the councils' websites

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East of England

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Commercial

East of England current EV charging infrastructure (1/3)

- As of January 2021, there were 1,289 public EV charging devices available across East of England with average 20.5 devices per 100,000 population
- Hertfordshire, Essex and East of England Unitary Authority are mature /developed EV markets in the region contributing ~60% of EV charging points in the region

Growth in EVCPs (October 2019–January 2021)
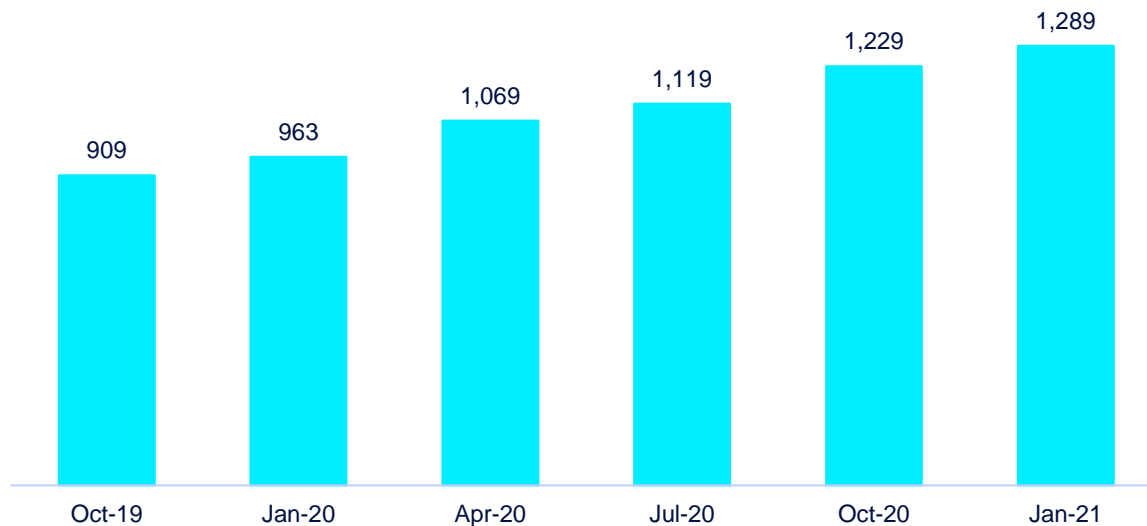
Month	EVCPs
Oct-19	909
Jan-20	963
Apr-20	1,069
Jul-20	1,119
Oct-20	1,229
Jan-21	1,289

2020 CP Distribution – by Local Authority (%)

- Hertfordshire — 22%
- Essex — 20%
- East of England Unitary Authority (1) — 18%
- Norfolk — 15%
- Suffolk — 15%
- Cambridgeshire — 9%

Note:1. East of England Unitary Authority includes Bedford, Central Bedfordshire, Luton, Peterborough, Southend-on-Sea and Thurrock
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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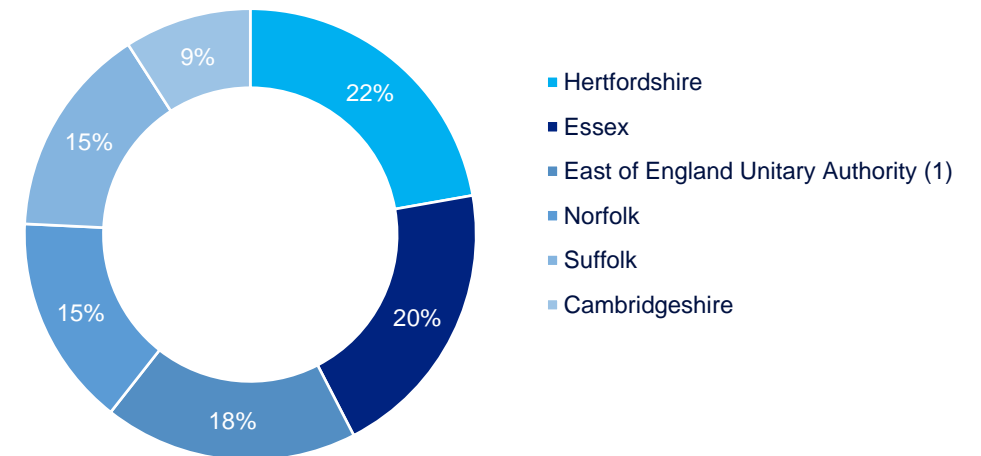
East of England current EV charging infrastructure (2/3)
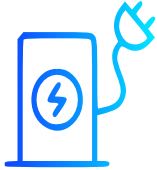
- As of January 2021, East of England Unitary Authority[1] reported 238 public EV charging devices with average 19.5 devices per 100,000 population indicating need for more charging devices in the region
- Cambridgeshire , Norfolk and Suffolk reported117, 198 and 193 public EV charging devices, with average of 17.4, 22.2 and 24.9 devices per 100,000 population, respectively

East of England Unitary Authority[1] EVCPs in 2020

	Peterborough	Luton	Bedford	Central Bedfordshire	Thurrock	Southend-on-Sea
per 100,000 population	29.2	26.8	28.9	13.5	10.3	8.2
Total devices	59	57	50	39	18	15

Total devices — per 100,000 population
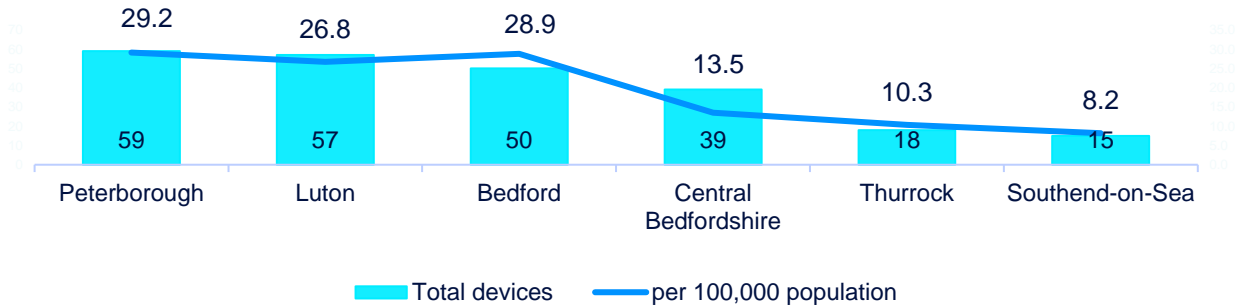
Cambridgeshire EVCPs in 2020
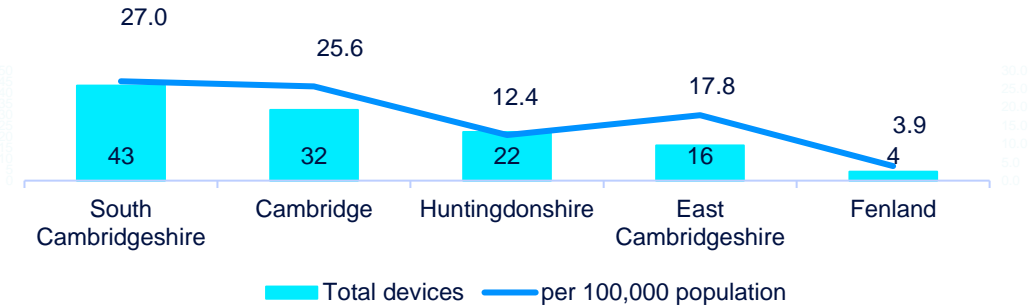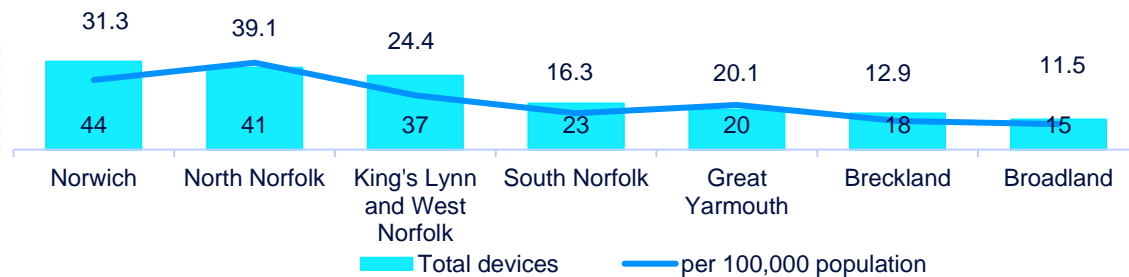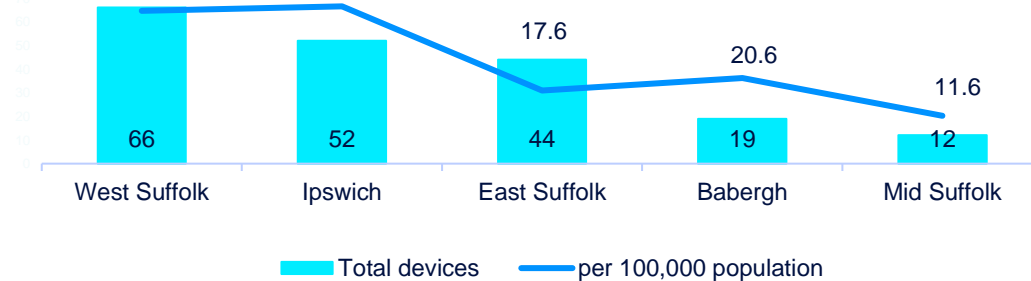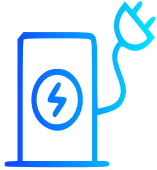
	South Cambridgeshire	Cambridge	Huntingdonshire	East Cambridgeshire	Fenland
per 100,000 population	27.0	25.6	12.4	17.8	3.9
Total devices	43	32	22	16	4

Total devices — per 100,000 population

Norfolk EVCPs in 2020

	Norwich	North Norfolk	King's Lynn and West Norfolk	South Norfolk	Great Yarmouth	Breckland	Broadland
per 100,000 population	31.3	39.1	24.4	16.3	20.1	12.9	11.5
Total devices	44	41	37	23	20	18	15

Total devices — per 100,000 population

Suffolk EVCPs in 2020

	West Suffolk	Ipswich	East Suffolk	Babergh	Mid Suffolk
per 100,000 population	36.9	38.0	17.6	20.6	11.6
Total devices	66	52	44	19	12

Total devices — per 100,000 population

Note: 1. East of England Unitary Authority includes Bedford, Central Bedfordshire, Luton, Peterborough, Southend-on-Sea and Thurrock
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map
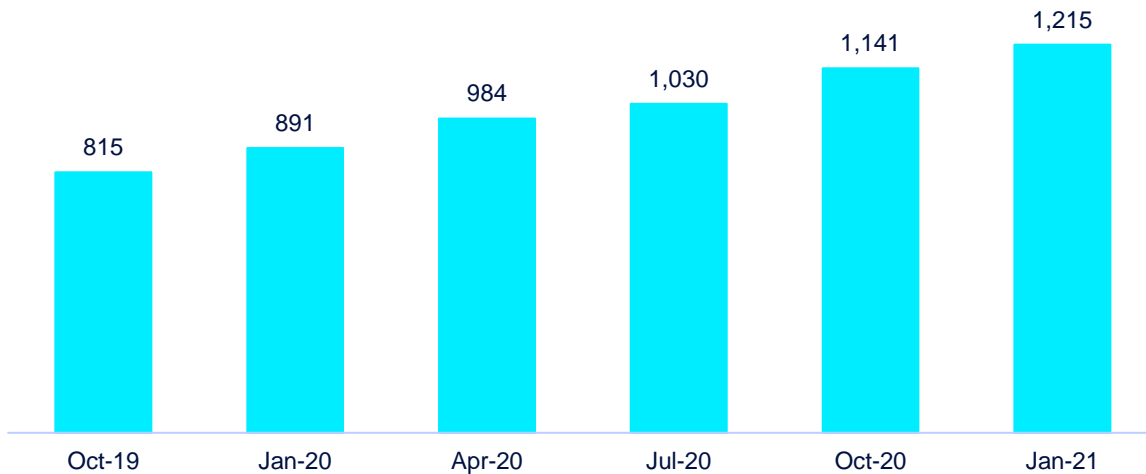
BlueLight Commercial 81
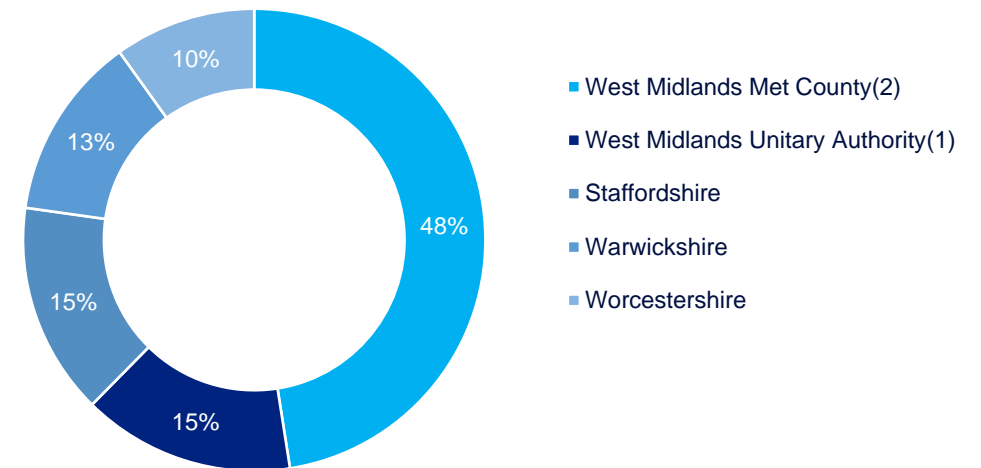
East of England current EV charging infrastructure (3/3)

- As of January 2021, Essex reported 260 public EV charging devices available across Essex with average 15.3 devices per 100,000 population
- Additionally, in December 2020, Essex inaugurated UK's 1st all-electric car charging station, equipped with 36 electric vehicle chargers, delivering up to 350kW of power indicating expansion of EV charging points in the region and moving toward the goal to ban the sale of new combustion engine vehicles by 2030
- Hertfordshire reported a comparatively strong presence of 283 public EV charging devices with average 26.6 devices per 100,000 population in the region

Essex EVCPs in 2020
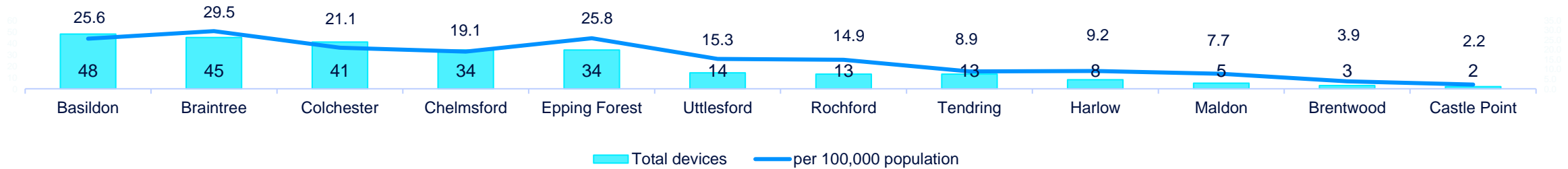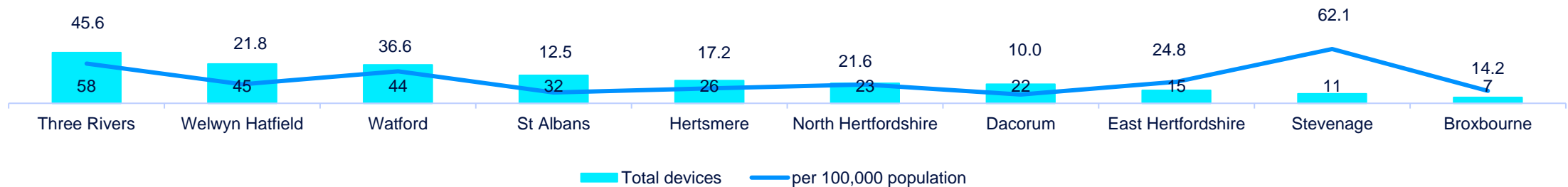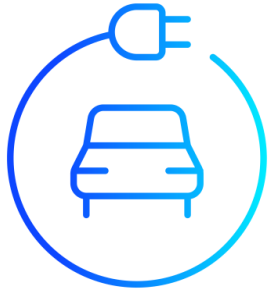
	Basildon	Braintree	Colchester	Chelmsford	Epping Forest	Uttlesford	Rochford	Tendring	Harlow	Maldon	Brentwood	Castle Point
per 100,000	25.6	29.5	21.1	19.1	25.8	15.3	14.9	8.9	9.2	7.7	3.9	2.2
Total devices	48	45	41	34	34	14	13	13	8	5	3	2

- Total devices
- per 100,000 population

Hertfordshire EVCPs in 2020

	Three Rivers	Welwyn Hatfield	Watford	St Albans	Hertsmere	North Hertfordshire	Dacorum	East Hertfordshire	Stevenage	Broxbourne
per 100,000	45.6	21.8	36.6	12.5	17.2	21.6	10.0	24.8	62.1	14.2
Total devices	58	45	44	32	26	23	22	15	11	7

- Total devices
- per 100,000 population

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In 2019 Suffolk County Council has partnered with EO and Bulb to build a new network, Plug In Suffolk

IEO Charging has partnered with Suffolk County Council to launch 'Plug In Suffolk' – UK's first 'fully open' public EV fast charging network. 100 EVCPs were installed by local businesses across the county and made publicly available to support increasing number of EVs.

'Plug In Suffolk' charging network forms part of Suffolk County Council's ambition of Creating the Greenest County in the UK. EO Charging, an EV charging manufacturers, has launched 'Plug In Suffolk' in partnership with Suffolk County Council and renewable energy provider Bulb.

This was the UK's first 'fully open' public fast charging network for electric and plug-in hybrid vehicles, meaning EV drivers simply pay by contactless payment with no need to register with networks or become members of organisations. It offers two 7kW EO chargers alongside the EO Pay kiosk, allowing members of the public and employees to charge their EVs..

'

In 2021 UKPN partnered with local councils in bid to identify and incentivise priority EVCP deployment under its pilot project Charge Collective
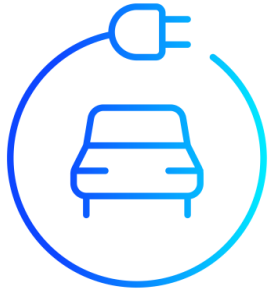
Partnership: Cambridge City and Cambridgeshire County Councils, Norwich City Council, Norfolk County Council and the London Borough of Redbridge.

This project demonstrate how DNOs can work with local authorities to plan public EV charging networks locally in areas at risk of getting left behind.

Framework: The aim is to develop a framework to overcome barriers to investment in EVCPs by reducing network costs and facilitating the efficient provision of upfront support to investors and deliver practical tools to help DNOs to cost-effectively enable EVCPs investment.

Benefits: Through sharing data and expertise, the councils will help UKPN to identify charge point blackspots. These will likely be in towns, with denser populations and less off-street parking. The network operator will then hold a competition to incentivise investors to bid at the lowest cost to deliver the priority charge points.

By taking a coordinated approach UKPN aims to make it more financially viable for CPOs to create a wider network of public chargers, with the potential for the project to scale up across the country if it proves successful.

State of the East of England local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

EV Readiness Parameters – East of England

Charging Infrastructure (Number of Charging Devices/100,000 population)	>30	16–30	<16
EV Adoption Levels (Number of EV Vehicles/100,000 population)	>240	150–240	<150
Grid Infrastructure (Total Generated Capacity (MW) within the local authority)	>1000 MW	500–1000 MW	<500 MW
Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate

Strong   Weak

Legend
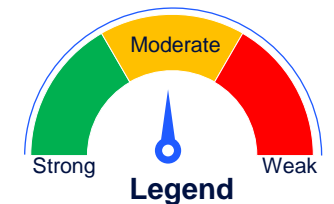
Peterborough, Cambridgeshire and Hertfordshire have comparatively high EV readiness in the East of England

Overall EV Readiness – East of England

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1] (Total Generation Capacity Estimates by Local Authority) (MW, 2021)	Overall EV Readiness
Bedford	68.8%	29	259	439.6	
Central Bedfordshire	41.6%	14	209	912.8	
Luton	100%	27	137	4.2	
Peterborough	87.7%	29	5,467	1674.9	
Southend-on-Sea	100%	8	108	10.8	
Thurrock	87.5%	10	177	691.0	
Cambridgeshire	34.5%	17	266	2805.7	
Essex	62.9%	15	212	3037.1	
Hertfordshire	86.2%	25	351	1994.9	
Norfolk	37.7%	22	124	7449.3	
Suffolk	47.7%	25	149	1682.6	
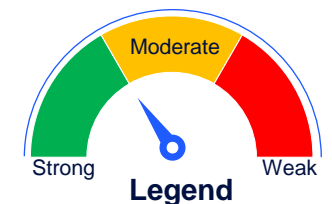
Moderate

Strong   Weak

Legend

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West Midlands

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West Midlands current EV charging infrastructure (1/3)

- As of January 2021, there were 1,215 public EV charging devices available across West Midlands with average 21.2 devices per 100,000 population
- The chart indicates urban and economically advantaged areas, such as the West Midlands Met County[2], have sufficient deployment of EV charging points
- The region witnessed an increase of 324 charging devices in 2020, to strengthen council 's plans of achieving net zero carbon by 2041

Growth in EVCPs (October 2019–January 2021)

Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
815	891	984	1,030	1,141	1,215

2020 CP Distribution – by Local Authority (%)

- West Midlands Met County(2) — 48%
- West Midlands Unitary Authority(1) — 15%
- Staffordshire — 15%
- Warwickshire — 13%
- Worcestershire — 10%

Note: 1. West Midlands Unitary Authority includes Herefordshire, Shropshire, Stoke-on-Trent and Telford and Wrekin, 2. West Midlands Met County includes Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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West Midlands current EV charging infrastructure (2/3)
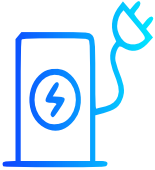
- In January 2021, West Midlands Unitary Authority [1] reported 182 public EV charging devices with average 19.6 devices per 100,000 population, Worcestershire reported 124 public EV charging devices available across with average 19.8 devices per 100,000 population
- Warwickshire County Council awarded £584,000 contract to bp Pulse to install 118 new 7.4kW charging points in council-owned car parks and on-street locations by March 2021; this is likely to increase the total EV public charging devices in the region to 271 devices
  - 75% of the contract will be funded under the On-street Residential CP Scheme (ORCS) scheme and remaining cost will be provided by bp Pulse under match funding

West Midlands Unitary Authority[1] EVCPs in 2020

	Herefordshire, County of	Shropshire	Stoke-on-Trent	Telford and Wrekin
per 100,000 population	32.7	17.9	14	13.9
Total devices	63	58	36	25

Total devices ▬ per 100,000 population
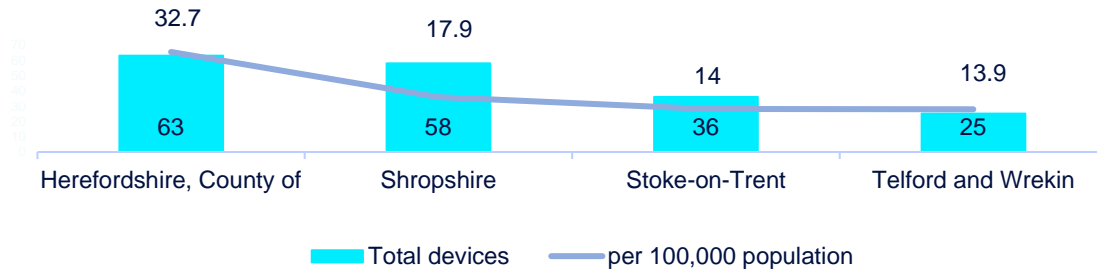
Warwickshire EVCPs in 2020
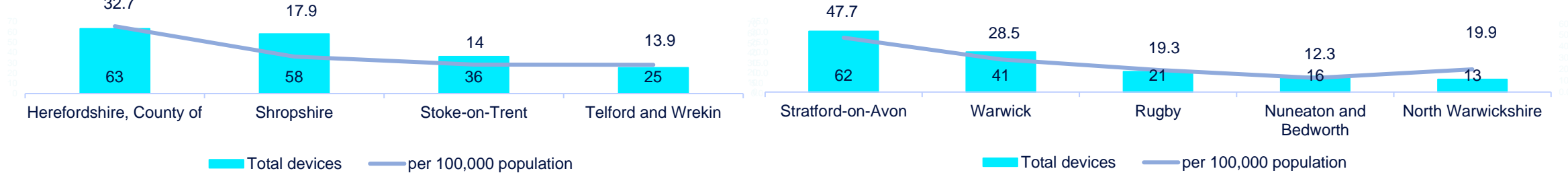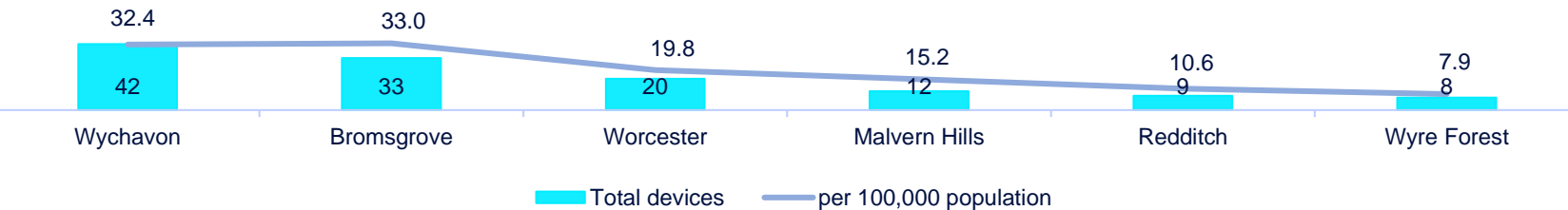
	Stratford-on-Avon	Warwick	Rugby	Nuneaton and Bedworth	North Warwickshire
per 100,000 population	47.7	28.5	19.3	12.3	19.9
Total devices	62	41	21	16	13

Total devices ▬ per 100,000 population

Worcestershire EVCPs in 2020

	Wychavon	Bromsgrove	Worcester	Malvern Hills	Redditch	Wyre Forest
per 100,000 population	32.4	33.0	19.8	15.2	10.6	7.9
Total devices	42	33	20	12	9	8

Total devices ▬ per 100,000 population

Note: 1. West Midlands Unitary Authority includes Herefordshire, Shropshire, Stoke-on-Trent and Telford and Wrekin

Note: 1. West Midlands Unitary Authority includes Herefordshire, Shropshire, Stoke-on-Trent and Telford and Wrekin
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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West Midlands current EV charging infrastructure (3/3)

- As of January 2021, Staffordshire reported 177 public EV charging devices with average of 19.3 devices per 100,000 population; whereas, West Midlands (Met County) reported 579 public EV charging devices with average of 22.4 devices per 100,000 population
- Economically developed metropolitan districts, such as Coventry and Birmingham, report comparatively high charging devices with an average of 70.0 and 10.7 respectively per 100,000 population; heavily dense population of Birmingham results in a lower average of charging devices per 100,000 population

Staffordshire EVCPs in 2020

South Staffordshire	Newcastle-under-Lyme	Stafford	East Staffordshire	Cannock Chase	Lichfield	Staffordshire Moorlands	Tamworth
40.9	29.4	19.7	15.9	15.9	14.3	9.1	9.1
46	38	27	19	16	15	9	7

Total devices • per 100,000 population
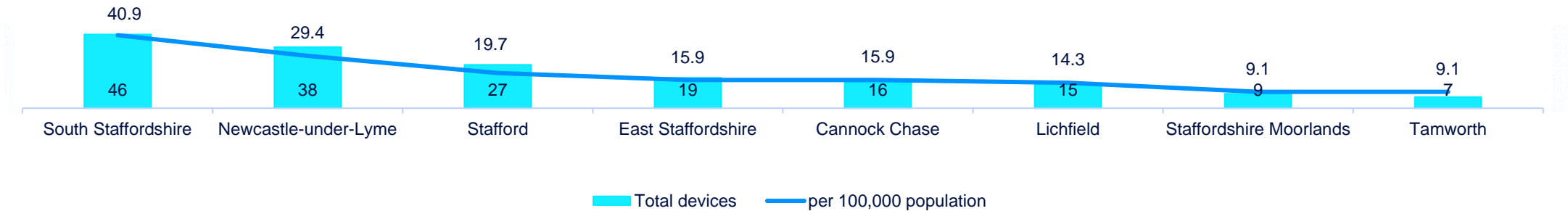
West Midlands (Met County)[1] EVCPs in 2020
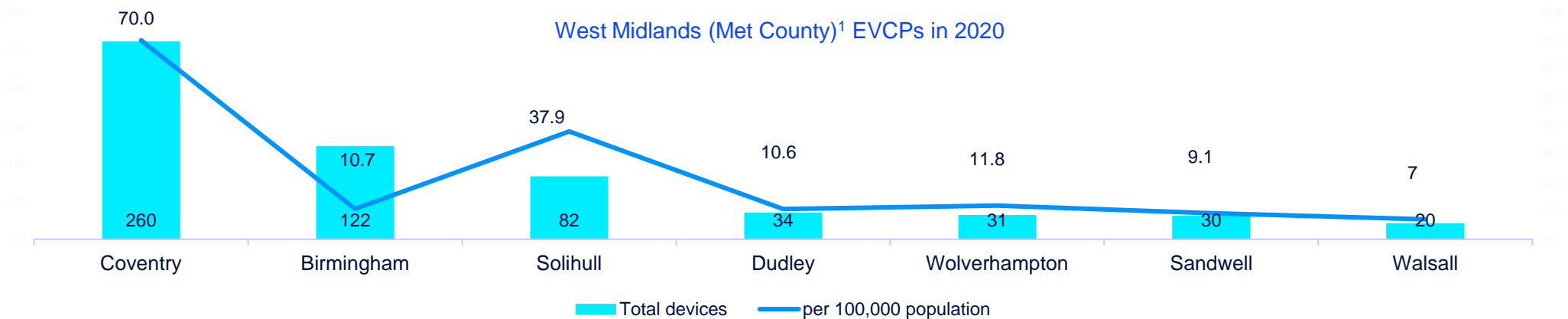
Coventry	Birmingham	Solihull	Dudley	Wolverhampton	Sandwell	Walsall
70.0	10.7	37.9	10.6	11.8	9.1	7
260	122	82	34	31	30	20

Total devices • per 100,000 population

Local authorities have used match funding model and revenue share partnerships to deploy EVCI

In 2021, Warwickshire County Council entered an agreement bp Pulse

Warwickshire County Council was awarded £584,000 by OZEV– accounting for 70% of the project cost, with the remaining 30% to be covered by bp Pulse.

bp Pulse will install 118 x (7.4kW) public EVCPs across North Warwickshire, Nuneaton and Bedworth, Stratford-on-Avon, and Warwick.

In 2020, Birmingham City Council entered an agreement with ESB EV Solutions

Birmingham City Council was awarded £2.92m by OZEV and the rest of the project will be covered by investment support from ESB EV Solutions.

ESB EV Solutions will install 394 fast and rapid EVCPs around the city during 2020–2022, including for the city's taxi fleet and public EVCPs .

In 2019, Coventry City Council entered an agreement with Siemens

Coventry City Council was awarded £702,000 by OZEV through the UK government's Ultra-Low Emission Taxi Scheme for rapid EVCPs at 8 locations.

Deployed the EVCPs using OZEV funding with Siemens's match funding 25% and offering revenue share (15-year contract).

State of the West Midlands local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

EV Readiness Parameters – East and West Midland

		>30	16–30	<16
	Charing Infrastructure (Number of Charging Devices/100,000 population)			
	EV Adoption (Number of EV Vehicles/100,000 population)	>240	150–240	<150
	Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>85%	80–85%	<80%
	Urban % defines the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Legend

Strong — Moderate — Weak

Source: Based on publicly available information from the councils' websites

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Most of the councils in the West Midlands are still in their nascent stages w.r.t. EVCI

Overall EV Readiness – West Midlands

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[3] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Herefordshire	34.2%	33	221	242	188	63	87	
Shropshire	25.1%	18	155	316	255	94	86	
Stoke-on-Trent	99.7%	14	94	216	281	143	78	
Telford and Wrekin	85.6%	14	122	220	223	86	84	
Staffordshire[2]	75.7%	20	156	1052	1053	420	83	
Warwickshire[2]	66.9%	27	218	959	700	310	84	
West Midlands (Met County) [2]	99.0%	20	216	2444	2367	1055	82	
Worcestershire[2]	73.6%	21	213	615	636	214	85	

Moderate

Strong   Weak

Legend
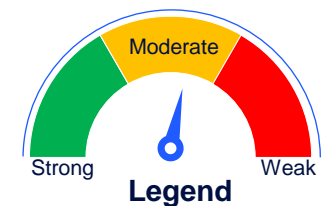
Note: 1. Capacity of these counties is sum of the districts under them
Source: Based on publicly available information from the councils' websites

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East Midlands

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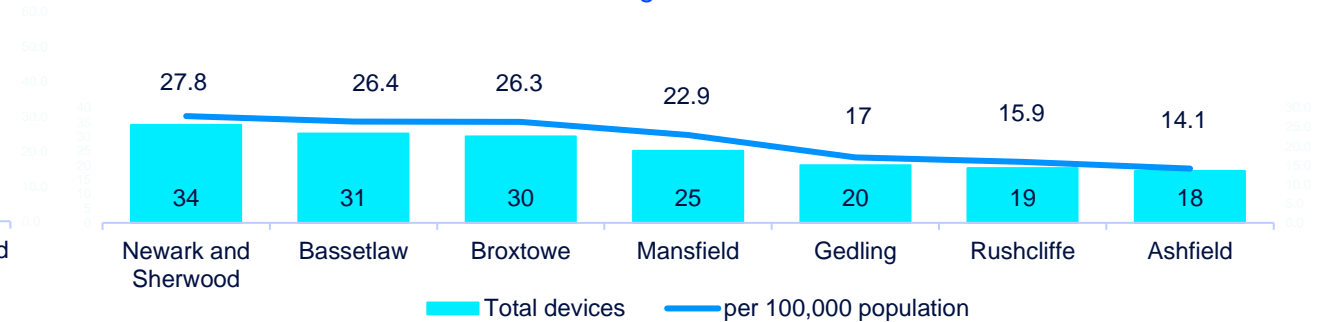Commercial

East Midlands current EV charging infrastructure (1/3)

- As of January 2021, there were 1,090 public EV charging devices available across East Midlands with average 22.5 devices per 100,000 population, which is lower than England's average of 28.9 devices per 100,000 population

Growth in EVCPs (October 2019–January 2021)

Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
743	862	925	962	1,029	1,090

2020 CP Distribution – by Local Authority (%)

- East Midlands Unitary Authority (1): 27%
- Lincolnshire: 18%
- Nottinghamshire: 16%
- Derbyshire: 14%
- Leicestershire: 13%
- Northamptonshire: 12%
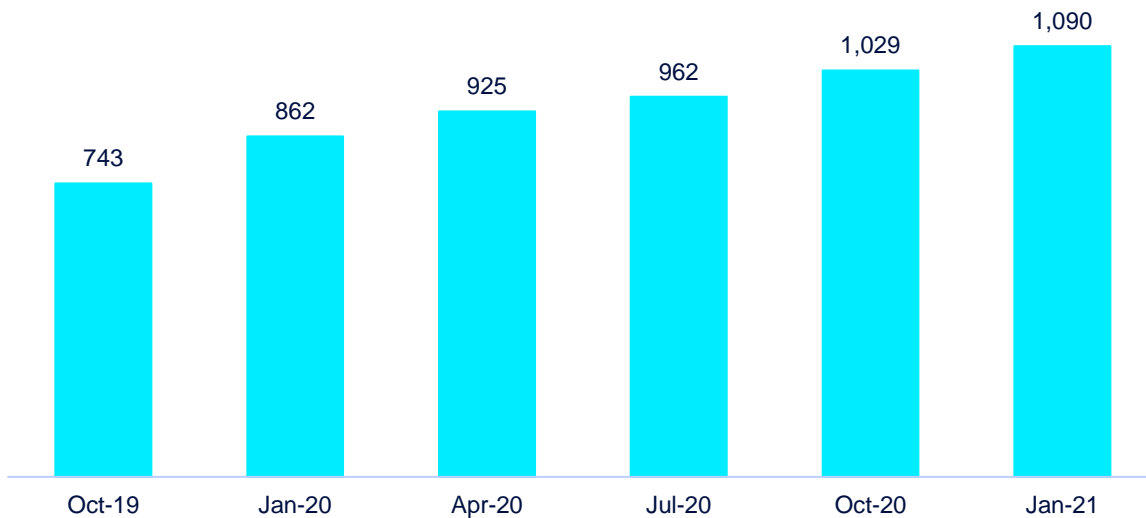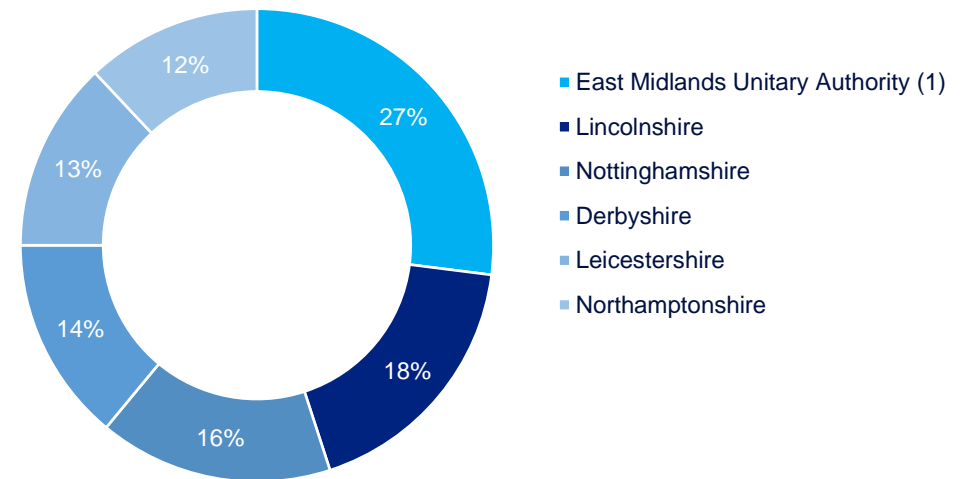
Note: 1: East Midlands Unitary Authority includes Derby, Leicester, Nottingham and Rutland

Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

East Midlands current EV charging infrastructure (2/3)
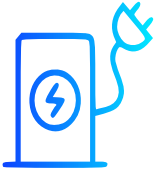
- East Midlands Unitary Authority[1] reported comparatively higher public EV charging devices , with average 31.0 devices per 100,000 population as of January 2021
- In contrast, Derbyshire and Leicestershire reported 149 and 145 public EV charging devices available across with average 18.6 and 20.5 devices per 100,000 population, respectively

East Midlands Unitary Authority[1] EVCPs in 2020

	Nottingham	Leicester	Derby	Rutland
per 100,000 population	43	20.6	22.9	37.6
Total devices	143	73	59	15

■ Total devices — per 100,000 population

Leicestershire EVCPs in 2020

	Charnwood	Harborough	Blaby	Hinckley and Bosworth	North West Leicestershire	Melton	Oadby and Wigston
per 100,000 population	17.8	34.1	25.6	22.1	15.4	15.6	8.8
Total devices	33	32	26	25	16	8	5

■ Total devices — per 100,000 population
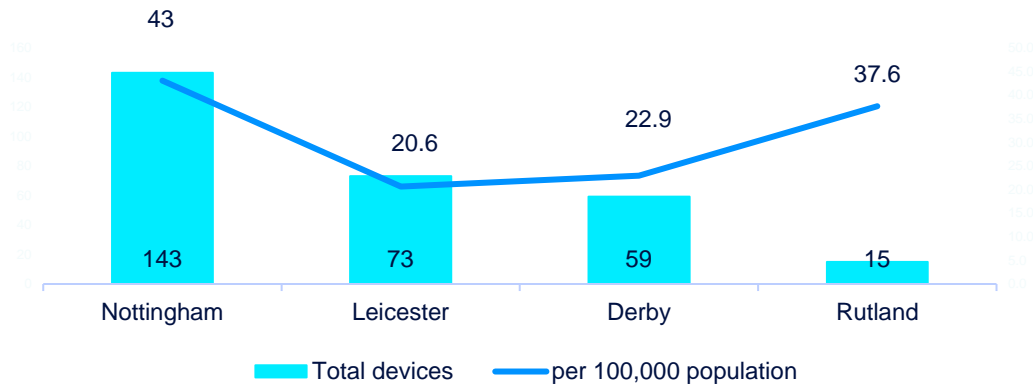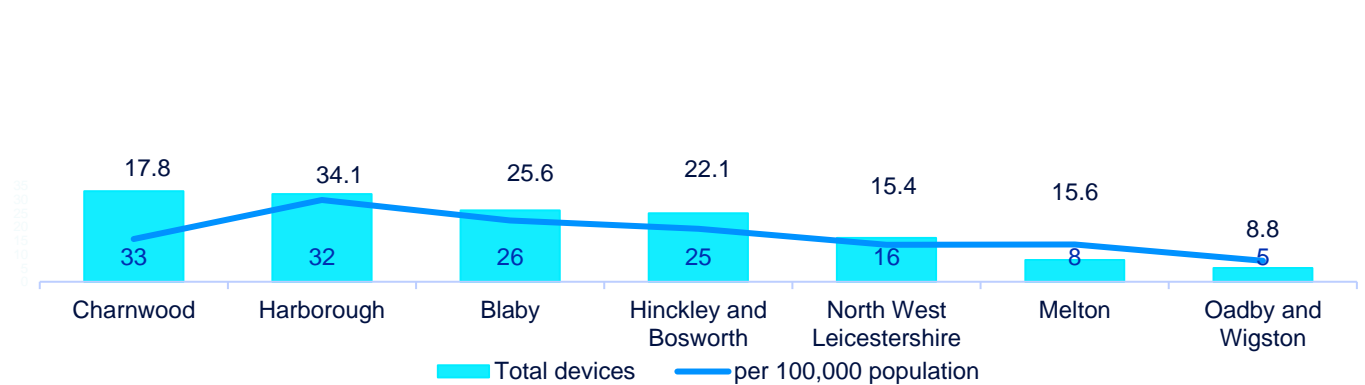
Derbyshire EVCPs in 2020

	Derbyshire Dales	Chesterfield	High Peak	Erewash	Bolsover	Amber Valley	North East Derbyshire	South Derbyshire
per 100,000 population	45.6	27.6	25.9	15.6	18.6	8.6	9.9	8.4
Total devices	33	29	24	18	15	11	10	9

■ Total devices — per 100,000 population

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East Midlands current EV charging infrastructure (3/3)

- As of January 2021, Lincolnshire reported 198 public EV charging devices available across Lincolnshire with average of 26.5 devices per 100,000 population
- Nottinghamshire reported 177 available with average public EV charging devices 21.4 devices per 100,000 population; whereas, 131 public EV charging devices available across Northamptonshire , with average 17.4 devices per 100,000 population

Lincolnshire EVCPs in 2020

	Lincoln	East Lindsey	South Kesteven	Boston	West Lindsey	North Kesteven	South Holland
per 100,000 population	49.3	33.2	26	42.8	13.6	10.3	10.5
Total devices	49	47	37	30	13	12	10

Total devices — per 100,000 population
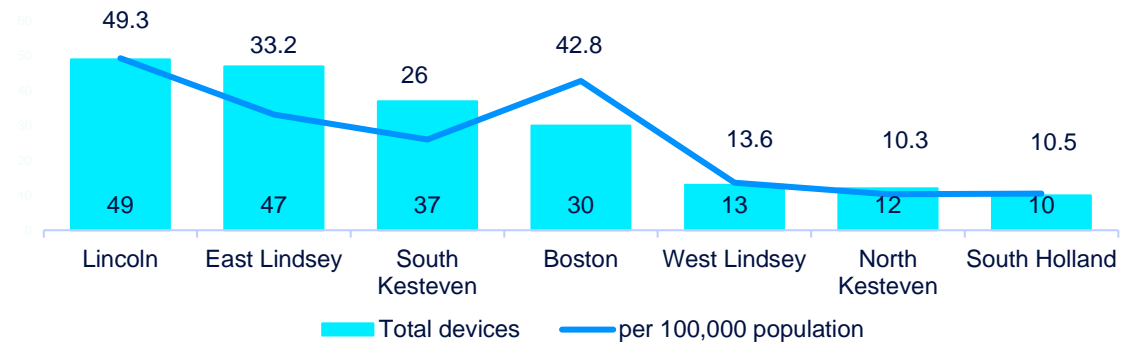
Nottinghamshire EVCPs in 2020

	Newark and Sherwood	Bassetlaw	Broxtowe	Mansfield	Gedling	Rushcliffe	Ashfield
per 100,000 population	27.8	26.4	26.3	22.9	17	15.9	14.1
Total devices	34	31	30	25	20	19	18

Total devices — per 100,000 population

Northamptonshire EVCPs in 2020

	Corby	South Northamptonshire	East Northamptonshire	Daventry	Northampton	Kettering	Wellingborough
per 100,000 population	45.7	24.3	20.1	19.8	7.6	15.7	7.5
Total devices	33	23	19	17	17	16	6

Total devices — per 100,000 population

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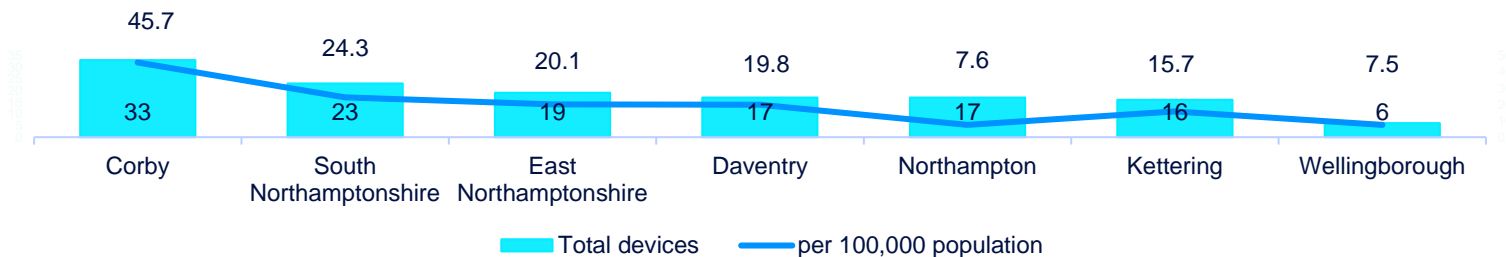
State of the East Midlands local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

EV Readiness Parameters – East and West Midland			
Charing Infrastructure (Number of Charging Devices/100,000 population)	>30	16–30	<16
EV Adoption (Number of EV Vehicles/100,000 population)	>240	150–240	<150
Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>85%	80–85%	<80%
Urban % defines the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Legend

Strong / Moderate / Weak

Rutland, Derbyshire and Nottinghamshire have comparatively high EV readiness in the East Midlands Region

Overall EV Readiness – East Midlands

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[3] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Derby	100%	23	673	312	300	165	79	
Leicester	99.8%	21	237	362	260	191	77	
Nottingham	100%	43	254	383	256	166	79	
Rutland	0%	38	541	80	64	16	90	
Derbyshire[2]	71%	19	414	1045	958	429	82	
Leicestershire[2]	69.4%	21	387	1014	850	407	82	
Lincolnshire[2]	51.9%	26	269	851	1110	361	84	
Northamptonshire[2]	68.1%	17	543	1139	898	517	80	
Nottinghamshire[2]	72.8%	21	308	1143	1118	363	86	

Note:
1) Capacity of these counties is sum of the districts under them

Moderate

Strong   Weak

Legend

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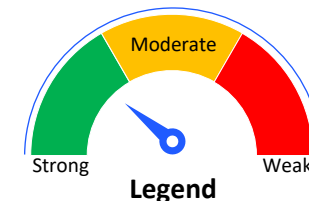
Yorkshire and Humber

Yorkshire and the Humber current EV charging infrastructure (1/2)
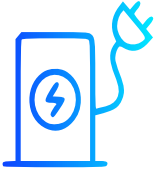
- As of January 2021, there were 1,056 public EV charging devices available across Yorkshire and the Humber with average 20.6 devices per 100,000 population
- The region witnessed an increase of 281 charging points over 2020

Growth in EVCPs (October 2019–January 2021)
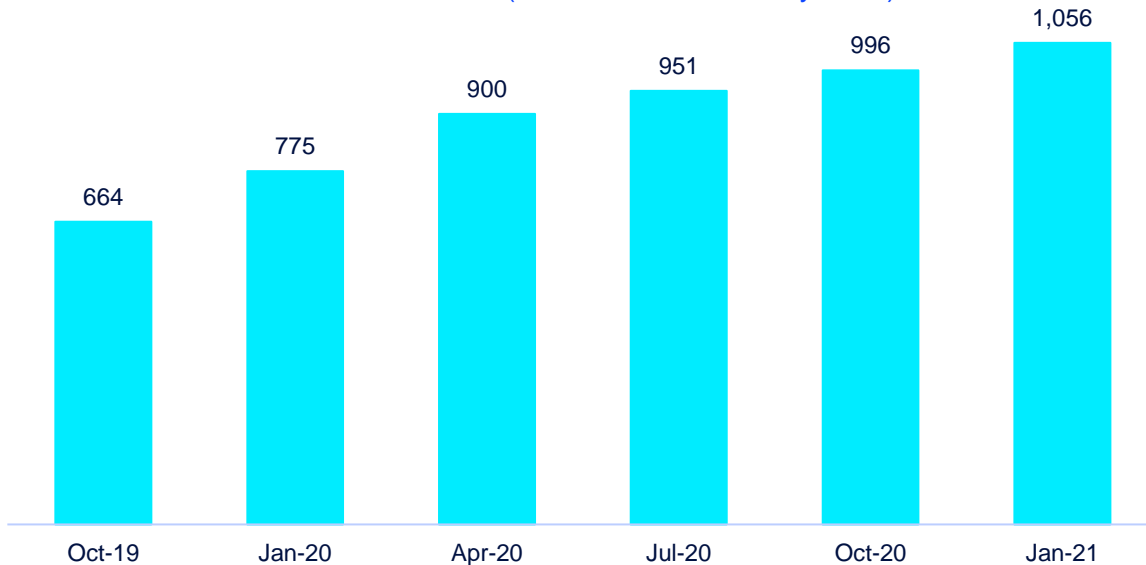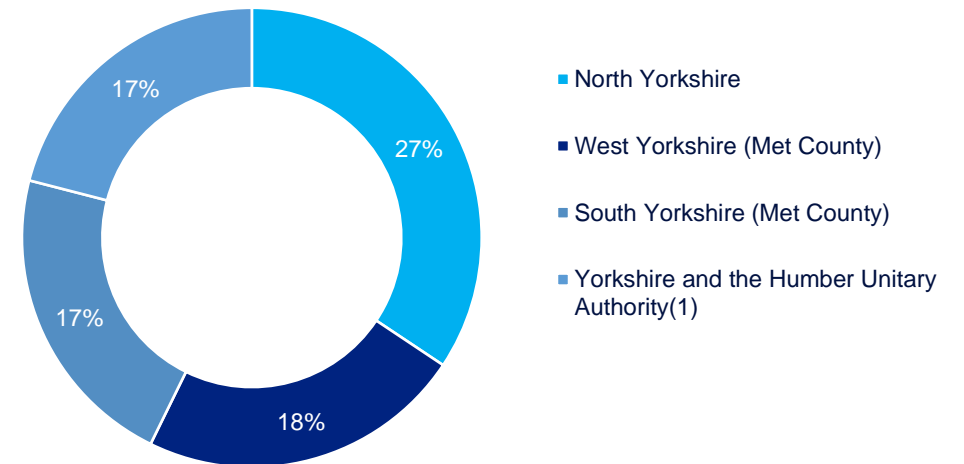
Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21
664	775	900	951	996	1,056

2020 CP Distribution – by Local Authority (%)

- North Yorkshire — 27%
- West Yorkshire (Met County) — 18%
- South Yorkshire (Met County) — 17%
- Yorkshire and the Humber Unitary Authority(1) — 17%

(17% North Yorkshire segment also shown)

Note: 1. Yorkshire and the Humber Unitary Authority includes East Riding of Yorkshire, Hull, North East Lincolnshire, North Lincolnshire and York

Source: Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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Yorkshire and the Humber current EV charging infrastructure (2/2)

- As of January 2021, Yorkshire and the Humber Unitary Authority[1] was challenged with low access to EV charging points with 188 public EV charging devices across the region, with average of 16.6 devices per 100,000 population
- North Yorkshire comparatively has higher average of 27.2 charging devices per 100,000 population; whereas, West Yorkshire (Met County) reported an average 18.2 devices per 100,000 population and South Yorkshire (Met County) reported an average 17.2 devices per 100,000 population

Yorkshire and the Humber Unitary Authority[1] EVCPs in 2020

	York	Kingston upon Hull, City of	East Riding of Yorkshire	North East Lincolnshire	North Lincolnshire
per 100,000 population	35.1	13.1	12.6	11.9	10.4
Total devices	74	34	43	19	18

Total devices ▬ per 100,000 population

West Yorkshire (Met County) EVCPs in 2020

	Bradford	Calderdale	Kirklees	Leeds	Wakefield
per 100,000 population	17.6	16.1	13.4	26.7	16.9
Total devices	95	34	59	212	59

Total devices ▬ per 100,000 population
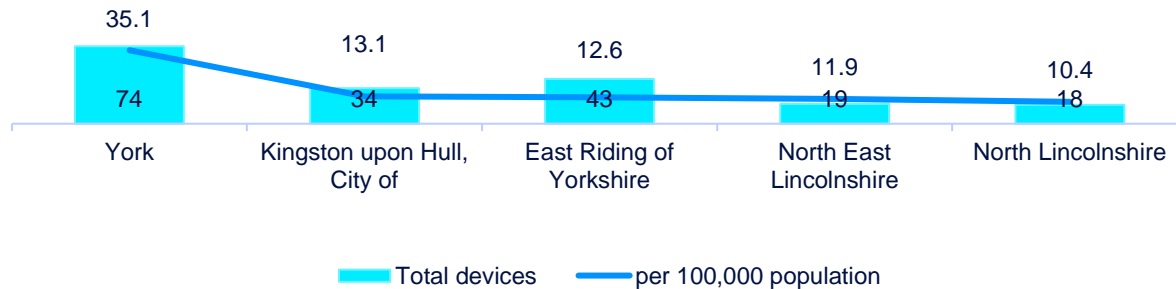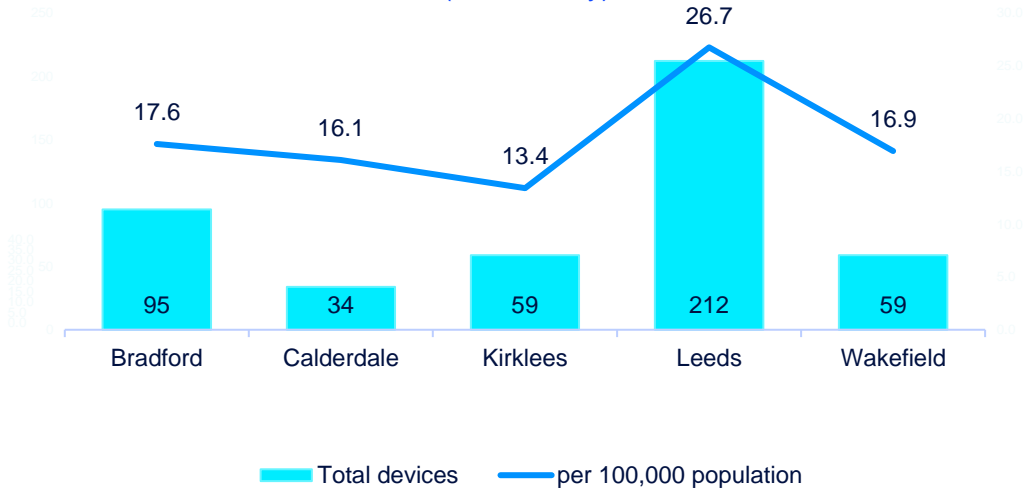
North Yorkshire EVCPs in 2020
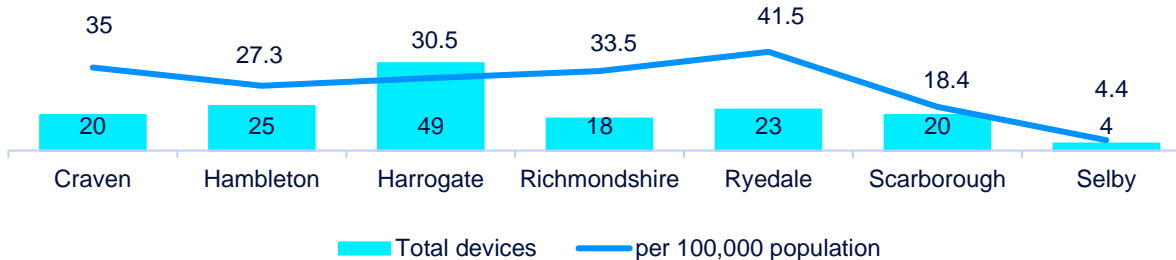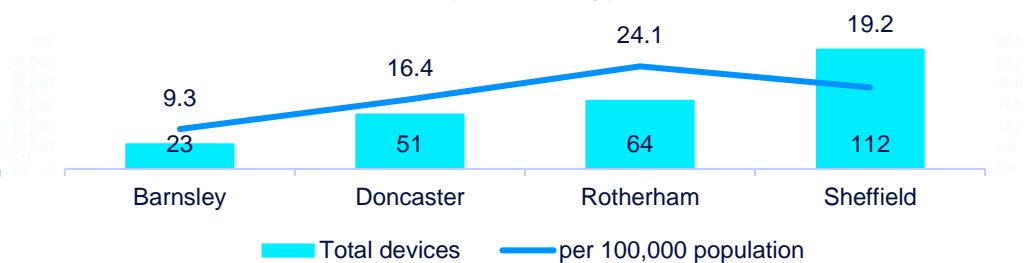
	Craven	Hambleton	Harrogate	Richmondshire	Ryedale	Scarborough	Selby
per 100,000 population	35	27.3	30.5	33.5	41.5	18.4	4.4
Total devices	20	25	49	18	23	20	4

Total devices ▬ per 100,000 population

South Yorkshire (Met County) EVCPs in 2020

	Barnsley	Doncaster	Rotherham	Sheffield
per 100,000 population	9.3	16.4	24.1	19.2
Total devices	23	51	64	112

Total devices ▬ per 100,000 population

Note: 1. Yorkshire and the Humber Unitary Authority includes East Riding of Yorkshire, Hull, North East Lincolnshire, North Lincolnshire and York
Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

York's electric car charging 'hyperhubs' will be the largest in the North of England

EVCI Initiative – York

In January 2016, York became 1 of the 8 UK cities to be awarded the 'Go Ultra Low' city status by OZEV, for the uptake of ultra-low emission vehicles

Additionally, it was awarded £816,000, following a successful bidding process to fund an ultra low emission programme including a city wide network of rapid charging hubs, which will offer ultra-fast, convenient rapid charging for key vehicle groups such as taxis, private motorists and business users

In February 2021, City of York Council announced to invest £2.2m to develop 2 high-speed electric vehicle charging hyper hubs, which are due to open in June 2021

The project is funded by a £1m European Regional Development Funding grant, £800,000 from government and £400,000 from the council

The council is working in partnership with Evo Energy to construct the sites near Monks Cross, Poppleton Bar Park, and Rides

Each HyperHub site will consist of solar PV canopies, battery energy storage, 4 rapid (50kW) and 4 ultra rapid (150kW) electric vehicle chargers

The chargers will help the region support the next generation of electric vehicles, which have significantly larger battery capacities and support higher charging speeds

EVCI Initiative – West Yorkshire

In August 2019, West Yorkshire Combined Authority (WYCA) installed 88 EV rapid -charging network in Bradford as part of its £3.2m scheme to improve the county's air quality

The scheme is a collaboration between West Yorkshire Combined Authority and its partner local authorities - Bradford, Calderdale, Kirklees, Leeds and Wakefield councils

The EVCPs will be installed, owned and operated by the electricity company ENGIE, which is based in Leeds

Moreover, each of the new sites, are free to use until the end of October 2021, to encourage residents and businesses to consider switching to electric vehicles

The sites will be divided under 2 docking bays – 1 for taxis and private hire vehicles and the 2nd for all other users

South Yorkshire has proper funding support to install required infrastructure, whereas North Yorkshire is still seeking funding from the government
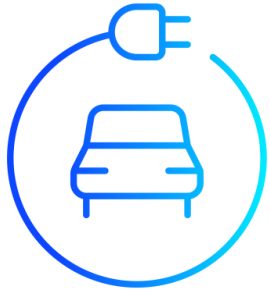
Future Plans – South Yorkshire

Sheffield City Region (SCR) have plans to install 197 'fast chargers' and a further 32 'rapid chargers' across the South Yorkshire

Project titled under proposed major capital schemes is expected to cost ~£2.7 million, which is part of a wider cash injection from central government of ~£33.6 million

The EVCPs are expected to be rolled out in urban centres and 'key employment locations' across the region

The investment is aimed to coincide with an increase in electric vehicle purchases and to lower the carbon footprint of the region; SCR wants to achieve net zero emissions by 2040

Future Plans – North Yorkshire

North Yorkshire leaders seek funding from the government of £52.5m to help deliver a three-phase programme for the introduction of electric buses around county to cut pollution

The first phase requires £27m to buy 150 electric buses and the charging infrastructure needed in York for 7 operators, who would provide £24m of their own money

State of Yorkshire and the Humber local councils on basis of their current charging point infrastructure, EV adoption and grid infrastructure capacity

EV Readiness Parameters – Yorkshire and the Humber

Charging Infrastructure (Number of Charging Devices/100,000 population)	>20	15–20	<15
EV Adoption Levels (Number of EV Vehicles/100,000 population)	>300	200–300	<200
Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>75%	60–75%	<60%
Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate

Strong   Weak

Legend
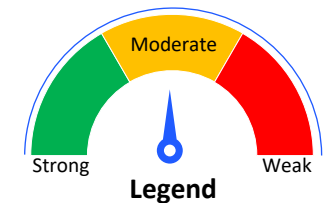
EV readiness in majority of the region is moderate to weak; however, York and West Yorkshire councils have comparatively high EV readiness in the region

Overall EV Readiness – Yorkshire and the Humber

Council Name	Degree of Urbanisation (% of Urban Population)	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[1,2] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
East Riding of Yorkshire	40.0%	13	271	3	2	5	50%	
Kingston upon Hull, City of	100.0%	13	121	-	2	3	25%	
North East Lincolnshire	84.1%	12	174	3	3	12	33%	
North Lincolnshire	54.4%	10	208	NA	NA	NA	NA	
York	83.6%	35	366	6	4	3	77%	
North Yorkshire	21.2%	27	370	9	9	30	38%	
South Yorkshire (Met County)	88.9%	17	371	6	7	28	32%	
West Yorkshire (Met County)	84.5%	18	674	35	16	14	78%	
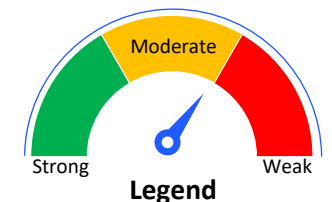
Note:
1) Capacity of these counties is sum of the districts under them
2) The data has been taken from the Northern Powergrid's website (distributor network operator in the North East)

Source: Based on publicly available information from the councils' websites

Legend: Strong — Moderate — Weak

North East

North East current EV charging infrastructure (1/2)
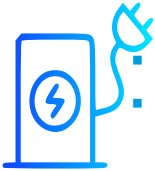
- As of January 2021, there were 820 public EV charging devices available across North East England, with average 28.5 devices per 100,000 population
- SWARCO (Austria-based mobility management company) has secured a contract to install EV taxi charging infrastructure across the North East of England; it will involve 10 new rapid chargers across the North East, funded under the government's Ultra Low Emissions Taxi Infrastructure Scheme

Growth in EVCPs (October 2019–January 2021)
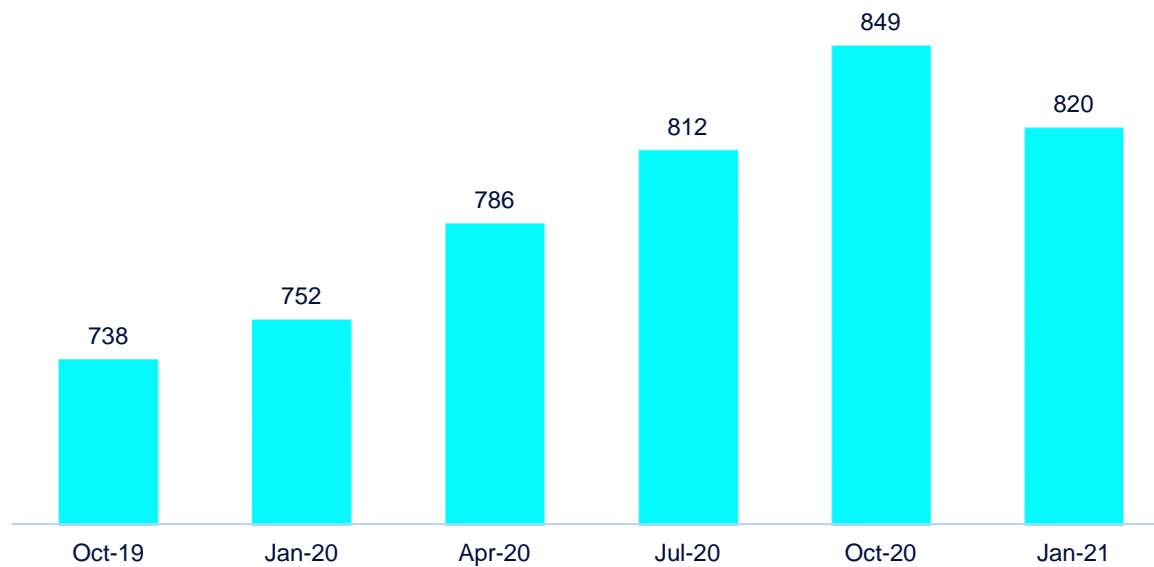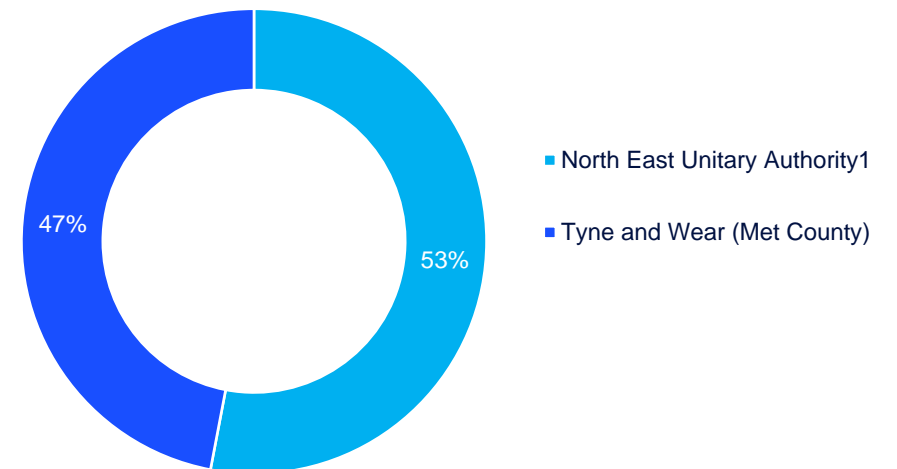
738	752	786	812	849	820
Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21

2020 CP Distribution – by Local Authority (%)

- North East Unitary Authority1 — 53%
- Tyne and Wear (Met County) — 47%

Note:
1) North East Unitary Authority includes County Durham, Darlington, Hartlepool, Middlesbrough, Northumberland, Redcar and Cleveland and Stockton-on-Tees

Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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North East current EV charging infrastructure (2/2)
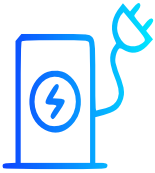
- There were 434 public EV charging devices available across North East Unitary Authority[1], with average 30.7 devices per 100,000 population
- As of January 2021, Tyne and Wear (Met County), economically developed and urban area, reported 386 public EV charging devices available across with average 33.8 devices per 100,000 population

North East Unitary Authority[1] EVCPs in England in 2020

Northumberland	County Durham	Stockton-on-Tees	Middlesbrough	Darlington	Redcar and Cleveland	Hartlepool
46.2	20.8	42.6	21.3	27.2	17.5	8.5
149	110	84	30	29	24	8

■ Total devices ── per 100,000 population
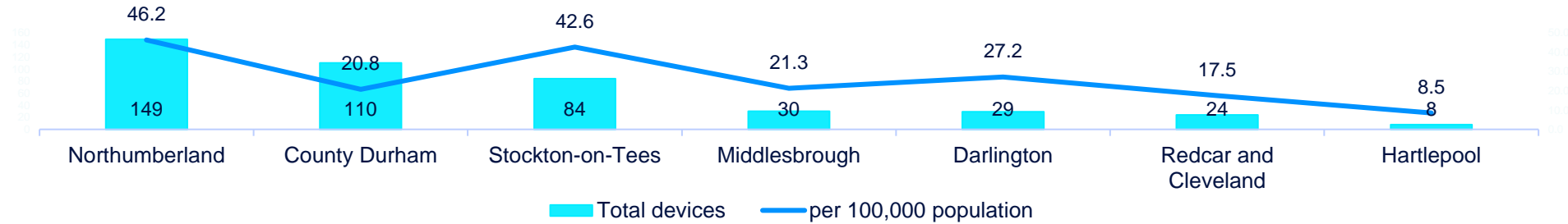
Tyne and Wear (Met County) EVCPs in England in 2020
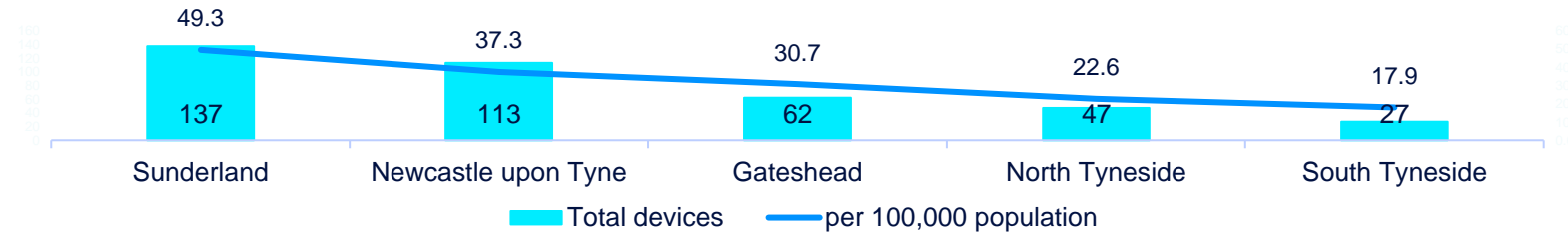
Sunderland	Newcastle upon Tyne	Gateshead	North Tyneside	South Tyneside
49.3	37.3	30.7	22.6	17.9
137	113	62	47	27

■ Total devices ── per 100,000 population

Note: 1. North East Unitary Authority includes County Durham, Darlington, Hartlepool, Middlesbrough, Northumberland, Redcar and Cleveland and Stockton-on-Tees

Source: DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

2014 -2020 The Go Ultra Low North East programme
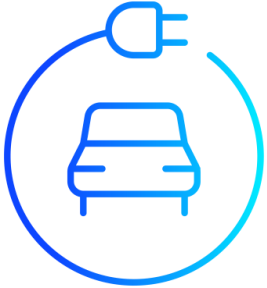
The initiative was managed by Transport North East, and funded by the European Regional Development Fund (ERDF) programme.

The Go Ultra Low North East programme aimed to raise an awareness ULEVs, encouraging consumers to consider EVs in the future and developed new fast charging facilities across the region. To date, it enabled the construction of an EV Filling station in Sunderland, eleven rapid charging hubs consisting of 2 rapid chargers across the region installed at key strategic locations.

Separately, Go Ultra Low Taxi Project successfully secured £500,000 in grant funding from the OZEV to deliver rapid charging infrastructure. The region is delivering 10 rapid chargers for taxi and private hire vehicles across each of the seven local authority areas.

State of the North East local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

EV Readiness Parameters – North East

Charging Infrastructure (Number of Charging Devices/100,000 population)	>30	16–30	<16
EV Adoption Levels (Number of EV Vehicles/100,000 population)	>100	51–100	<51
Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>50%	25–50%	<25%
Degree of urbanisation is the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Legend

Strong — Moderate — Weak

Source: Based on publicly available information from the councils' websites

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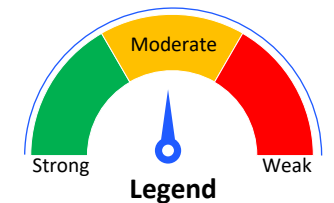
Most of the councils in the North East are still in their nascent stages w.r.t. EVCI

Overall EV Readiness – North East

| Council Name | Degree of Urbanisation (% of Urban Population) | Charging Infrastructure (Charging Devices/100,000 population) | EV Adoption Levels (# EV Vehicles/100,000 population) | Grid Infrastructure[1] (# of Power Substations by Council) | | | | Overall EV Readiness |
				Extensive Capacity(1)	Normal Capacity(2)	Limited Capacity(3)	% of Substations with Available Capacity (1+2)/(1+2+3)	
County Durham	39.1%	21	92	5	8	25	34	
Darlington	87.5%	27	107	0	1	7	11	
Hartlepool	96.6%	9	60	NA	NA	NA	NA	
Middlesbrough	99.3%	21	45	0	3	2	60	
Northumberland	29.2%	46	135	1	8	9	50	
Redcar and Cleveland	67.5%	17	50	1	1	4	33	
Stockton-on-Tees	96.1%	43	78	0	3	10	23	
Tyne and Wear (Met County)	97.0%	34	81	13	18	37	46	

Legend

Moderate

Strong   Weak
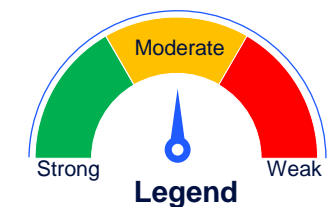
Note: 1. It indicates number of substations with extensive capacity, normal capacity or limited capacity and the date has been taken from the Northern Powergrid's website (distributor network operator in the North East)

Source: Based on publicly available information from the councils' websites

Scotland

Scotland has its own policies and funding for EVCI

2013 Switched-On Scotland

Scotland is leading the way in the UK, the Switched-On Scotland Roadmap established an action plan for government, enabling coherent and collaborative policy development and programme delivery.

First published in 2013, the Roadmap, sets out a long-term vision and strategic approach to advance widespread adoption of EVs by 2032. The Roadmap anticipated that markets for EVs would develop in three distinct phases – launch, growth and take-off – and identified 37 actions to provide comprehensive support in the launch phase.

Phase 2: Action plan, published in 2017, defines the activities for the period 2017- 2020. including development and deployment its own public network of EVCPs: ChargePlace Scotland, which in April 2021 consisted of 1,500 public EVCPs .

The network is operated by a private sector CPOs through a commercial agreement with the Scottish government and was funded by £30m of public grants in partnership with local authorities and other organisations.

2,192 public EVCPs
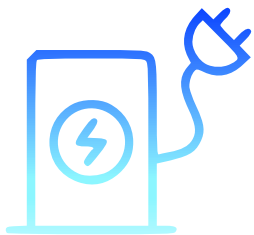
Funded by £30m public funds

Operated by Charge Your Car, a private CPO

2021

2017 - 2021

2017 - 2021

Current EV charging infrastructure vs future charging needs of Scotland
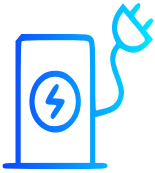
- As of February 2021, there were 2,192 public EVCPs available across Scotland, with an average of 49 devices per 100,000 population.
- In terms of geographical distribution, the number of EVCPs is significantly higher in Glasgow City and Highland areas when compared with areas around the Shetland Islands and Clackmannanshire

Number of EVCPs in Scotland – by Location (2020)

Location	Number of Charging Points
Glasgow City	188
Highland	185
City of Edinburgh	117
Dundee City	109
East Lothian	108
Perth & Kinross	104
North Lanarkshire	102
South Lanarkshire	101
Aberdeenshire	98
Aberdeen City	97
Fife	93
Dumfries & Galloway	86
Argyll & Bute	70
Stirling	69
Renfrewshire	65
Angus	61
East Ayrshire	55
Scottish Borders	48
South Ayrshire	45
West Lothian	44
Falkirk	43
Midlothian	42
North Ayrshire	42
Moray	33
Orkney Islands	32
Na h-Eileanan Siar	25
East Dunbartonshire	24
West Dunbartonshire	24
East Renfrewshire	23
Inverclyde	22
Clackmannanshire	20
Shetland Islands	17

Number of ChargingPoints — Number of ChargingPoints per 100,000 population

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2018 -2020 Switched on Towns and Cities Challenge Fund − £12.1m to five projects

Glasgow City Council – Electrification of Transport in Glasgow

Glasgow City Council received a £2.5m to support the installation of up to 70 public EVCPs across the city. The project included the development of the EVCP, n addition to the establishing an EV charging facility for the City's taxis and private hire vehicles.
The project also established an additional 9 EV car club locations across the city.
In addition, Glasgow City Council procured 70 EVs and 30 electric vans for its fleet as well as trailed 2 electric refuse collection vehicles.

Edinburgh City Council – Edinburgh - EVCI Network

Edinburgh City Council's received £2.4m to support the installation of 134 EV charging bays, located at 14 hubs across the City. Including one hub for rapid charging for taxi, private hire cars and general public use. It is expected that the project run throughout 2020, representing phase I of the City Council's EV charge point deployment programme.

Stirling Council – Switched on Stirling

Stirling Council received £2.2m to support the installation of 133 EV charging bays across the City and nearby settlements, as well as providing the funding for the procurement of 56 EVs. The project included the trialling of 16 on-street charge points using street lighting columns within the city centre and residential areas and it deployed dedicated EV charging infrastructure for taxi and ride to support an electric bus service.

Dundee City Council – Dundee Partnership: 95 Electric Project

Led by Dundee City Council received £2.5m over two financial years to support the procurement of up to 95 EVs in the local authority and partner organisation fleets. The funding also supported the installation of a 66 EV charging bays (including public 50 bays) across the city. The project includes the deployment of a rapid EV charging hub

Falkirk Council – Plugged in Falkirk

Falkirk Council received up to £2.5m to support the installation of 106 EV charging bays across Falkirk and nearby settlements, including the provision of 64 publicly available EVCPs. The funding will also support the procurement of 38 EVs in the local authority and partner organisations fleets.
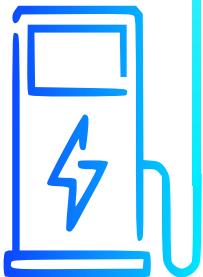
Scotland strategy and constraints

Future plans for EVCI

- The ChargePlace Scotland network has grown from 55 public EVCPs in 2013 to over 1,500 in 2021
- New EVCPs are installed regularly on the network, with the ongoing support of Transport Scotland
- Carbon emission targets: The Scottish government has announced its ambition to phase out the need for new petrol and diesel cars and vans by 2032; to this end, Transport Scotland (TfS) has provided considerable funding for the deployment of one of the most comprehensive public charge point networks in Europe – ChargePlace Scotland – and supporting the installation of workplace EVCPs.
- Infrastructure project: Police Scotland has awarded bp Pulse (UK-based supplier of charging infrastructure) a £21m contract for EV charging across all if its sites.. Over 1,000 EVCPs will be delivered across 265 Police Scotland locations; the installations will also include 35 ultra-fast chargers
- EV100 initiative: As part of the initiative, SSEN[1] has committed to electrifying its vehicle fleet of 3,500 vehicles (7th Largest fleet in UK) and roll out of national charging infrastructure projects across the UK
  - To achieve the goal, SSEN has made an investment of £12.3m on energy efficiency measures in its buildings and depots

Key Constraints to EV Adoption in Scotland

- Lack of credible information source on real-time infrastructure availability: Lack of notification for 'out of order' EVCPs as well as for 'newly installed' ChargePoints
- Asset Replacement Challenge: Charging point deployment can be challenging in instances where shared service cables are used in buildings (a single electricity cable used by multiple buildings) or the fuse needs upgrading
- Impact of EV Tourist Travel: In several routes around North of Scotland, including Loch Ness, Urquhart Castle and Isle of Skye, charging demand will likely rise 10 X due to EV tourism patterns – this may lead to network constraints starting 2028 if no action is taken to upgrade the grid

SSEN has proposed the following solutions under its EV strategy to overcome grid-related constraints:

- Using constraint managed[2] zones instead of replacing/upgrading transformers
- Using enhanced monitoring tools and smart metering technologies to overcome the traditional practice of digging up and replacing underground cables in case of a network fault.

Transport Scotland, along with private players SPEN and SSEN, is offering considerable funding support for EVCI in Scotland

## Prior and current public funding and allocations

- Transport Scotland, under its £13.9m Low Carbon Travel and Transport Challenge Fund, has funded various projects across Scottish councils ,including the following:
  - Falkirk: In 2020, the Falkirk Council, the Scottish government and the European Regional Development Fund through Transport Scotland's Low Carbon Travel and Transport Challenge Fund awarded £1.4m for the largest charging hub at the Falkirk Stadium, which has capacity to charge 26 EVs at the same time
  - East Ayrshire: Over 2018–2019, the council received > £0.5m under the Transport Scotland's Low Carbon Travel and Transport Challenge Fund to support its first fully electric car park project
  - Glasgow: In 2017, Glasgow was awarded a Transport Scotland fund of £2.2m to improve its EV CP infrastructure
- The Office for Zero Emission Vehicles (OZEV) plug-in car and van grant schemes provide a discount on the price of new eligible vehicles via a grant to vehicle manufacturers and dealers
- There is a Benefit in Kind (BiK) exemption for employees using free EV charging at work

Other public and private funding sources

- In 2019, a public-private partnership between Transport Scotland, SPEN and SSEN was formed to allocate £7.5m for the development of EVCI
- Energy Saving Trust (EST), a British, independent, not-for-profit organisation funded by the government and the private sector, is working to promote energy efficiency, energy conservation and the sustainable use of energy; it provides the following grants:
  - Home charging point: Office for zero emission vehicles (OZEV) currently offers applicants £350 towards the cost of a home charge point and EST will provide up to £300 further funding on top of this (with an additional £100 available for those residing in the most remote parts of Scotland)
  - Used and new EVs: An interest-free loan of up to £20,000, with a repayment term of 5 years, is being offered by Transport Scotland and administered by EST

Key considerations:

- To qualify for OZEV and EST home grants, one should have a drive-way or garage
- The installations should only be done by OZEV-approved installer such as Chargemaster
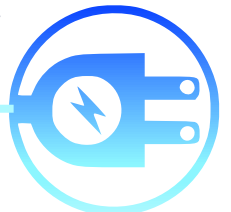
Scottish government, SSEN and SPEN are working with technology partners, transport planning partners and local councils to improve EVCI

EVCI/grid-related Strategic Partnerships

	Project PACE August 2019–April 2021	EV Uptake Modelling (EV-Up) February 2019 – August 2021	Electric A9 Project 2020–2022
	Transport Scotland and the Scottish government, working closely with both South and North Lanarkshire Councils	SPEN and SP Distribution	Transport Scotland, SSEN, SPEN and government of Scotland
	Scottish government invested £5.3m via Transport Scotland, the project is being delivered by SPEN	Ofgem's Network Innovation Allowance (Estimated expenditure: £325,000)	Transport Scotland's European Regional Development Fund Low Carbon Travel and Transport Programme
	Transport Scotland grant funding is being used to fund EV charging infrastructure and connections under this project; it will deliver up to 180 new public EVCPs for the ChargePlace Scotland network in Lanarkshire by April 2021 Project PACE is exploring the benefits of having a distribution network operator (DNO) involved in the various stages of deploying universally accessible public EV charger infrastructure, including costs and delivery timescales	EV-Up will contribute to the development of data sets to improve understanding of customers' ability to transition to EVs, based on off-street parking opportunity and customer demographics It will enable improved understanding on the likely network areas which will see increased domestic demand and better inform towards future investment programmes	The project will run along the entire route of the A9 between Falkirk Stadium in the South to Scrabster Harbour in the North; each electric charge hub facility will provide multiple EVCPs and access to associated amenities

Car dealerships, electricity network operators and charge point operators have come together for the first time in UK under the Skyline Project

## EVCI/grid-related Strategic Partnerships

	Project Charge January 2019 – December 2022	Project Local Electric Vehicle Energy Loop (LEVEL) April 2020–October 2021	Skyline Project September 2020–June 2022
	Smarter Grid Solutions (UK-based software company), EA Technology (UK-based consulting company), PTV Group (Germany-based software company), SP Energy Networks	SSEN, Transport Scotland and The Scotland government	Scottish and Southern Electricity Networks , UK Power Networks (UKPN), Energy Innovation Centre (EIC), ElectraLink and CrowdCharge
	Ofgem Network Innovation Competition funding	Ofgem's Network Innovation Allowance (NIA) (Estimated expenditure: £320,000)	Network Innovation Alliance (Estimated expenditure: £811,623.50)
	The project is being carried out under the following 3 initiatives: Initiative 1 by PTV Group: Involves strategic transport and network planning using software to map out future electric transport needs for the SPEN license areas till 2050 Initiative 2 by Smarter Grid Solutions: involves carrying out targeted trials to review charging solutions for residential properties without driveways and at leisure or on-route destinations such as shopping centres and petrol stations Initiative 3 by EA Technology: Involves the development of the 'ConnectMore' software	The project aims to identify ways to improve network and charging resilience to meet short term demand; it also aims to develop the standards and specifications of temporary, portable EV charging devices, including a demonstration of a device in the SSEN license area in the north of Scotland	The project will develop a new digital platform connected to a data-driven Application Planning Interface (API), which will allow multiple data sources to feed in crucial data for early visibility of EV uptake; this will create an automatically updated database

£21m EV charging contract awarded by Police Scotland to BP Pulse

## UK's largest ever EVCI contract awarded to bp Pulse

- £21m EV charging contract awarded by Police Scotland to bp Pulse
- The largest deal of its kind in the UK, delivering over 1,000 charge points
- Back-office integration will also give fleet users access to Scotland's largest public charging network

- bp Pulse has been awarded a contract worth up to £21m by Police Scotland to supply EVCI across its estates, in the largest ever deal of its kind in the UK. The project will be delivered in partnership with WGM Engineering.
- c.1,000 EVCPs are set to be installed at 265 locations over the length and breadth of Scotland, including 35 ultra-fast chargers, making Police Scotland one of the first fleets in the UK to introduce this level of charging technology.
- bp Pulse is working with WGM Engineering on the programme, with the two firms bringing a full range of services to the delivery of the contact, from supplying the infrastructure from bp Pulse's production facility to providing O&M.
- The Police Scotland contract is the second countrywide public sector fleet contract awarded to bp Pulse in Scotland, following the start of a charging infrastructure rollout for the Scottish Ambulance Service – also in partnership with WGM Engineering – with 35 sites already completed and the next 34 sites now underway.
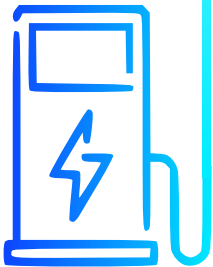
State of the Scottish local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

Overall EV Readiness Parameters

	Charing Infrastructure (Number of Charging Devices/100,000 population)	>50	30–50	<30
	EV Adoption (Number of EV Vehicles/100,000 population)	>400	250–400	<250
	Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>250MW	50–250MW	<50MW
	Urban % defines the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

Moderate

Strong · Weak

Legend

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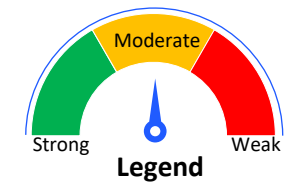
Overall EV readiness in majority of the Scotland councils is moderate to weak, and is independent of degree of urbanisation
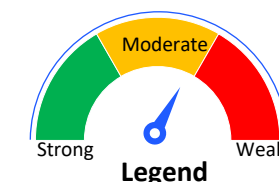
Overall EV Readiness – by Council (1/3)

Council Name	Degree of Urbanisation (% of Urban Wards)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure				Overall EV Readiness
				Total Generated Capacity Across all Power Stations by Council (MW)	% of Main Grid Supply Points by Council			
					Unconstrained Capacity[3]	Partially Constrained[2]	Constrained Capacity[3]	
Aberdeen City	98.4%	42	279	57.25	50%	25%	25%	
Aberdeenshire	42.2%	38	406	1652.8	25%	25%	50%	
Angus	73.0%	53	343	NA	40%	40%	20%	
Argyll and Bute	18.0%	82	334	775	0%	83.33%	16.67%	
City of Edinburgh	98.9%	22	368	NA	NA	NA	NA	
Clackmannanshire	86.0%	39	227	NA	NA	NA	NA	
Dumfries and Galloway	46.6%	58	220	278.6	NA	NA	NA	
Dundee City	99.5%	73	367	86.12	75%	0%	25%	
East Ayrshire	63.5%	45	223	13.2	NA	NA	NA	
East Dunbartonshire	94.5%	22	389	NA	NA	NA	NA	
East Lothian	59.1%	101	449	1248	NA	NA	NA	

Note:
1) Unconstrained capacity means when there are no known/alarming upstream and downstream constraints in a grid supply point
2) Partially constrained means connections are not feasible prior to reconfiguration or civil works
3) Constrained capacity means where the grid supply point has stability issues

Source: Based on publicly available information from the councils' websites

Moderate

Strong   Weak

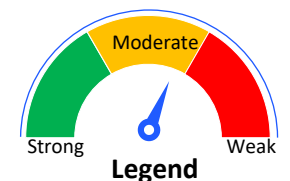**Legend**

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The Highland council has highest power generation capacity in Scotland making it more feasible for the EV grid infrastructure development

Overall EV Readiness – by Council (2/3)

| Council Name | Degree of Urbanisation (% of Urban Wards) | Charging Infra (Charging Devices/100,000 population) | EV Adoption Levels (# EV Vehicles/100,000 population) | Grid Infrastructure | | | | Overall EV Readiness |
| | | | | Total Generated Capacity Across all Power Stations by Council (MW) | % of Main Grid Supply Points by Council | | | |
					Unconstrained Capacity[3]	Partially Constrained[2]	Constrained Capacity[3]	
East Renfrewshire	96.5%	24	472	NA	NA	NA	NA	
Falkirk	91.6%	27	254	130	NA	NA	NA	
Fife	81.6%	25	293	10.75	NA	NA	NA	
Glasgow City	99.6%	30	201	NA	NA	NA	NA	
Highland	34.4%	78	281	1831.68	4.5%	91%	4.5%	
Inverclyde	98.0%	28	202	NA	NA	NA	NA	
Midlothian	84.3%	45	375	NA	NA	NA	NA	
Moray	43.6%	34	222	106.63	0%	100%	0%	
Na h-Eileanan Siar	0%	95	228	NA	0%	100%	0%	
North Ayrshire	90.3%	31	165	42	NA	NA	NA	
North Lanarkshire	92.1%	30	153	132	NA	NA	NA	

Note:
1) Unconstrained capacity means when there are no known/alarming upstream and downstream constraints in a grid supply point
2) Partially constrained means connections are not feasible prior to reconfiguration or civil works
3) Constrained capacity means where the grid supply point has stability issues

Source: Based on publicly available information from the councils' websites

Moderate

Strong   Weak

Legend

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However, the councils of East Lothian and Perth & Kinross have the highest EV readiness amongst all the 32 councils within Scotland
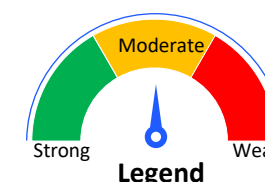
Overall EV Readiness – by Council (3/3)

Council Name	Degree of Urbanisation (% of Urban Wards)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure				Overall EV Readiness
				Total Generated Capacity Across all Power Stations by Council (MW)	% of Main Grid Supply Points by Council			
					Unconstrained Capacity[3]	Partially Constrained[2]	Constrained Capacity[3]	
Orkney Islands	0%	144	1262	44.6	NA	NA	NA	
Perth and Kinross	42.9%	68	438	370	16.67%	50%	33.33%	
Renfrewshire	95.1%	36	2803	NA	NA	NA	NA	
Scottish Borders	46.9%	42	397	379	NA	NA	NA	
Shetland Islands	0%	74	271	92.7	NA	NA	NA	
South Ayrshire	72.9%	40	268	120	NA	NA	NA	
South Lanarkshire	89.1%	32	255	65.3	NA	NA	NA	
Stirling	66.4%	73	2021	160.7	0%	100%	0%	
West Dunbartonshire	98.7%	27	207	NA	0%	100%	0%	
West Lothian	89.9%	24	273	14	NA	NA	NA	

Note:
1) Unconstrained capacity means when there are no known/alarming upstream and downstream constraints in a grid supply point
2) Partially constrained means connections are not feasible prior to reconfiguration or civil works
3) Constrained capacity means where the grid supply point has stability issues

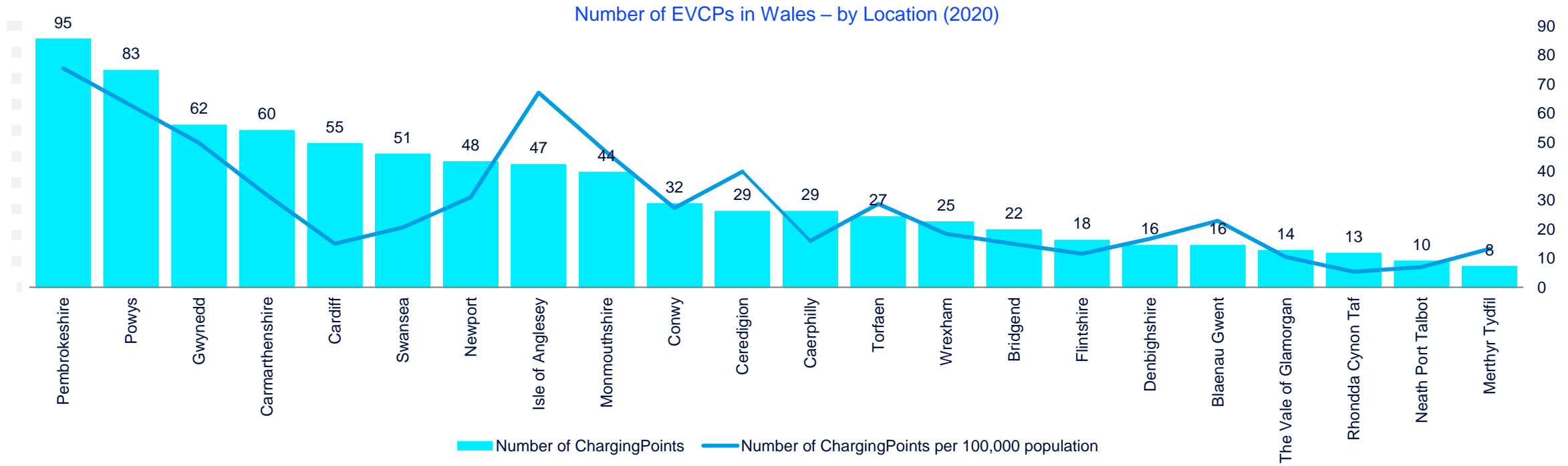Source: Based on publicly available information from the councils' websites

Legend: Strong — Moderate — Weak

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Wales

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Current EV charging infrastructure vs future charging needs of Wales

- As of January 2021, there were 804 public EVCPs available across Wales. This represents <2% for chargers, identified in recently Electric Vehicle strategy that shown that Wales will need to have between 30,000 and 50,000 fast chargers available for use by 2030.
- Rural areas and economically disadvantaged areas of Wales were particularly underserved, with large 'gaps' in the rapid charging network for long distance travel; the chart also indicates very low numbers of EVCPs in local authority areas around the South Wales valleys, and localised differences between local authority areas
- However, some councils in Wales are doing better than their peers cross the country; Pembrokeshire is in the top 20% of local authorities for EVCPs in the UK

Number of EVCPs in Wales – by Location (2020)

Location	Number of ChargingPoints
Pembrokeshire	95
Powys	83
Gwynedd	62
Carmarthenshire	60
Cardiff	55
Swansea	51
Newport	48
Isle of Anglesey	47
Monmouthshire	44
Conwy	32
Ceredigion	29
Caerphilly	29
Torfaen	27
Wrexham	25
Bridgend	22
Flintshire	18
Denbighshire	16
Blaenau Gwent	16
The Vale of Glamorgan	14
Rhondda Cynon Taf	13
Neath Port Talbot	10
Merthyr Tydfil	8

Legend: ▬ Number of ChargingPoints ▬ Number of ChargingPoints per 100,000 population

1. Based on DfT - Electric Vehicle Charging Device Statistics January 2021, data is provided by the electric vehicle and charging point platform Zap-Map

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Types of charging in Wales

On-street charging

Adoption in Wales: There are at least 145 on-street chargers in Wales.

Delivery in Wales: Local authorities are leading the rollout of on-street charging through the ORCS. Welsh Government Local Transport Fund is also a source of funding accessible to local authorities.

Direction of travel: The OZEV is considering what further incentives may be provided in support of on-street charging.

Destination charging

Adoption in Wales: There are approximately 300 destination chargers, at approximately 150 locations across Wales

Delivery in Wales: Partnerships are increasingly being used to deliver EVCI. In this model, organisations that provide goods and services partner with a CPO to provide charging across a number of sites. Some supermarkets, for example have announced plans to do this.

Direction of travel: Partnerships between automotive organisations are emerging in order to consolidate services for both the physical infrastructure and soft infrastructure (such as payment and customer support). Alternative models of localised charging include Welsh community partnerships, such as TrydaNi. Community partnerships consolidate a number of community interest and community energy companies to provide charging infrastructure to areas in need. It is expected that business will continue to lead the uptake, but that in order to gain coverage that includes hardto-reach communities, further investment will be required in community-based solutions.

On-route charging

Adoption in Wales: There are approximately 130 rapid chargers providing on-route charging at approximately 70 locations across Wales. There are however significant 'gaps' in the network, particularly for journeys up and down the country north to south/ south to north. Whilst in England rapid charging is widely available at a distance of at least every 20 miles, the provision in Wales is much more sparsely distributed.

Delivery in Wales: Delivery has been led primarily by the market to date. Rapid charging typically carries a cost premium, which has resulted in investment from the automotive and energy sectors. Sites are most profitable at locations with highest traffic volumes and to date a market-led approach means that there has been little strategic planning to meet the needs of users. Transport for Wales has been tasked by the Welsh Government to lead a project to install rapid charging at a handful of strategic locations. The Transport for Wales project consists of £2 million funding and proposed concession agreements to facilitate the installation of rapid charging and key points in Wales' transport network.

Wales strategy and constraints
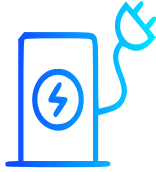
Future plans for EVCI

- Proposed investment of £30m over five years. Over the next decade the strategy identifies the need for between 30,000 and 50,000 fast chargers and 2,000 to 3,500 rapid/ultra-rapid chargers.
- The DfT, under its 'Project Rapid ', is planning to facilitate charging at Motorway Service Areas, including along the M4 in South Wales
-

Grid related strategic partnerships

- The Welsh government is working with electricity District Network Operators (DNOs) – SP Energy Networks (SPEN) and Western Power Distribution, to assess the grid capacity requirements, to help local authorities and private operators whilst they plan the deployment of public charging infrastructure.
- As a result, Western Power Distribution has developed the EV Capacity map that compares the capacity available in local areas infrastructure.
- SPEN is launching the "ConnectMore" strategic tool in end of Dec 2021 - online platform that can generate detailed scenarios for EV uptake as far into the future as 2050.

Key Constraints to EV Adoption in Wales

- Lack of notification for 'out of order' ChargePoints
- Insufficient grid capacity
- Incompatibility of charging cables, due to multiple standards
- Payment issues including different payment platforms, membership schemes, lack of internet connection, and poor customer support services
- An unclear local authority mandate and insufficient access to funding

Public and private funding and grants available at council-level to support development of EV charging infrastructure in Wales

Prior and current public funding and allocations

- For 2021-22, £68m of funding was allocated for Local Transport Fund, Resilient Roads Fund and Ultra Low Emissions Vehicles Transformation Fund schemes under Transport Grants, with the following grants being awarded:
  - Cardiff: £1,04m and £0.1m for taxi and bus ULEVCI, respectively, £0.1m for transport hub ULEVCI WelTAG 2/3 and £0.05m for EV roadshow drive and ride opportunities
  - Carmarthenshire: £0.37m for cross hands EV charging hub
  - Gwynedd: £0.15m for solar carports
  - Isle of Anglesey: £0.085m for EVCPs and ride/share facility
- In September 2019, 5 councils in Gwent including Blaenau Gwent, Caerphilly, Monmouthshire, Newport and Torfaen received £0.5m to install 73 EVCPs with 146 individual sockets
- In September 2019, a £20m capital funding was allocated for local councils, of which Flintshire received £0.052m for EV charging infrastructure
- As part of the 2018-19 budget Welsh government had committed £2m in funding to electric car EVCPs over two years (2018-20)

Lack of private funding

- There is still a risk profile that doesn't quite fit with mainstream infrastructure markets and the particular risk is the utilisation risk
- The risk associated with EV chargers due to there being a chance the infrastructure is under-utilised and therefore unable to turn a substantial enough profit - or any profit – is one of the challenges to securing funding from private sector.
- In 2019, both Western Power Distribution and Nissan had stated (in relation to charging infrastructure), their business models are struggling to make a return on the number of electric vehicles currently on the road. Adding that public incentives for instance indirect support such as tax allowances, is necessary to ensure that there is a participation from the private sector.

Current private sector initiatives

- In December 2020, ENGIE and Silverstone Green Energy launched the first nationwide public charging network across Wales called The Dragon Charging Network
- It will operate alongside linked charging networks such as GeniePoint and utilises GeniePoint Platform back-office system to enable GeniePoint Network drivers to use the Dragon Network and any other linked EV charging networks.
- Alongside the app and website, drivers also have the option of using an RIFD card for charging in low signal areas; the network currently has 124 chargers across Wales.

State of the Welsh local councils on basis of their current charging point infrastructure, EV adoption and existing grid infrastructure capacity

Overall EV Readiness Parameters

	Charing Infrastructure (Number of Charging Devices/100,000 population)	>30	16–30	<16
	EV Adoption (Number of EV Vehicles/100,000 population)	>240	150–240	<150
	Grid Infrastructure (% of power substations within the local authority/council that have extensive or normal capacity available)	>85%	80–85%	<80%
	Urban % defines the ratio of wards within a local authority/council that are classified as urban as opposed to rural			

The grid capacity data for councils in Northern Wales is unavailable; however, SPEN will launch its ConnectMore tool, covering the entire UK, in December 2021, which will highlight the EV charging demand and how it matches up with existing network capacity

SP ENERGY NETWORKS

Legend: Strong / Moderate / Weak

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Overall EV readiness in most of the Wales' councils is moderate to weak, and is independent of degree of urbanisation

Overall EV Readiness – by Council (1/2)

Council Name	Degree of Urbanisation (% of Urban Wards)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[3] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Blaenau Gwent	87.5%	23	86	95	110	37	85%	
Bridgend	69.2%	15	375	188	206	60	87%	
Caerphilly	72.7%	16	131	184	225	111	79%	
Cardiff	93.1%	15	224	488	370	176	83%	
Carmarthenshire	41.4%	32	214	269	184	72	86%	
Ceredigion	20.0%	40	230	68	19	12	88%	
Conwy	50.0%	27	218	NA[1]	NA	NA	NA	
Denbighshire	36.7%	17	209	NA	NA	NA	NA	
Flintshire	64.9%	12	202	NA	NA	NA	NA	
Gwynedd	12.7%	50	181	NA	NA	NA	NA	
Isle of Anglesey	17.5%	67	230	NA	NA	NA	NA	

Legend

Moderate
Strong — Weak

Note:
1) Councils where Grid Infrastructure has been marked as NA come under the purview of SPEN; this power distribution company plans to launch a 'ConnectMore' tool by December 2021 through which such information will be made available in public domain

Source: Based on publicly available information from the councils' websites

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Pembrokeshire and Powys are the most EV ready in terms of available grid capacity, and hence, charging infrastructure and EV adoption

Overall EV Readiness – by Council (2/2)

| Council Name	Degree of Urbanisation (% of Urban Wards)	Charging Infra (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	Grid Infrastructure[3] (# of Power Substations by Council)				Overall EV Readiness
				Extensive Capacity (1)	Normal Capacity (2)	Limited Capacity (3)	% of Substations with Available Capacity (1+2)	
Merthyr Tydfil	81.8%	13	88	54	84	31	82%	
Monmouthshire	54.8%	47	414	90	100	31	86%	
Neath Port Talbot	69.0%	7	111	174	178	72	83%	
Newport	85.0%	31	206	172	153	69	82%	
Pembrokeshire	20.0%	76	245	207	142	46	88%	
Powys	11.0%	63	304	128	67	19	91%	
Rhondda Cynon Taf	73.1%	5	125	249	287	165	76%	
Swansea	77.8%	21	476	287	245	150	78%	
The Vale of Glamorgan	73.9%	10	333	170	109	46	86%	
Torfaen	91.7%	29	139	88	109	46	81%	
Wrexham	70.2%	18	172	NA[1]	NA	NA	NA	

Note:
1) Councils where Grid Infrastructure has been marked as NA come under the purview of SPEN; this power distribution company plans to launch a 'ConnectMore' tool by December 2021 through which such information will be made available in public domain

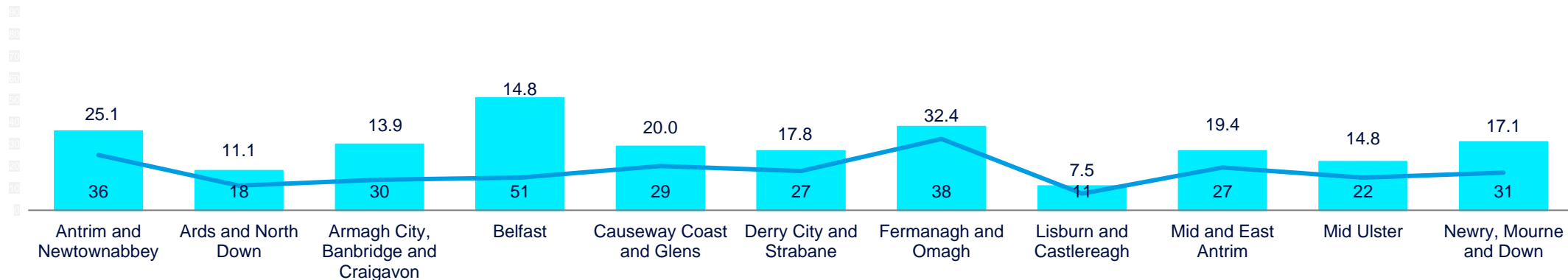Source: Based on publicly available information from the councils' websites

Moderate
Strong   Weak
Legend

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Northern Ireland (NI)

Northern Ireland's current EV charging infrastructure is growing at slow-pace, due to lack of funding
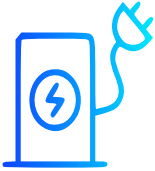
- Currently, eCarNI network (owned and operated by ESB Group) operates all EVCP in Northern Ireland, and allows EVs owners free membership and free EV charging services across the region; all costs of providing the network support services have been met by eCarNI without any public funding – which limits the expansion of EVCI

- As of January 2021, there were 320 public EV charging devices (across ~160 sites) available across Northern Ireland, with an average of 17.6 devices per 100,000 population

- The current network of EVCPs in Northern Ireland were largely installed over 2012-2014 by a consortium, including the DfI, local councils, Donnelly Motors, ESB eCars and NIE Networks via the funding from the Office of Low Emission Vehicles ("Plugged in Places" Programme)
  - However, lack of further funds/investments resulted in Northern Ireland reporting lowest number of charging points (both standard and rapid) in the UK, in turn, restraining the growth of EVs in the region
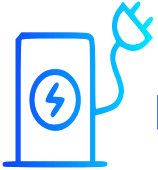
Number of EVCPs in Northern Ireland – by Location (2020)

Location	Value (line)	Value (bar)
Antrim and Newtownabbey	25.1	36
Ards and North Down	11.1	18
Armagh City, Banbridge and Craigavon	13.9	30
Belfast	14.8	51
Causeway Coast and Glens	20.0	29
Derry City and Strabane	17.8	27
Fermanagh and Omagh	32.4	38
Lisburn and Castlereagh	7.5	11
Mid and East Antrim	19.4	27
Mid Ulster	14.8	22
Newry, Mourne and Down	17.1	31

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Northern Ireland EVCI development plans

Future plans for charging infrastructure

- In October 2020, EU's INTERREG VA Programme announced to invest a £5.8m in a new electric vehicle charging project called 'FASTER', which aims to install 73 points in Northern Ireland, Ireland and Scotland; this investment is likely to result in installation of ~20 rapid charging points across all Northern Ireland by March 2023
- On 21 December 2020, 3 development plans were included in the **Planning Order (Northern Ireland) 2020**, which aim to promote EVCI in Northern Ireland; the 3 development agenda include:
  - Installation, alteration or replacement of wall-mount outlets for EV charging
  - Installation of upstand electrical outlets within areas lawfully used for off-street parking
  - Replacement of obsolete on-street upstand electric outlets with new outlets for EV charging
- Further, government initiatives, under the Office for Low Emission Vehicles scheme, offer EV owners in Northern Ireland a domestic grant which covers up to 75% of the total cost of a home charge point, to a maximum of £500 to promote installation of private charging infrastructure

High EVCI investment cost, lack of funding and limited number of EV inhibits charging infrastructure development in Northern Ireland
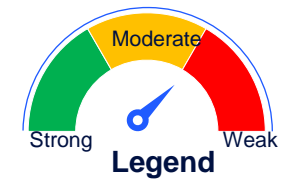
Key Constraints to EV Adoption in Northern Ireland

- Grant Issues/lack of funding: Northern Ireland faces challenges in obtaining grants, as it is a much smaller market relative to other larger UK jurisdictions, such as London and Milton Keynes – e.g., it lost a bid on the 'Go Ultra Low Cities' scheme, which aimed to promote EVs, car pooling and a diesel scrappage scheme, as the criteria was judged based on the size of the outcome
  - High up-front capital investment and significant fixed operational costs, along with relatively small-scale of market in comparison to other UK jurisdictions discourages new entrants to compete in the EVCI space – all charging points in Northern Ireland are currently being operated by a single operator, eCarNI
- Lack of incentive from Northern Ireland Utility Regulator: Previously (before 2020), charge point owners were not allowed to make a profit from the electricity they sold to drivers, instead they could only sell electricity at the same price as they bought it (known as the pass-through rule)
  - Businesses, therefore, had no incentive to invest in vehicle charging points, since doing so would not be profitable; this contrasted with the position elsewhere in the UK, where the majority of vehicle charging points are either owned by private companies or provided through collaboration between local councils and private companies, and are funded by selling electricity to car owners
  - However, removal of the pass-through rule for EVs in Northern Ireland, along with the emphasis on charging infrastructure was set out in the 2020 budget (with £500 million set aside); this is likely to result in growth in the number of public charge points in Northern Ireland
- EV vehicle growth: According to the 'Attitudes to Electric Vehicles in Northern Ireland 2019/20' report published by the Department for Infrastructure, inadequate EV charging infrastructure in Northern Ireland discourages ~34% of people from buying an EV, which presents a 'chicken and egg' scenario, where market growth is limited without the necessary infrastructure investment and vice-versa

State of Northern Ireland on the basis of its current charging point infrastructure, EV adoption and total aggregated generated power capacity

Overall EV Readiness Parameters

Parameter	>25 / Strong	Moderate	Weak
Charging Infrastructure (Number of Charging Devices/100,000 population)	>25	15–25	<15
EV Adoption Levels (Number of EV Vehicles/100,000 population)	>250	200–250	<200
Grid Infrastructure (Total Generated Capacity (MVA) within the local authority)	>50 MVA	30–50 MVA	<30 MVA

Moderate

Strong   Weak

Legend

Source: Based on publicly available information from the councils' websites

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Overall EV readiness of majority of councils is moderate-weak; however, Belfast council has comparatively matured EVCI

Overall EV Readiness – by Council

Council Name	Charging Infrastructure (Charging Devices/100,000 population)	EV Adoption Levels (# EV Vehicles/100,000 population)	(Total Generation Capacity Estimates by Local Authority) (MVA, 2021)	Overall EV Readiness
Antrim and Newtownabbey	25	338	46.8	
Ards and North Down	11	203	5.2	
Armagh City, Banbridge and Craigavon	14	169	15.1	
Belfast	15	417	55.1	
Causeway Coast and Glens	20	128	NA[1]	
Derry City and Strabane	18	101	80.1	
Fermanagh and Omagh	32	96	52.6	
Lisburn and Castlereagh	8	254	NA	
Mid and East Antrim	19	144	17.9	
Mid Ulster	15	114	50.1	
Newry, Mourne and Down	17	113	22.6	

Legend: Strong – Moderate – Weak

Note: 1.NA denoted not available

Source: Based on publicly available information from the councils' websites

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Background and limitations of data notes

- CPs location data is based on the DfT's Electric Vehicle Charging Device Statistics published in January 2021. This data is sourced from the electric vehicle charging platform Zap-Map and represents devices reported as operational at midnight, 4 January 2021. Zap-Map reports that they cover 95% of publicly accessible devices. True counts are therefore likely to be higher and we have no way of assessing whether data coverage is better in some geographical areas than others.

- There are no other sources with such comprehensive coverage against which we could verify the Zap-Map devices. As of 26 January 2021, the National CP Registry (NCR) covers 13,297 devices so cannot be used to verify the Zap-Map counts. The NCR, whilst covering fewer devices, does contain more detailed information on each charging device including the exact location and number of connectors.

- 'Total devices' represent publicly available charging devices at all speeds, including slow, fast, rapid and ultra-rapid devices. 'rapid devices' are those whose fastest connector is rated at 43kW and above. A device can have several connectors of varying types and speeds. Some devices can charge only one car at a time, and some can charge more than one simultaneously. The Zap-Map data does not indicate how many cars can be charged by a single device; therefore, the statistics count the device itself. There is often more than one device at a location. Charging capability in any given location (the number of cars able to be charged at the same time) will be higher than the number of devices.

- Population figures by Local Authority are sourced from the Office for National Statistics Population Mid Year Estimates for 2019. The Local Authority administrative geographies are from April 2020, available from the ONS Geography Portal. Data after Q3 2019 reflects charging devices which were available at the end of each quarter. Data before this uses charging devices which were available at Q3 2019 but were installed in previous quarters before this. Subsequently, these figures do not include any devices installed before Q3 2019 that were decommissioned or unavailable at the time.

- CP definition: The term 'CP' may refer to either a single device or several connectors on a device which can be used simultaneously.