

Response to Consumer Market Authority investigation into Electric Vehicle Charging

Combined response from London Councils, Transport for London (TfL), the GLA and the Local Government Technical Advisers Group (LGTAG).

Theme one: developing competition while incentivising investment

1. How is the EV charging sector developing and how will technological or other developments (for example smart technologies) impact sector development and competition?

From the viewpoint of London boroughs, the number of Electrical Vehicle Charging Point (EVCP) providers appears to be growing rapidly with many new providers appearing on the market in recent months. This growth suggests that the EVCP market in London is attractive for private investment. It remains to be seen if smaller companies will be able to compete with the larger, more established companies over the longer term given their significant financial backing.

There have been many technological developments in this area in recent years, with many new types of discreet charge points now available, which are more attractive to London boroughs seeking to deliver charge points with minimal impacts on streetscape. An example of this is the lamp post column charge points, mainly provided in London by Ubitricity who were the first operator to deliver a product of this type. As new technologies and products become available e.g. ultra rapid charging points, pop up or wireless charging, it may be that the first operator to provide each type of technology will be able to secure a significant market share before similar products are available from other operators.

In our experience of EV Infrastructure Research projects funded by Innovate UK- such as E-Flex on Vehicle-to-grid technology and WICET on Wireless Charging of E-Taxis- these markets are developing rapidly. On inception, the technology and providers were limited, however within twelve months capital investment has reduced as well as achieving greater technological capability as the market has developed.

2. How well is competition between EV charging providers working at present in the different sector segments and what are the key risks to effective competition (including any emerging competition concerns)?

London boroughs experience competition between EV charging providers in respect to procurement processes.

The following two procurement frameworks are mainly used by London boroughs in London to procure EVCPs.

- TfL's Electric Vehicle Charging Infrastructure Framework: London boroughs can access this framework for the supply, installation, maintenance and operation of slow to fast charge points that provide a power outage capacity of less than 22kWh. The framework can be adapted to meet local needs and can also link in with the maintenance agreement between the supplier and the borough. The framework includes seven providers and was awarded in

July 2018, to run for an initial term of three years, with the option to be extended by twelve months. The framework has been used to procure nearly 3,000 charge points in London (nearly 50 per cent of the total charge points in the capital), of which the majority have been lamp post column charge points delivered by Ubitricity and funded by either the Go Ultra Low Cities Scheme or On-Street Residential Chargepoint Scheme (ORCS). Both schemes are funded by the Office for Zero Emissions Vehicles (OZEV)

- Tfl's Rapid Charge Point Framework: As with the electric vehicle infrastructure framework, this can also be adapted to meet local needs. The framework includes five charge point providers, although only two have been active, and was awarded in May 2017, to run for up to four years. This Framework has been used to deliver the Tfl rapid charge point programme which has delivered 300 on-street rapid charge points to date.

Both frameworks have been well used by London boroughs and Tfl to deliver charge points with public funding, and have been instrumental to continued delivery of slow/fast charge points by London boroughs in particular, significantly reducing the procurement and legal resource required. However, as the frameworks do not allow new operators to join once they have been awarded, they do not encourage competition with new operators, a limiting factor in an area where technology is developing so rapidly.

Tfl and London Councils are currently looking at options for charge points to be procured through the Dynamic Purchasing System recently launched by Crown Commercial services. This is an attractive procurement system as it allows new suppliers to be added at any point.

London boroughs are conscious that the need to comply with public sector procurement rules can impact more heavily on smaller companies. These companies, which may bring a new technology to the market for the first time, may struggle to make a compliant bid due to factors such as their short trading life or financial security etc. Support and guidance to help ensure such inadvertent distortions of access to the market is avoided as far as practicable would be welcomed.

Limited data sharing of charge point utilisation is a risk to effective competition that we would like to see overcome. Currently the charge point providers with the largest networks in London (SourceLondon, Ubitricity, ESB) have greater insight of charge point usage which gives an advantage for identifying investment opportunities.

- 3. How can competition in the different sector segments be strengthened as the sector develops, either by building on current policies and/or through other approaches?**
- 4. What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?**

While there currently seems to be no shortage of EV providers wishing to gain access to the market, there are clearly risks associated with London boroughs offering contracts to new providers with unproven track records or products. London boroughs apply the greatest diligence when investing public money, which can sometimes slow down the introduction of new approaches into a live environment and therefore constitute a barrier to entry. A regulatory sandbox approach, where

designated pilot zones are created to test a variety of different charging technologies and mechanisms at pace and without necessarily going via full competitive procurement may be worth exploring as a means of increasing rates of entry, adoption, and expansion

In many cases one of the main barriers for provision of charging facilities is the availability of land and the preference of London boroughs to deliver charge points with minimal impact to streetscape. This is of particular importance, given the number of charge points that are forecast to be required in London in the next 5-10 years and the current strain on curb space for other users. This could limit competition as some providers with discreet technology available in the early stages of delivery may have secured a toehold on the highway network and therefore enjoy effective local monopolies at the kerbside, restricting opportunities for different types of technology to be delivered for a number of years.

It is worth noting that the role of the local authority in shaping the emergence of local EV network infrastructure, and indeed providing charging opportunities on the highway in any form is not closely defined. Whilst there are strong messages from central government to extend charging opportunities, there is no obligation or duty on authorities to do so in the same way as there is in respect to general asset maintenance of the highway (such as under Highways Act 1980), or even the effective management of traffic flow (the network management duty set out in Traffic Management Act 2004).^{1 2} There is no obligation even to provide an outline strategy for how charging facilities will be developed in future, along the lines of that pioneered for Local Cycling and Walking Implementation Plans for example. The provision of comprehensive national guidance for local authorities on how best to develop an EVCP Implementation Plan would be a good place to start in helping to remove barriers to market development from public sector actors.

5. How can charge points be effectively deployed to ensure there is sufficient supply to meet future demand? What factors need to be taken into account?

The world's-first EV Infrastructure Taskforce was set up in May 2018 with experts from both the public and private sector who collectively advised on how to unlock barriers to expanding charging infrastructure and accelerating the switch to EVs in the Capital, including steering the development of EV infrastructure delivery to date.

Close engagement with the EV Infrastructure taskforce members acts as an important reference group to identify and deliver the level and type of charging infrastructure London will need to accelerate the switch to EVs.

Through the work of the taskforce, it has become clear that slow charging at a private home (or workplace) is expected to be preferred by many car owners across the UK, given the lower electricity tariffs available and convenience of charging while parked. However, two thirds of London private car owners do not have access to off-street residential parking. Also, due to London's economic make-up

¹ Her Majesty's Government, [High Ways Act 1980](#), November 1980

² Her Majesty's Government, [Traffic Management Act 2004](#), July 2004

– a rising gig-economy, and the preponderance of high-mileage commercial vehicles such as taxis and private hire vehicles – more vehicles will require faster charging through the course of a day.

In 2019, TfL published the London EV infrastructure Delivery Plan, which was the product of 18 months' work by the Taskforce.³ It included an innovative quantitative model which aimed to provide insight into how many chargers of each type may be needed in London up to 2025. The model provides a means to examine future activity against projections and revisit these if EV sales follow a different path to what has been assumed. The model has been based on the best current understanding of EV trajectories, vehicle/charging technology, range of likely user behaviour and charger utilisation. It has been formed from a range of research, and stress tested with a range of experts, including several members of the taskforce. Consistent with the nature of predictive modelling, however, it cannot forecast with certainty and its results should not be treated as such, but it has provided a useful guide for understanding what future demand for charge points might be.

In 2020, further analysis was completed by the International Council on Clean Transportation (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 EV infrastructure planning in London.

Both the predictive modelling work of the delivery plan and the ICCT analysis concluded that different types of chargers suit different user needs, and a mix of rapid and slower chargers will be needed across London, in different combinations for each borough depending on housing types and demographic and transport characteristics.

An important consideration for planning future charge point delivery is the evolution of user behaviour and the rapidly changing technology which will impact future infrastructure demands. EV driver behaviour and charging requirements are evolving and we must be cautious to avoid stranded assets with out of date technology. For example, the total number of rapid charge points anticipated in future could reduce should charging speed capability of new vehicles increase to accommodate ultra-rapid charging (100-150kW+). For slow charge points (<7kW), overnight charges may not be possible to recharge a full battery if battery sizes increase significantly. It is therefore important that requirements for future charge points are updated to reflect changes in behaviours and technologies.

6. What incentives are there for private investment in EV charging infrastructure including within the different sector segments? How might incentives need to change for the future growth of the sector and development of competition?

There are currently c. 6,000 public charge points in London, of which a significant number (estimated c.75 per cent) have been funded with public investment. Given the public funding available for the delivery of charge points in London, and the relatively low utilisation of existing charge points (in

³ The Mayor of London, [London electric vehicle infrastructure delivery plan](#), June 2019

particular slow to fast charge points) at this early stage of EV adoption, there has been little incentive for private investment to date.

In 2020 London Councils became aware of a number of charge point operators who are prepared to fund the delivery of charge points in London, incentivised by the commercial case for future revenue, particularly for rapid charge points. It is expected that there will be increased private sector investment as the commercial case improves with increased uptake of EVs creating more demand for public charge points, and there is more certainty about what type of charger is needed, and more confidence in the charging model.

LGTAG members suggest that improvement in the consistency of approach across LAs through provision of common guidance setting out how to develop an EVCP Implementation Plan could be a relatively low cost way in assisting the creation of a consistent market, potentially increasing attractiveness for private sector investment.

Thought needs to be given on how to balance the need for private sector return on investment, against providing the most optimal experience for the customer. The latter would tend to preclude against monopolistic provision and restricted membership schemes.

7. What impact does public subsidy have on private investment incentives; are there any areas/gaps where public support is most likely to be needed?

There has been significant public investment in charge points in London from the origins of London's first public charging network, Source London in 2011 to the residential charge points funded via the Go Ultra Low City Scheme (GULCS) or On-Street Residential Chargepoint Scheme (ORCS), and the TfL rapid charge point network of 300 charge points.

Charge point usage data in London shows that utilization of slow/fast charge points is currently low, making it difficult to build a commercial case for private investment in these types of charge points in particular, while for rapid charge points the commercial case is building and private investment becoming available in some locations.

A key aim of the EV Infrastructure taskforce was to consider what market conditions are needed to embolden a commercial market and maximise the value of public funding. Key barriers to investment were identified as land and energy, operational/user experience and investment uncertainty and the following eight enablers identified to overcome these:

1. Deliver London's first rapid charging hub and support the roll-out of additional rapid charging hubs – in collaboration with the private sector
2. Support shared business charging infrastructure
3. New pan-London co-ordination to facilitate and oversee charge point installation
4. New online tool/ 'heat mapping' to identify energy grid constraints and where new charging capacity will be cheaper and easier
5. Explore alternative and smart power supply options, such as battery storage, mobile charging and private wire networks
6. Publish guidance on charge point installation for both public and private sector

7. Publish guidance on future-proofing EV infrastructure to encourage investors
8. Promote better standardisation of charge points and vehicles, interoperability of systems and data sharing

Progress on delivery of these enablers is set out in the one year on report available online⁴.

Following stakeholder engagement and workshops carried out during the production of the EV Infrastructure Taskforce Delivery Plan to obtain information on the challenges and solutions related to market models and financing of EV charging infrastructure in London, stakeholders believed public support could be most effectively provided by:

- Using public funds only where little commercial opportunity exists e.g. for social provision to ensure equality and coverage for all citizens across London, based on likely demand.
- Underwrite private sector investment to offset utilisation risks in certain areas and uses
- Contribute to the largest cost components e.g., grid connections, grid reinforcement and energy solutions
- Ease access to land in good locations through policy and possibly incentives
- Ease access to information about grid capacity, charging demand, investors, landowners and partnerships
- Incentivise good charging network performance

8. What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?

The vast majority of those in the UK who have been early adopters of EVs are able to charge their vehicle off-street (typically from home), where overnight charging is a convenient and low-cost option. For many businesses and residents in London, though, this is not an option. An estimated 24 per cent of all London households have a car but don't have access to off-street parking. Therefore, access to nearby public charging, or shared use of private charging, is essential to ensure that charging is neither a perceived nor real barrier to the switch to EVs, particularly in inner and central London.

The modelling in the EV Infrastructure Taskforce Delivery Plan estimates that between 20,000 – 48,000 slow to fast charge points will be needed by 2025 in London. It recommends a focus on a) uplifting volume, b) reducing the streetscape impact of chargers, and c) exploring new models around deployment off-street (eg, car parks in or around residential areas). The future favoured deployment model is strategic and demand-led, (not desire-led) in order to improve commercial viability and enable the private sector to take over delivery. Given the low utilisation of on-street residential charge points at the moment, continued public funding is needed to ensure charge point delivery.

To ensure that those without off-street parking are well served by charging infrastructure it is essential for LAs to have access to reliable and comparable usage data from charge points that have

⁴ <http://lruc.content.tfl.gov.uk/london-electric-vehicle-infrastructure-delivery-plan-one-year-on-november-2020.pdf>

been delivered. Understanding patterns of usage enables focused delivery in areas where it is most needed, and the relocation of charge points where they are underutilised. As part of the TfL procurement framework for slow to fast charge points there is a requirement for charge point operators to share usage data with London Councils, TfL and the GLA. In 2019 London Councils and the GLA combined this data online to create an analysis dashboard to provide an insight into charge point usage across London. The dashboard can be accessed by all London boroughs.

A key concern of boroughs is to ensure equity of access for residents to the most economical charging solutions. Authorities note the difference in KWh cost between overnight charging on a driveway in comparison to using public charging points. Depending on the package subscribed to, the cost of public charging can be five times more expensive than residential charging - equivalent to hundreds of pounds more per year.

This impacts on a large number of Londoners who do not have access to off-street parking and is more likely to impact those in local authority dwellings, who are less likely to have access to off-street parking⁵. This raises significant concerns around equity of access. In areas where houses do not typically have off-street parking, a private charging point provider may form a local monopoly, with an EV owner having little real alternative but to charge at the local facility irrespective of cost. This differential may increase even more significantly when dynamic pricing product innovations (e.g Octopus' vehicle to grid approach⁶) further lower the cost of home EV charging for those with access to off-street parking.

For a borough with a range of households with differential access to off-street parking, managing this equality of access is a challenge. EVs are already notably more expensive to purchase or lease when compared to a similar ICE alternative, and without access to the most competitive options for charging the overall costs of an EV will make them unaffordable to low income consumers. This could lead to concentrations of legacy ICEs in lower income neighbourhoods, exacerbating what is more likely to be poor air quality in those areas.

A potential partial solution for some consumers could be for boroughs to allow for the delivery of gullies to enable cables to be run from residential properties across the footway to the kerbside. Concerns have been raised about this approach in some locations given the potential for cables to be a trip hazard. However, there is a long established arrangement for local authorities to construct crossovers allowing vehicular access across the footway onto off-street parking spaces and some boroughs feel that a similar approach could be adopted (in a form less disruptive than building a typical crossover) to allow for a dedicated charging gully to be provided for residents wishing to procure an EV, such as trialled in Oxford⁷. Challenges could still exist for residents on streets where parking demand is high and they cannot guarantee a space outside their premises, making running a cable from their home impractical. In such locations, provision of sufficient communal kerbside

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/6748/2173483.pdf

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/6748/2173483.pdf

⁷ <https://www.goultralowoxford.org/info/5/chargers/13/chargers/3>

charging solutions would still be necessary. The consistent extension of kerbside charging using home supply for residents without off-street parking could however significantly increase EV charging opportunities, and may be particularly advantageous for lower income groups. The provision for residents to access home supply without converting their front gardens to off-street parking would also have wider benefits in terms of biodiversity and alleviation of flood risk through expansion of hard surfacing in the urban setting. Alternatives to this arrangement that provide access to charging solutions at similar costs to utilisation of the home's electricity provider would likely require a public subsidy to artificially lower unit costs provided by private charging providers. Such fiscal incentives may be required for some residents.

Most boroughs are now requiring new developments to provide a set number of EV charging facilities from occupation of the development by new residents, with passive provision made for further bays to be provided in due course. The process for which such residents can request these additional bays are brought into operation is often vague, as is the charges and tariff such residents may be subject to, over which they may have no choice in complying with.

9. What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?

- Facilitate opportunities for practical best practice sharing between authorities across the country in delivery of charging solutions – via improved national peer-peer networking opportunities. This would enable capacity development across a range of key requirements from the development and application of procurement strategies, to better contract management, improved utilisation of technical solutions and new product developments. This would help improve the roll-out of EV infrastructure and facilitate key discussions on matters including how to ensure optimal partnership approaches with private sector actors to achieve the right balance between ROI and consumer benefits.
- More (constructive) benchmarking amongst LAs to understand where good practice exists in the country that can be readily replicated.
- Development of shared frameworks for better working relationships between LAs and DNOs – this would aid in building understanding and enable more proactive action to meet potential future grid pressures as EV take up increases.
- Regular constructive support from OZEV or organisations such as EST – this could be in the form of a simple biannual catch-up sessions between them and LA leads where delivery issues are explored and support provided as appropriate. EV infrastructure suppliers could be invited to such sessions to enable less formal discussions and build understanding on key matters, including the latest state of the art, as well as the local regulatory and political contexts and challenges faced by LAs.
- Potential exploration of simplification of provision of EV charging facilities.

Some of the above will be addressed by the pan-London coordination function in London Councils, which was established in response to the recommendations in the EV Infrastructure Taskforce Delivery Plan. The coordination function is joint funded by London Councils and TfL, and launched in July 2020. Responsibilities include overseeing the delivery of the Go Ultra Low City Scheme, sharing knowledge, supporting borough delivery through the provision of procurement and contract management

support, identifying and securing funding and partnership opportunities and collating and analysing charge point usage data to inform future delivery.

10. What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development?

Tackling pollution in London is a public health priority. To combat poor air quality, innovative and bold measures are being taken by London boroughs and the Mayor. London's local and regional government is encouraging the switch to EVs by providing a number of supportive policies and incentives. These include the introduction of the Ultra-Low Emission Zone in 2019 in central London.

The Ultra-Low Emission Zone will soon expand to cover a greater geographical area in October 2021, supported by GLA-funded scrappage schemes. Zero emission zones are being planned in the capital, and TfL also supports vehicle purchase grants, topping up the plug-in taxi grant, and providing delicensing funds for older taxis.

London is leading the way in the UK in terms of charge point provision with over 26 per cent of the country's charge point connectors in London (as of November 2020)⁸.

TfL, as London's licencing authority for taxi and private hire vehicles, have been able to introduce licensing requirements to reduce emissions from the taxi fleet by phasing out diesel taxis and increasing the number of zero emission vehicles in London. Since 1 January 2018, taxis presented for licensing for the first time have needed to be Zero Emissions Capable (ZEC). This means having CO2 emissions of no more than 50g/km and a minimum 30-mile zero emission range and petrol engines that need to meet the latest emissions standard (currently Euro 6).

With over 3,900 ZEC Taxis now registered in London, the policy package has resulted in increased demand for rapid charging in London from ZEC taxi drivers which in turn results in greater viability of sites for operators with higher demand and usage.

⁸ <https://www.zap-map.com/statistics/>

Theme two: effective consumer interaction with the sector

1. What challenges or difficulties related to charge points might act as a barrier to consumers switching from a conventionally fuelled passenger vehicle to an EV and how might these be overcome?

Access to and visibility of charge points and pricing has been identified as a key barrier to consumers. A key challenge faced by London boroughs is the effective enforcement of parking areas adjacent to charge point infrastructure, where these are dedicated for EV.

Another challenge faced by consumers and boroughs is the reliability and resilience of charging points. Technology and charge point infrastructure reliability is improving all the time, however measures, such as de-linking electricity costs for EV infrastructure from the domestic supply, could aid in making EVs more attractive for consumers, and make local infrastructure more reliable in the long-run. This is particularly important as increasing battery sizes will potentially require different chargers and national guidance on the types of charge points required to meet evolving technology will be needed for LAs to ensure there are minimal stranded assets.

National legislation on data sharing, interoperability and charge point reliability would remove some of the barriers to consumers.

2. What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows?

From an London boroughs perspective, other than basic availability of charging facilities, interoperability of different networks and service providers and reliability are the key barriers.

In terms of availability there is clearly a need to increase provision to match increasing demand, however equally important is to make sure that customers are aware not only of where points are but also the status of the point (e.g. if it is in use, out of use, or available), alongside innovations to help share the locations of charge points. This would include more prevalent use of bookable slots for some chargers (perhaps particularly slow and fast versions which require longer dwell times).

It is likely that greater attention needs to be taken by boroughs to ensure EV charging facilities can be consistently accessed by those with EVs. EV only bays are used to try and safeguard against this misuse, however to enforce these a Traffic Management Order is required which adds to cost and delivery timescales (particularly if there are objections). The need for a TMO to introduce EV charging bays, and enforce against non-EV's blocking access to a charging facility, could be reviewed to make it simpler and more cost effective for authorities to control usage. An approach could be to bring EV bays into line with some other kerbside restrictions such as bus stop clearways and school keep clears which don't require formal TMOs. A focus on addressing this area of consumer irritation could include more widespread use of smart beacon technology to alert enforcement agencies as to whether bays are occupied with no charging event happening such as is being trialled in London Borough of Hounslow with partners Bluepoint London (who run the Source network). The provision of such technology could be standard for all bays and new installs if funding was available.

In terms of interoperability, development of pay as you go payment options, preferably using contactless technologies is widely considered an essential next step in breaking down barriers to use. Interoperability clearly has very clear benefits for consumers and maximises the use of the network and assets that have been installed. Boroughs appreciate the need for private actors to recoup a return on investment, however in future this is considered better achieved through the competitive provision of membership tariffs independent of the asset, in much the same way as the current home energy market operates. There is a feeling that mainland European countries have developed this concept further, given they have drivers moving from one country to another and this has created proper interoperability. Whilst there now appears to be some attempts to develop a common platform (e.g. via Zappay) the majority of consumers are still expected to buy into more than one system and deposit money in order to have access to each service – this is both sub-optimal for them and a barrier to competition.

Boroughs also find that some EV drivers expect a wide range of incentives to adopt the change, such as free electricity and free parking. Whilst councils are keen to support EV uptake, it is still the case that EVs take up road space and cause congestion, as well as representing safety considerations for vulnerable road users as any other motorised vehicle does. As such, some level of demand management (such as parking charges) that encourages people to use active travel or public transport rather than EVs is still considered appropriate. In addition, in town centre sites, there is a commercial need for parking strategies to facilitate an appropriate turnover of spaces to facilitate optimal levels of footfall to support commercial activity. This objective is not supported by provision of free parking. Provision of such incentives more generally is becoming more unsustainable for Councils with revenue budgets tightening and increasing uptake of EV's in the fleet increasing the cost of such dispensations.

As noted in answer to Theme One - Q8, the variable cost of charging between residents who can use their home provider (via off-street parking space) and those who must use private providers is significant. This is a significant barrier for a large number of residents in flats and terraced housing, and will have a particular impact on low income households particularly if fiscal framework further tightens against ICEs in future years.

3. How do consumers decide which chargepoint services and providers to use? What information do consumers need to make this decision and at what stage in the decision-making process?

4. Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?

It is considered difficult for users to understand and compare charging tariffs. Charge point operators across London apply different pricing for memberships and usage e.g. some charge by energy used and others by time plugged in. There is a lack of standardisation for charging costs and payment mechanisms. This challenge will require a national approach, as highlighted by the EV Infrastructure Taskforce in their London electric vehicle infrastructure delivery plan.

5. Do particular groups of consumers face additional challenges to interacting with the sector and if so, who and why? How might these be overcome?

We have noted above the challenges that those without access to off-street parking have in interacting with the sector. This appears to be a particular issue for residents in authority dwellings.

It is not clearly understood whether EV's are being actively pushed under the motability car scheme, this could be a useful avenue to explore, particularly if it is coupled with provision of EVCP at or near to properties of eligible recipients of the benefit.

6. Are there any technological developments or tools that could support consumers to navigate the sector, for example by helping to make more informed choices?

As noted above, the development of parking apps that interface with hard infrastructure to potentially reserve a bay for both parking and to charging is considered an area worth exploring further, as is technology that helps enforce against misuse of bays near charging facilities.

In addition an online map showing charge point locations, live status and clear and comparable information on pricing would be welcome.

7. Are existing protections offered by consumer law and other measures (such as sector regulations) sufficient?

8. What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps?

Open data to support consumer interaction would be beneficial to all consumers, allowing various organisations to include the data on maps and other apps to ease journey planning for EV drivers and enable a better understanding of charge point availability and pricing.

In addition, open data on usage is considered key to help guide effective and optimal roll out of charging facilities by public sector agencies.

9. What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs?

There is a clear need for the EVCP supplier market to work closely with the automotive sector to ensure charge-points are capable of supporting new car technology as driving range is increased in an effort to reduce range anxiety.