

CMA EV Market Study - Themes and Key Questions

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?

Early market development has been led by investment into rapid charging destination solutions, but is now quickly adjusting to deploy charging solutions which are more appropriately matched to dwell time and the user preferred charging locations; ultra-rapid EVCPs on arterial routes and slow/fast EVCPs in residential and workplace locations. From a technology perspective (and focusing in our area of charging; 3-22kW), an ability to effectively and intelligently load manage a network of chargers is quickly becoming a prerequisite for the mass scale deployment that is required across the UK.

Similarly, an ability to dynamically interact with the power grids/systems to dynamically modulate power supply to chargers (dependent on power availability and strain on the grid) is expected to be an important area of focus in the next 24-36 months.

There remains uncertainty over the future potential for wireless/inductive charging - though we see and are currently exploring deployment for taxi ranks, shared vehicle schemes and disabled drivers (where we have recently won two innovation funding awards) - as the auto manufacturers remain reluctant to include the technology in production vehicles until there is sufficient infrastructure deployed, or at least, infrastructure that is able to be upgraded (as ours is).

Technology is moving extremely quickly - with Connected and Autonomous Vehicles (CAVs) on the horizon - meaning that the future proofing of infrastructure deployed today is important. The pairing of fast fibre and EVCP deployment (as we do at CK) is a potential solution to this, providing both power and super-fast data connectivity at kerbside.

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)?

There is strong existing competition across the different market EV charging segments, with incumbents (such as the institutionally owned PodPoint, BP Chargemaster and Ubitricity) and new entrants like ourselves, EO and, at the rapid and ultra-rapid end of the spectrum, Grid-Serve.

As with many markets there is a barrier to entry for new entrants. In this instance this should be a cause for concern, as the technologies are still evolving and the best/most effective operators are yet to be defined - further to this, the new entrants (those facing barriers to entry) are those positively disrupting the market and are often UK grown and manufactured.

To illustrate this point further, the activity we have seen in the market recently suggests that we are currently in a land grab - with the intent to gain market share and thereby secure effective monopolies. Our worry in such a market (where again, new entrants are often bringing enhanced technology and service quality) is that the deep pockets of market incumbents could and is resulting in contracts being won uneconomically.

This behaviour creates a further barrier to new entrants and raises questions over the end value provided to the consumer, where we know that the reliability of charging infrastructure is a key issue of concern for those considering the switch from ICE to EV. In instances where the contract is won uneconomically the operator is in a position where (to recover costs) it either needs to charge excessive fees to drivers to charge vehicles, or cut corners in the operation and maintenance of assets (with repercussions for reliability), or both.

Further to the above, the market has for some time been in a mode of selling product (with chargers typically having a lifespan of 5-7 years), but in our view needs to move more towards an infrastructure/utility model (long term/long life assets) - both to secure outside funding (from infra financing organisations able to deploy the volume of capital needed, but who expect to invest over infrastructure timelines) and to deliver value to the consumer (low cost of charging, minimal disruption and high uptime). We have spent significant time with industry bodies, local authorities and private sector clients on this topic, but more work needs to be done to help the market make this transition.

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?

There is already significant competition across the market. This is heightened at present as there are insufficient opportunities to deploy - the market is ready to move faster than approving bodies are willing to allow. However, this is likely to diminish over time as demand for chargers (or recognition of the need for them) increases within approving bodies.

Looking ahead it is important for central government to provide guidance on procurement criteria (what's important), as at present there is significant variation across the different procurement teams we work with - for example is cost the most important factor (and to whom, the consumer or the council?), or in fact is quality, lifespan or environmental impact the key factor?...and how should these be scored? As outlined in our thoughts on Q2 above, without this guidance and support, the market risks being dominated by uneconomical market buying tactics, with a potential impact on the long term value of the infrastructure that is deployed.

It is also worth noting that in some locations (particularly workplace and residential public charging), competition is removed once deployment is achieved (similarly to utility markets). This effective monopoly is difficult to overcome and therefore regulation and effective contracting (to set KPIs and pricing mechanisms) becomes critically important in protecting the consumer and ensuring value.

4. What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?

The key barriers remain insufficient opportunities to deploy, market buying tactics and competition from low cost/quality competition - all covered in thinking set out above in Q's 1-3. Additionally however, we see conflict within approving bodies (primarily local authorities) between a conservative approach to visual intrusion and the known requirement for the deployment of technology to support the transition. This is a particularly acute issue in densely populated areas where access to off-street charging facilities is extremely limited and therefore reliance on public residential charging is almost total. In these scenarios, the aversion to additional furniture has led to (in some instances)

the perspective that residents will have to make do and use small numbers of rapid chargers deployed in hub like locations away from their homes. This strategy fails to recognise the importance of convenience in the decision making of most people and sets an unacceptable comparator in service levels/accessibility relative to that provided in (often more affluent) areas where off-street charging is more widely available. If this approach continues there is a strong likelihood that these areas will be left behind in the EV adoption revolution. To that end there needs to be a debate on street clutter, seeking to minimise visual and physical impact, but also recognising that conveniently located EV charging infrastructure is critical, but (until wireless charging is viable and widespread) not yet invisible.

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

There is now significant research in the market highlighting the types of charging that are required and the locations where they should be deployed. Of particular interest is the recent research by Frost and Sullivan for SMMT, giving some scale to the deployment challenges the UK faces in order to meet it's 2030 targets. Similarly, we recently released a report based on polling of 1500 drivers and survey data from a further 500 existing EV drivers and addressing the question of how we move from today's early adopters to a mainstream adopter market (that report is attached). Those reports suggest we need to deploy huge numbers of EVCPs and that the majority need to be in work and residential locations - serving charging activities in the most convenient, longest dwell locations. The barriers to delivering such scale of deployment are covered in our thoughts/responses to questions 1-4 above.

In addition however, it is worthwhile stating that we are currently in many instances, deploying ahead of the adoption curve (though it's fair to say that this is rapidly turning on its head) and in such markets it is critical to deploy infrastructure that serves the transition well, but critically that is also long life and flexible to potential changes in technology as the automotive market changes.

Future proofing of infrastructure has been given too little thought to date, meaning that in most if not all instances the infrastructure deployed to date (our excluded) provides little consideration to either CAVs or vehicles seeking to use inductive/wireless charging. On this topic BEEMA released an interesting 2019/20 report setting out the core principles manufacturers, operators and procurement teams should consider.

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?

Responding directly to private investment in our segment of the market - *Public residential and workplace charging*. Despite a widely held perception that public residential EV charging is unproven/unprofitable, we have gone through an extensive process (with external analysis and stress testing of our financial models) to secure infrastructure funding for our large scale projects. In these conversations, there has been little debate over whether the EV revolution will happen, but rather when adoption will accelerate - meaning that the focus of discussions has almost entirely focused on the duration of contracts and the mechanisms by which we can secure long tenure (+20 years) that minimise investment risk. We have

therefore encouraged our clients to consider these projects as utilities projects, where our long life, future proofed charging infra is mirrored by a long term contract that allows us to provide investors with a secure return.

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?

Public subsidy has been a useful tool to date in helping local authorities to test technologies and trial deployments with little/no risk. We would argue however that in most cases the technologies have now been proven and the economics of EV charging close to fully understood.

With the above in mind we would suggest that public subsidy/grants should now be focused on proving business models (rather than technology) and addressing underserved parts of society - for example, rural communities, poorer urban areas and disabled drivers.

There is also merit in central government taking an active role in larger scaled deployment projects, helping move the market towards the utility/infrastructure model discussed above and allowing operators to manage sites within large projects as a portfolio (with high and low performing assets).

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

For those without off-street parking the attractiveness of EV is diminished and will remain so until public residential charging is ubiquitous - see comments to Q1 above.

For rural communities, this is an excellent question and one which has yet to be addressed effectively. Kent Commercial Services have sought to address this with their recent national framework tender which Kent County Council have since used to procure chargers (from Connected Kerb) for parish councils.

When seeking to deploy in rural (as well as urban) communities there is potential to enhance efficiency by pairing the deployment of infrastructure solutions - for example fibre and EV. We do this already on our sites and have had extensive conversations with Ofcom on this topic.

Additionally, as set out in our response to Q7 above, where procured effectively there is the potential to treat projects as asset portfolios, where high performing assets (likely to be in urban, wealthier communities) can be balanced against lower performing ones (potentially in rural communities).

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

The public procurement process effectively facilitates competition, but to be effective, procurement teams need detailed sector knowledge in order to ensure that the most appropriate solutions are procured to serve their community. It is also important for LAs to adequately invest into procurement activities - unfortunately we've recently seen unsuitable frameworks (procured a long time ago and without most market participants included) being used to quickly procure a stopgap solutions to community requests for charging, rather than investing into thorough procurement processes.

To support LA's in this endeavour central government should consider greater support to help educate local procurement teams, both on the technological solutions available, but also the different commercial models available in the market.

Central government could also give greater direction to LA's on its intent to support UK business and manufacturing (a core tenant of the Green Recovery plans) as many of the incumbents are international vendors, whilst many of the market disruptors are UK based and with UK manufacturing.

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

Scotland has done well to deploy large numbers of EVCPs consistently across the nation, but service levels are inconsistent as the EVCP operators have little positive incentive for performance (no profit share). Charging is also free to drivers meaning that now as the network administrators consider introducing fees, there is push back from drivers who now expect free charging; despite the cost of charging still being significantly cheaper than fuelling a car.

Theme Two: Effective consumer interaction with the sector:

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

For those with the ability to home charge, the switch to an EV is simple, as installing a home charger (together with the longer range vehicles we see coming to market now) removes many of the fears over access to and the reliability of charging infra.

By contrast, those without access to home charging (62% nationally and higher in urban areas) are reliant on public charging infra. To encourage those without home charging to make the switch (and to avoid furthering the existing divide in EV adoption) significant investment is required into public charging and greater efforts made by governing bodies to ensure charging solutions are deployed in a way that delivers comparable access to charging to that of those with home charging facilities. Our own research as shown the preference of drivers (existing EV drivers and those still in ICE vehicles) for convenience and reliability over charging speeds and the focus of drivers on user experience time, rather than vehicle charging time - so the time you spend charging, rather than the time your car is charging. There are many other challenges in addition to that above, but one that is particularly important to mention is the lack of thinking currently given to accessibility issues for disabled drivers. This is something we are actively investigating (with disabled driver groups), both to enhance existing CPs, but also to assess the suitability of Inductive/Wireless charging for this use case.

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

As described above, for those without home charging facilities, the reliability and location of EVCPs is well below that needed to encourage the average person to switch. There also

seems to be little consistency in tariffs or tariffs structures (their component parts) across charging networks (for example, some charge connections fees whilst others don't, similarly with minimum charging costs) meaning that the tariffs between networks are difficult to compare.

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?

For home/workplace public charging it seems unlikely for drivers to choose between services as they are likely to use whichever is most convenient for them (at the location where they park). Noting this, the operator therefore has an effective monopoly and the rules under which that network is managed (set out in the contract with the land owner/local authority) should be well thought through.

For rapid charging, the consumer (by the very nature of the use case, being ad hoc and either on-route or at a particular destination point) has far greater ability to choose between providers. In these instances, cost and reliability are likely to be the key factors in consumer decision making, though in future, as networks become more sophisticated, consumers may select services based on loyalty or membership benefits (in the same way as consumers choose between supermarkets).

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

As outlined above, this is an area where significant progress could be made to simplify charging and increase transparency.

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?

See thinking on Q1 above. Disabled drivers are disadvantaged in the transition to EV as whilst the lack of a gear box means that many EVs are actually far more accessible than ICE vehicles, access to suitable EV charging infrastructure remains a critical barrier. We have recently started an innovation project with SSEN and Disabled Driving UK to explore this area in more detail.

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?

Significant investment is being made across the market today, to influence current and future direction and sure up existing business models - particularly marketing to push the message that traditional fuelling station charging models are the solution for drivers, when the data suggests otherwise. This is understandable, but greater weight should be given to industry bodies (the EVA, CENEX etc.) and independent research (e.g. Frost & Sullivan) on the topic, to ensure the direction of travel is that which most appropriately serves the driver, rather than existing industry.

Secondly, we have found in our own deployments that where we effectively engage the local community with EV trials and outreach campaigns, we see a marked uptick in adoption. The

burden on us at the EV operator to deliver this engagement effort is significant and joined up working on this topic (to educate) would be appreciated.

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

At present they are, but as the networks grow to become mainstream (in many instances holding monopolies) and are defined as critical national infrastructure, the regulations will need to be updated. This is particularly the case as it relates to cyber security.

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

The existing OCPP standards are good. The challenge today is that many operators fail to utilise them and procurement processes frequently fail to penalise them, or, once procured, enforce their use by operators.

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

We have a number of thoughts in this area and look forward to engaging in the full CMA market assessment process.