Request for comment: Electric vehicle charging market study

Dear CMA,

Tesla Owners UK represents over 10,000 Tesla electric vehicle owners in the UK. This letter contains a response to your 'Invitation to comment Electric vehicle charging market study' and is laid out in your requested sections below.

Our club is volunteer run with great passion for advancing the transition of vehicles to sustainable energy. Our members and committee have had great experience with virtually all of the UK's charging facilities and have travelled extensively in the UK and indeed all over Europe in their cars. We are independent from Tesla and regularly feedback owner experiences to them, and also lobby for changes to the supercharger network.

We would be delighted to offer our help and experiences following this letter. Please do not hesitate to contact us further. We remain at your disposal.

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?**
    a. It's still very much a chicken and egg scenario in many cases but the primary issue appears to be getting enough power to the right places and then ensuring the equipment in place is working consistently and easily accessible to the general public (i.e. with a contactless bank card and nothing else).
    b. **Fast charging:** The CCS standard and the release of new 350kW charging units has enabled a large expansion of fast charging networks in 2019/2020. However we, and many others, believe that the Tesla Supercharger network has set the gold standard for fast charging. The Supercharging network has a number of qualities that we believe other networks should strive for:
        i. Minimum 8 chargers per new site (often with 16 being the standard)
        ii. Toilet facilities
        iii. Located in high throughput locations, e.g. motorway services areas (MSAs)
        iv. No app or website required
        v. No QR codes to be used
        vi. Overstay fees are charged, ensuring that users leave the bays available as soon as they are finished charging
        vii. Realtime availability/operation status of chargers being visible in the car
        viii. Plug in and go. No need to present a credit card for each vend nor use a screen.
        We believe this methodology can be rolled out across networks as the CCS protocol allows for vehicle identification and could be used to automatically charge a single account.
    c. On-street town charging: Whilst there have been some trial rollouts of lamp-post chargers, we have largely found them to be ill-thought out. They often require special, expensive cables. The spaces are rarely well marked and often blocked

by combustion vehicles, their costs are high.

An example of what we consider a poor roll out is a government subsidised setup in Marlow, Buckinghamshire. Here a number of lamp post chargers have been installed by Charg.gy. This installation on The Causeway has the following issues:

i. Max stay time of 2hrs with 5kW max charging speed. Meaning the most anyone can hope to charge is around 9kWh - 20-30 miles.
ii. 33p/kWh “Pay as you go” rate - more expensive than many fast chargers
iii. The spaces are regularly blocked by combustion cars
iv. There is barely any signposting to indicate that they exist
v. You must use a website to pay for and trigger a charge
vi. A combination of the above factors means that a driver can never rely on the charger to be available, rendering them merely opportunistic in the event that a user happens to find them, has a free space, desperately needs a charge and is willing to use a website to pay.

One technological solution to this problem are units similar to Ubitricity and CityEV’s, they use a standard type 2 cable and offer contactless payment cards as the only method of starting a charge, something that everyone in the UK can understand and quickly use.

d. On-street home charging: 30% of UK households don’t have off-street parking. This is a major blocker for many people taking up electric cars. There are few solutions rolling out for this and desperately needs encouragement. Potential solutions include:
    i. Government sanctioned safe methods to allow cables to run across pavements from inside houses
    ii. More incentives given to fast charger roll-outs in areas where parking is on-street

iii. Pavement/lamp-post charging points - in our opinion these options need to provide charging costs to be similar to those of home charging costs. Without this, electric cars will remain non-cost effective for many people.

e. Smart home charging: the smart meter roll out combined with smart tariffs is enabling EVs to charge at home at very low cost. As an example, Octopus "Go" and EDF GoElectric customers are able to charge between 0030 and 0430 at a cost of ~5p/kWh. This is significantly less than the UK average of around 15p/kWh.

   Smart meters have also enabled constantly varying tariffs which change rates every 30min, allowing consumers to take advantage of fluctuations in the grid. These tariffs, combined with software to trigger car charging have the benefit of enabling lower cost charging, but also help to balance the grid. The side effect is that typically the grid has excess energy (and therefore lower rates) when too much renewable energy is being produced, making it the perfect time to charge a car.

   A future improvement we would like to see is software to trigger low cost charging being built in to the car rather than it either being setup manually by the customer using other devices or requiring a smart charger. Both of the aforementioned existing solutions require more advanced understanding and are not accessible to many.

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)?**
   a. Due to the sparse nature of the UK's charging network, it's difficult to identify many areas which have direct competition between networks. From our members comments, it certainly seems that reliability is the number one differentiator between networks. Many seem happy to pay higher premiums for networks like Instavolt who "just work". Indeed many will drive out of their way to choose a reliable network over others. A caveat to this is that Teslas are in a higher priced market segment and therefore it is possible that Tesla owners may be less price sensitive than others.
   b. There are no technological barriers to charging being as easy or easier to use than a petrol pump. Historically however, older charging networks have used subscriptions, apps and login walls to try to lock customers into their networks. We believe it worked well when owning an electric car was quite a challenge and users needed to be quite determined, but for mass market adoption these are major barriers to entry. It is clear that plug and play, or at worst, contactless payment is the way to go.
   c. Those with the biggest budget, e.g. the oil companies that have purchased several large charging companies, often have a greater and quicker reach compared to start-ups, this limits competition and may stifle improvements to the network as a whole.
      The concern is that these segment leaders could be seen to be using their scale to slow the process down to benefit their other business profit centres (e.g.

refining and selling petrol) and to profit from subsidies from the Government aimed at speeding up this process of EV adoption.

d. Monopolies at Motorway Service Areas (MSAs) stifle competition in a far greater way than petrol station monopolies.

   An MSA petrol station serves a well regulated type of fuel at a predictable speed, often with a throughput of hundreds if not thousands of cars per hour. They are predictable and reliable, albeit expensive.

   In contrast, Ecotricity typically have 1-3 chargers per MSA with significant variation in charging speed capability. Reliability of their units is also regularly criticised. This equates to the equivalent of a maximum of 2-3 fill ups per hour. The result is that a customer using MSAs is forced into a game of luck when travelling across the UK - will there be a free charger? Will I have to queue? Will it be working? How fast will the charger be for me? It is also feasible to be stranded due to inoperative chargers when so few are installed.

   Removing monopolies from MSAs would go far to accelerate the take up of EVs for those wanting to do long distance driving. We need competition in these locations to improve the quality of the experience until it is at least, if not better, than using a petrol pump.

   Furthermore, in our view the government should mandate that each MSA (and trunk road equivalents) must provide a minimum rapid charging provision (x chargers at y speed with z reliability, and PAYG contactless access). The market can then deal with which providers/networks get contracted to provide the facility at each MSA, and competition between adjacent sites on the road network will protect against overinflated pricing.

e. On street lamppost charging companies often require specialist cables to allow charging, this reduces the competitiveness of the installs as owners are 'locked in' to just one company! Forcing a standard (e.g. Type 2 standard cable with contactless card payments is required, similar to this)

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?**
   a. Ensure all public chargers have a minimum guaranteed 99% uptime, this will ensure that superior technology will always win and not just those with the biggest budgets.
   b. Ensure a low barrier to entry for all fast charging units - e.g. tap and go contactless payments.
   c. Ensure that areas with low off-street parking have a density of fast chargers or a density of slower street chargers that can adequately cater to the cars in the immediate area.
4. **What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?**

a. Getting enough power to the available connection locations, the Government's plans appear to address a good amount of this but more needs to be done.
b. Ensuring the uptime of their equipment
c. Ensuring that petrol/diesel vehicles don't block spaces and thus their investments
d. Standardising the speed or naming scheme of chargers - there is widespread confusion of the difference between fast chargers, e.g. both 50kW and 350kW chargers are referred to as "rapid chargers". This results in unexpected charge times.
e. Ensuring contactless payment without accounts, apps or websites is available at every public charger.

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?**
    a. Every new public/private car park in the UK should have a minimum of 75% of parking bays with 3.3 or 7kW charging (look at this Norway Oslo airport example with 1000 chargers or this example in China), all existing car parks should be required to upgrade their facilities to have at least 25% of spaces with electric car charging.
    b. Enough grid power, the Government need to focus on ensuring enough power is available to all car parks, all residential streets
    c. Every workplace car park to follow similar rules above but potentially at a different rate.
    d. All chargers in public use must allow for debit card / contactless card payments including legacy machines, the rules at the moment allow companies to get around the rules by offering apps or RFID cards which simply adds confusion to the general public, this lack of one single payment method (e.g. bank card) will ensure there is no confusion to the general public and will ensure people can arrive and charge.
    e. Ensure a minimum uptime per year and have an API access for a Government team to ensure chargers are in a usable state.
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?**
    a. Traffic to stores is probably the biggest one, just like in the past where we saw businesses charging for Wi-Fi, soon we expect to see a world where businesses are pushing free car charging (or at least a high quality paid charge) as a perk for visiting their location.
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?**
    a. It has a large impact and will need to continue until proper business cases are proven
    b. Public support will be required in extreme cases where the cost of delivering the required electricity supply to hub locations such as MSAs negates any purely commercial business case for the site operator
8. **What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?**
    a. Home charging incentives to continue

    b. A push for local councils to install lamppost charging and other on-street charging now!
    c. Local charging at all the places these people will visit (e.g. supermarkets/workplaces etc)
9. **What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?**
    a. Ensure that equipment to start a charge is standard (e.g. Type 2 charging standard)
    b. Ensure that no special cables, RFID cards, tokens, apps etc are required for any charging to take place.
    c. Ensure that existing hardware MUST be able to be handed over to a new company should the installing company shut down.
10. **What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development?**
    a. That uncared for or broken charging equipment hurts everyone

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?**
    a. Confusion, frustration and even anger on how to initiate a charge and actually pay for it. To solve, mandate that all EV chargers (both new and existing) must require contactless card payments at the bare minimum, with automatic VIN recognition preferred (e.g. you plug-in, the charger recognises you and the car and chargers a pre-approved bank card for the cost).
    b. Charging companies not making it clear the cost per kWh and no maximum amount that they can charge. To solve, tighter rules on signage, compatibility and maximum costs.
    c. Petrol/Diesel/Hybrid vehicles blocking charging bays, new laws introduced to make this an offence, similar to how parking in a disabled bay will get you a ticket unless you have a blue badge.
    d. A lack of availability of charging at home, primarily on-street charging, see our responses below.
2. **What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows?**
    a. Price fluctuations of charging to the point some are clearly doing it just to profit, it will likely get worse before it gets better, unless a price cap is forced and better signage is enforced (whether digitally in the cars, on maps or in-person).
    b. Lack of availability of chargers, this will improve but there is a long way to go especially as the number of new EVs on the roads increases exponentially.
    c. Local councils not proactively installing or allowing the installation of on-street charging outside residential properties, councils need to be mandated to make the changes before the public are asking.
    d. Arriving at a charger and finding it unresponsive, broken or similar. It will likely get worse before it gets better, a new rule/law ensuring a minimum uptime is

likely best to solve this and ensuring that all cars on UK roads can charge on existing and new equipment.

e. For those without home charging, lack of availability of on-street charging and charging hubs.
f. Owners of car parks are reluctant to dig up their car park to install charging stations due to financial constraints.
g. Petrol/Oil companies appearing to buy up electric car charging companies and then slowing down the rollout of EV charging (by offering poor equipment uptime/upkeep) whilst continuing to focus on their other profit areas (e.g. refining and selling petrol).
h. Business owners struggling to make a workplace charging installation cost viable, further incentives given.

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?**
    a. It's a minefield at times but in-car apps/systems, 3rd party apps like PlugShare/Zap-maps/AbetterRoutePlanner.
    b. Consumers need to know: The charging type (e.g. CCS Vs Type 2), the charging speed (e.g. 350kW Vs 7kW), the last time a successful charge took place, the cost per kWh, how they can pay, if any other restrictions are in place (e.g. maximum stays within the car park).
    c. This only really is an issue if you're travelling outside of your car's usable range in the same day (for instance in a Tesla over 190-300 miles), so it's often for road trips or lounger journeys where it's really needed.
4. **Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?**
    a. It's very difficult and is often a manual process, with enough time it's possible but not for the average consumer.
    b. A few websites exist to help but it needs further improvement and ideally to be mandated to show in all cars infotainment systems if possible.
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?**
    a. Yes, those not au fait with apps, this will be overcome by using automatic recognition of cars as they arrive/plug in and/or ensuring all chargers use debit card contactless at a bare minimum.
    b. Vulnerable people charging alone at night, safety at all chargers needs to be prioritised across the UK to ensure attacks (whether sexually or not) are not easily able to take place in the cover of darkness at the very least. A minimum standard of steps should be mandated for all charging operators (e.g. CCTV, Lighting, emergency call button etc).
    c. Yes, disabled owners who may arrive at a charger and find it difficult/impossible to view the screens, plug in the cables or similar. Automatic chargers like the Tesla Snake Charger. Also it should be mandated that large charging hubs in the UK should have at least 1 bay dedicated to disabled owners (similar spacing to existing disabled bays).

    d. Those towing, similar to disabled bay requests there needs to be consideration for vehicles that are towing trailers/caravans etc.
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?**
    a. https://abetterrouteplanner.com is a great tool, a Government created system would be welcome.
    b. Office for Zero Emission Vehicles has various tools and advice for consumers, highlighting these to the public is important.
7. **Are existing protections offered by consumer law and other measures (such as sector regulations) sufficient?**
    a. We're unsure where the regulatory and legal shortcomings are, but they clearly exist.
8. **What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps?**
    a. Availability of all chargers over the last 12 months as a % score
    b. Last time each individual charger was last used and working
    c. If a charger is showing as broken
    d. The average dwell time
    e. Cost per kWh via contactless card payment
9. **What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs?**
    a. Easy access to grid network funded in part by Government infrastructure so consumers have access to key areas and not just charging hubs on the outskirts of towns etc.
    b. That all charging allows for instant payment via ‘plugging in and the system recognising your vehicle’ or contactless card payment, remove the push by some companies to use apps and RFID cards.

Regards,

Tesla Owners UK Committee