



E.ON response to the CMA 'Electric vehicle charging market study'

1. E.ON has long advocated a 2030 phase out of ICE vehicles and we are delighted that the Government has now committed to this ambition a move which will play an essential role in the decarbonisation the surface transport sector. The speed of the transition in this sector will be significant and it is essential that consumers have the confidence to understand, engage with and benefit from the EV charging market. We are therefore pleased that the CMA has launched this market study.
2. Levels of competition, innovation and consumer engagement vary across the market segments although we generally believe that to date low barriers to entry, the technical sophistication of early EV adopters and the associated high levels of engagement have combined to ensure that consumers have been well served by the market. Nevertheless, we believe that this study will be critical in ensuring that the market works in the best interest of the consumer in future, harnessing the power of a genuinely competitive market to provide customers with products and services at a transparent and competitive price and with great levels of service. In the short term we believe the powers taken under the AEV Act will enable the government to bring forward legislation to protect consumers and provide a minimum standard of customer experience.
3. Going forward, we foresee the need for a robust long term market framework as we move through the decade to enable all consumers to confidently interact with the charging market. This framework must ensure that customers and investors (such as councils) are able to avoid inadvertent lock-in to poor deals, by making short term choices which could potentially disadvantage them in the future, especially as most charge points will be in use for many years.

To Date: Consumers have generally been well served

4. There are good levels of competition in a number of market segments including home and workplace, although it is too early to meaningfully predict how well competition will be fostered in other areas, such as on-street charging and charging hubs. There has been considerable variability with respect to consumer service levels, public charge point tariffs and the reliability of charge points. However, these issues have had a limited impact due to high levels of rapid private investment to gain market share (often with free/low initial charging rates to gain visibility in a local market) and the well informed/technologically savvy characteristics of many early EV adopters.

Short Term: Consumer experience will benefit from common standards

5. We would suggest that it is premature for the introduction of overly prescriptive regulation in this space. However, HMG should look to swiftly introduce the secondary legislation required to give effect to the minimum provisions within the AEV Act to improve the consumer experience of charging, but also to ensure that opportunities to re-use and integrate with other technologies (e.g. Smart Metering) are fully exploited for consumer benefit.
6. Interoperability will be a key enabler of a mature competitive market, providing consumers with transparent and live information on charge point availability, location and tariff data. Interoperability and the potential for portable domestic tariffs would also better facilitate a fair and just transition for significant number of EV drivers who are unlikely to have off-road



parking and will be reliant on other segments of the market for purchasing their electricity. Ensuring that common technical standards for charge points are applied in a timely manner will facilitate the future consumer benefits described above and any subsequent innovations that emerge. Common technical standards will also ensure that integration with other energy services or solutions can be delivered in a simple and cost-effective way for consumers.

Medium Term: A transition to a regulated market framework will be necessary

7. As the market begins to mature and electric vehicles become mainstream over the next few years it will become appropriate to reassess whether the rate of innovation, customer service standards and the level of competition continue the generally positive trajectory that we have witnessed in this nascent market. Given the anticipated rapid increase in EV ownership following the 2030 ICE phase out commitment (for new cars and vans), we believe that the charging market will require a regulatory framework at some point in the not too distant future.
8. To ensure customers receive a competitive price now and in the longer term as the market evolves a regulatory framework will almost certainly be required to address significant variations in price, accessibility and customer service. It is important that there is transparency in costs and prices. There needs to be clarity as to the cost of the charge point and the capital investment versus the variable expenditure on energy. These costs may be recouped through very different models e.g. in the instance of the charge point the customer could be seen as a council and in the instance of the tariff the customer is most likely domestic or a business. However, both markets need to operate transparently to drive the right incentives for competition to drive improved efficiency. The unbundling of charge points and/or vehicles from energy tariffs will help prevent a situation where customers become locked into paying uncompetitive prices. Ensuring an adequate level of competition at each stage in the supply-chain within the market, necessitates the removal of cross-subsidy that bundled propositions facilitate. However, any unbundling must be delivered in a way that ensures common charge point technical standards, as this reduces the risk of device obsolescence and associated consumer impacts.

Longer Term: Universal access to public charge points and portable tariffs

9. In the longer term there should be universal access to public charge points. The market framework should seek to prevent dominance/monopolies emerging in the provision of charging infrastructure whether this is based on geography, type of car or type of charge points. Charging tariffs should also seek to address inequalities between those who have access to private (home) infrastructure compared to those who are required to use public charging infrastructure. We believe that the goal should be to move towards portable electricity tariffs, harnessing the competition of the energy market to bring competitive, simple to use and easy to understand tariffs to the EV charging market, while also supporting delivery of innovative solutions which have yet to be identified. This universal access is likely to rely on integration with common services and solutions, including the Smart DCC and the Smart Metering infrastructure.

About E.ON

10. E.ON is one of the largest energy companies in the world. Across Europe, we have over 54 million customers and operate c1.5 million km of energy networks. E.ON in the UK is already



leading the energy transition, whether that be in providing low and zero carbon energy solutions across electricity, heat or transport. We now reach nearly a fifth of households and small businesses across Britain, which now receive 100% renewable electricity on all tariffs, as standard, at no extra cost. Our focus is on personalised and sustainable customer solutions and we believe that the future of energy is low carbon, decentralised, digitalised and local, with customers in control.

11. E.ON Drive provides EV charging in people's homes, at work destinations and in public destinations including our ultra-fast charging stations in Birmingham and Preston. Our ambition is to build 21 by the end of 2022. Our charging posts have a 99 percent up time and we operate a 24/7 contact centre to help customers. We've installed over 50 charging points across our estate and are currently undertaking a feasibility study to have EV charging at all our sites including V2G.
12. At E.ON we have made the decision that all future company cars for employees will be fully electric. We believe that not only does this reduce our carbon footprint and improve air quality, but it will also help to drive change in the business world and increase the volume of affordable EVs in the second hand market to support a just transition for all.

Theme one: developing competition while incentivising investment

Q1. How is the EV charging sector developing and how will technological or other developments (for example smart technologies) impact sector development and competition?

13. The EV charging market is a rapidly growing, innovative and nascent sector. Private investment levels are high and many market participants are involved. However, different segments of the market have developed at different speeds and are occupied by different sets of actors. For instance, the home charging sector is very competitive and appears to be functioning well and whilst in time the same may be true for the on-street charging sector or for rapid hubs, it is too early to claim the same sort of success.
14. At the moment there is no clear operating model in the EV charging arena that is winning. This means that customers can face a great deal of variation with respect to both customer service levels and pricing. In addition, most charge post suppliers currently lack a sustainable operating return. Since the rapid initial investments to secure market share, we have since witnessed some suppliers raising their prices. In our view as uptake of EVs becomes greater and batteries become larger (using more power) an effectively functioning market at both the technology level and the power provision level will be essential to protect the consumer.
15. The sector is growing rapidly and whilst this has occurred in an organic and diffuse fashion this has not necessarily been to the detriment of well informed and technologically savvy early EV adopters. Now that the government has increased the rate at which large portions of the population must engage with the charging market however, there needs to be a greater level of urgency for market participants to stabilise business models, standardise minimum service levels, support innovative services and produce competitive and comprehensible tariff offerings for all consumers. It is reasonable for consumers to also expect that end-to-end charge point infrastructures have been designed and are operated in a way that defends against existing and emerging cyber security risks, with this expectation



likely to grow as consumer take-up of, and reliance upon EV accelerates. These elements will be critical to encourage greater confidence in the market and to enable consumers to engage effectively with EV charging providers.

16. Whilst there is variability across the sector, we would urge some level of caution against premature and detailed regulation which could act to the detriment of both technological innovation and the provision of consumer choice within the market. The rapid adoption of regulation risks constraining the investment and flexibility that has enabled myriad technologies and business models to come to fruition. However, a careful balance needs to be struck. Few organisations yet have reliable and sustainable business models and it is possible that some companies might be buying market share which could potentially lock consumers into their infrastructure in the future. Large scale and unsustainable investments of this nature will disincentivise smaller players that might otherwise be able to provide innovative solutions and contribute to healthy levels of competition in the long term.
17. There are segments of the charging market, including home and workplace charging provision, which demonstrably have high levels of competition. Undoubtedly further work will be needed in time if and when it becomes clear that the market is not sufficiently delivering for all customers and we have provided our assessment within this response as to where issues leading to customer detriment may begin to manifest themselves in future years.

Q2. 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)?

18. There is necessarily a mixed picture across different sector segments;
 - **Home/off street** – E.ON is active in this market. This segment is highly competitive and is working well. E.ON has strongly supported the government’s ambition to make all charge points ‘smart’ and believe that increased interoperability will enable consumers not just engage with the EV charging market but also to benefit from wider local flexibility markets.
 - **On street** – This is mainly Local Authority led (including lamppost charging). It is probably too early to make a meaningful assessment as to how well this market segment is functioning. However, given the importance of this provision for those without off-road parking we believe that a more interventionist/coordinated approach is likely to be justifiable for this market segment.
 - **Work place** – E.ON is active in this market and we have witnessed a strong level of competition. Business consumers are well informed and in a good position to engage with the market effectively to secure a bespoke and cost effective solution to meet their needs.
 - **Hubs** – These are a relatively new concept, mainly characterised by public sector investments.
 - **En route** – This perhaps requires splitting into two segments;
 - I) Off Motorway AC/DC Charging: There are a number of large players investing heavily in to DC charging (including E.ON) and the segment is quite competitive.
 - II) On Motorway AC/DC Charging: There is undoubtedly a good level of Tesla coverage (albeit accessible only to Tesla drivers), but otherwise the Electric Highway chargers represent the majority of charge points within this sector.

Given the number of participants in this segment there may be concerns about locational competition going forward. The swift uptake of EV ownership may also pose challenges with respect to the number of available Rapid and Ultra Rapid charge points on the Strategic Road Network (SRN), although we note the forthcoming HMG funding that has been allocated to address this concern. E.ON has to date installed ultra-fast charging stations in Birmingham and Preston. Our ambition is to build 21 by the end of 2022.

19. In general, we believe that it is a highly competitive marketplace, which is good for consumers and tough on many providers. This in no small part is attributable to some major players who are offering loss leaders to establish a foothold in the market. However, there are also some emerging concerns with respect to poor customer experience and inconsistent pricing. There are also locational competition concerns, particularly on the strategic road network. This latter aspect combined with the very early stage of market development within both the on-street and public hub segments are issues of particular concern for those EV drivers who are unable to access the competitive tariffs and many charge point provider options available in the domestic market. Here, if a just transition is to be achieved the market will need to find solutions which enable equitable charging tariffs regardless of whether a consumer has access to a driveway.

Q3. 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?

20. Going forward E.ON believes that interoperability of charging infrastructure and the ability to reduce lock-in of customers to uncompetitive tariffs by offering some level of portability is essential. The immediate example is of a consumer who lacks off-street parking space. They will want to ensure that they are able to conveniently charge at a public charge point at a comparable cost to their domestic tariff. This issue may have been masked to some extent in the very early years of EV uptake as many consumers were likely to have based an EV purchase decision in no small part upon their ability to charge at home. As EV ownership becomes mainstream there needs to be an effective solution for portability of energy provision on multiple hardware platforms. It is reasonable to expect that innovative services utilising the Smart DCC and smart metering infrastructure will emerge in this area in due course.

Q4. What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?

21. Generally, we would not consider access to capital to be a major barrier to entry for the EV charging market, perhaps with the exception of en-route and public hub solutions. However, costly network connections and upgrades are potentially a big issue that could in part be resolved through adequate provision in a DNO's regulatory asset base. In addition, the cost of EV charging hardware remains relatively expensive as it is still only produced on a small scale and retains a high level of inherent development costs. Going forward we would expect to see significant cost reductions as the sector benefits from economies of scale.
22. There has been a level of political hesitancy which has perhaps not kept pace with the stated levels of ambition. We have often found that clients are keen to install charge points but stall when it comes to making the final investment due to uncertainty about the policy direction. The 'Electric Vehicle Charging in Residential & Non-Residential Buildings' consultation closed in October 2019, but the results will not be fully published until sometime in 2021. Whilst the

'2030' announcement was extremely welcome we had to wait for the Energy White Paper for further details, and we now await the DfT to publish their plan to decarbonise the UK's entire transport system in spring 2021. Consumers are certainly aware that there will be significant grant funding available but without clarity as to the longevity of subsidy schemes or indeed how they might interact with other regulatory drivers, this will inevitably continue to stall installations.

23. We would also note a potential risk that premature and overly prescriptive regulation could introduce investor uncertainty and create an unintended barrier to entry. However, with EV uptake set to rise dramatically over the coming years, a regular review of how the market is performing should keep timely regulatory intervention in frame as an appropriate policy response to address clear market failures.
24. In addition, whilst we note that this is beyond the remit of this particular study, it should be recognised that the cost and complexity of grid reinforcement means that certain locations will be prohibitively expensive to fit charging posts which could act as a barrier to consumer adoption.

Q5. 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?

25. The 2030 ICE phase out announcement and the anticipated subsequent rapid increase in EV ownership has already contributed to enhanced investor certainty with respect to higher levels of utilisation. In addition, given that up to 80% of charging currently occurs at home the case for deployment of charge points at this location (and workplaces), grid connection permitting, is relatively straight forward.
26. However, adequate provision in urban areas with on street parking and access to rapid chargers on main trunk routes will also be essential to meet future demand. We believe that there is a strong case for greater levels of coordination both regionally and locally to ensure that a guaranteed minimum level of local access to public charge points is achieved. There may be a case for a tier of organisations being mandated to roll out on-street charge points to ensure geographic density, improve installation efficiency and overcome the grid connection issues in a systematic way (in a similar manner to the smart meter programme).
27. A perhaps more innovative means of ensuring that there is a timely supply to meet demand would be to adopt a similar method to that developed during the roll out of highspeed broadband. An approach which involves communities (such as a Community Fibre Partnership) could enable a joint funding arrangement between a charge point provider, a community or Local Authority contribution and other available grant funding. This could help to ensure that adequate provision is forthcoming in areas which may struggle to meet private sector investment criteria due to concerns about low utilisation.

Q6. 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?

28. The bundling of charging posts and tariffs could increasingly result in a significant barrier to competition. If lock-in is allowed to occur over a significant contractual period, then cross subsidies between infrastructure and energy provision could allow larger organisations to secure market share in the short term by offering deeply subsidised posts for longer term

cash generation. This would mask the true cost of both charging infrastructure and energy provision and potentially result in a worse outcome for the consumer because they cannot access meaningful market comparisons. This might, for example, lead to 'charge point only' providers being squeezed out of the market despite offering a competitively priced charge point product.

29. The smart metering approach perhaps illustrates a workable model as to how asset investment could be driven, attracting investment from infra capital funds as a way to create competitively priced charge point installation at geographic scale but with a low cost of financing. Such an approach may require the infrastructure to be delivered in packages, possibly regionally and could align with a RAB model for infrastructure cost recovery. The organic private sector led approach has been adequate to date in England and Wales, however a more strategic and coordinated approach is now required to ensure that the UK's charge point infrastructure does not inadvertently create charge point deserts, or what has often been described as a post code lottery of charging provision. Such a strategic and coordinated approach will also ensure that interoperable solutions are delivered in a way that fully benefits energy consumers.
30. E.ON advocate the blending of private sector capital, with a DNO led infrastructure strategy utilising existing RAB cost recovery mechanisms and the application of public funding (subsidy) only where a commercial business case cannot be made for a charging location. This greater level of coordination would be more akin to the Scottish approach and combined with portable energy tariffs would provide consumers with both understandable and consistent refuelling costs and confidence in the holistic coverage of the network thereby addressing range anxiety. Finally, we would also note that bringing the roll-out of public charge point infrastructure in to a DNO's strategic remit could provide a robust regulatory framework for ensuring that appropriate incentives are in place for maintaining service levels in terms of capacity and availability.

Q7. What impact does public subsidy have on private investment incentives; are there any areas/gaps where public support is most likely to be needed?

31. Subsidy has a very important role to play in ensuring a holistic and consistent charging experience for EV drivers across the UK. There are several segments of the market that require (and will be receiving) subsidy support. These include; the nascent on-street charging segment which is likely to require Local Authority coordination to enable those living in urban areas without access to dedicated off-street parking, public charge points in rural areas which might struggle to justify commercial investment due to low utilisation rates and finally the early infrastructure investments for Ultra-Rapid chargers (at least until EV ownership numbers have increased dramatically). In each of these areas there is a requirement to invest ahead of need. The critical issue is how to prioritise public subsidy with a view to minimising charging deserts and ensuring a consistent charging experience for EV drivers. In this regard we believe that a far greater level of strategic coordination is required. We have set out our views on a potential model to address this in response to question 6.

Q8. What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?

32. In general, rural and remote communities are more likely to have access to off-street parking and so whilst posing a significant issue for such communities, it should only affect a relatively small proportion of the population. In such cases it is likely that that low utilisation rates will

make some form of subsidy a necessity. For rural and remote communities with a seasonal tourist trade there will be added complexity in ensuring a balance between providing sufficient access to available charge points for residents in high season, whilst avoiding redundancy off-season. We have also noted the role of funding partnerships (high speed broadband) and this could provide a potential solution for some communities. Finally, local plug share schemes may give confidence to consumers in such locations without access to their own private charging solution.

Q9. What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?

33. Many authorities already run robust tender processes, although levels of experience (and resource capacity) can vary significantly. For prospective bidders (especially if operating at a national scale) there would be a benefit from greater standardisation of tender processes.
34. Local authorities should be supported in understanding how best to procure charge points to prevent long term lock-in and to evaluate the value of durability of infrastructure against short terms costs i.e. an accurate assessment of lifetime costs. Equally authorities need to be able to support installations with sufficient capacity for the sorts of cars we envisage using in 5-10 years' time (conceivably with greater range, larger batteries, and V2G capability).
35. Local planning needs to be supportive of extensive charge point installations in a suburban setting and collaborate well with DNOs in scheduling of ground work remediation to minimise disruption. A framework for engaging with DNOs on the subject of capacity upgrades would be desirable. In particular local authorities are likely to require support in forecasting demand and this is where the DNO and ESO will have an important role to play. The production of regional future energy scenarios by the ESO is likely to be beneficial in this regard.

Q10. What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development?

36. We note that the significantly more coordinated and centralised approach taken in Scotland has delivered a robust public charging network which has been successful (alongside other Scottish government measures such as interest free loans for EV purchases) in combating range anxiety and boosting consumer confidence. ChargePlace Scotland now has over 1500 public charge points with almost 40 public charge points for every 100,000 people. This compares favourably to England with less than 30 per 100,000¹.
37. However, the heavily subsidised network does run the risk of undermining the development of a sustainable market capable of attracting significant private investment. Whilst it is true that centralisation does not necessarily have to be to the detriment of competition, it does have to be carefully designed to ensure a level playing field. In general, we believe that public funding should be reserved for locations which would otherwise fail to guarantee sufficient utilisation rates and would therefore struggle to make a commercial business case.

¹ www.transport.gov.scot



Theme two: effective consumer interaction with the sector

Q1. 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?

38. E.ON believes that portable electricity contracts could have an important role to play in this market. In providing power, energy contracts are typically hedged to protect customers from volatile energy prices. When someone is interacting with the system in different locations at different times on different infrastructure that becomes a lot harder and consumers could face much greater exposure to short term market prices. That presents both opportunity (in the form of EV batteries acting as a balancing mechanism) or significant risk/cost (if you need to charge at peak time on a day with constrained generation the price could be very high). As a result, customer contract portability and management of price signals from the market are essential to create an understandable and transparent charging structure for consumers. Roaming would help and being able to pay your home unit rate is enticing, perhaps with a premium for Ultra-rapid charging. However, such roaming capability is likely to rely on greater integration with other solutions, such as the Smart Metering infrastructure operated by the Smart DCC.
39. At time of writing the highest unleaded petrol price in the UK (London) is £1.15/litre whilst the lowest (Northern Ireland) is £1.10/litre (excluding motorway services). In an average sized saloon car (c50 litres) this equates to a difference in the cost of a full tank of full of up to £2.50. The price difference between an average domestic electricity tariff and a public rapid charger can be as high as 55p/kWh or an extra £33 for a 'full tank' (assuming a 60kW battery capacity). New ultra-rapid chargers and larger car batteries have the potential to make this variability even more pronounced going forward. New EV drivers, especially those without domestic charging capability will find this significant price range difficult to comprehend. In addition, a variety of charging models (including minimum charges and maximum charging periods) further complicate the picture from a consumer perspective.
40. Reliability and lack of live data cause issues, not all EV drivers can determine whether a charge point is in use or operational prior to arrival. The technology is there for this and indeed E.ON Drive provides this service in our own app. There is certainly a case for making such provision compulsory and ensuring that all data is be publicly available. Consumers need to see that they can recharge quickly and easily in a location that meets their needs. They also need to be able to understand and interact with the market in a sensible manner. This means that they should have transparency of pricing and be able to understand why certain tariffs/pricing structures may differ.
41. In terms of consumer behaviour (and in relation to those with off-street parking) whilst many believe that they will spend a greater period of time refuelling their vehicle, this is not necessarily the case. Many will spend less time waiting whilst their vehicle is refuelled (as this will be overnight as compared to the average of seven minutes in a petrol station). This is not the common perception however. This issue is not major and will likely be overcome through experience as more people begin to talk about the realities of EV ownership and through the information provided through EV sales activity. However, on this latter aspect we would note anecdotally that there appears to be a great deal of variability of knowledge in car showrooms both in terms of EVs and domestic charging solutions.

Q2. What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows?

42. There is a lack of predictability in price, service and geographic availability of charging points that often makes long journeys challenging. Whilst many early adopters have adapted to such challenges with a pioneering spirit (often building in a plan B and plan C for longer journeys in case of charger unavailability/malfunction), this must change urgently as we move to mass adoption of EVs. In locations close to home EVs are already a viable and an attractive choice for consumers with capital available for the initial investment, especially if they have access to off-road parking and domestic charge rates.
43. As the number of charging posts and particularly rapid charging points on trunk routes grow more consumers will gain confidence in the suitability of EVs for longer journeys. However, at present no universal roaming platform exists so a multitude of RFIDs tags and/or mobile apps are required. These confusing and inconsistent access arrangements must be addressed if consumers are to have confidence that the refuelling arrangements of tomorrow can be comparable if not better than those available for internal combustion engine vehicles today. The lack of predictability on charging costs also acts as a disincentive from charging away from home, which is where portability of energy provision is important. It is reasonable to expect further innovation and solutions to emerge in this area.
44. We believe that customer service levels must be raised. Scaling up call centre availability (24/7 including bank holidays) and upskilling staff to ensure that they can help the customer access a charge more often than at present is crucial. All too often a stock response is turning the charge point off until a technician can be sent out. Whilst likely to be a rare event, this outcome is unacceptable if there are no other working chargers available at a location and a customer has an insufficient charge left in their battery to safely travel on to the next available charge point.
45. Consumer outcomes with respect to fair charging, availability of charge points (up-time and capacity) and customer service levels must be monitored closely. Longer term, a transition to a robust regulatory framework will be necessary and it is important that HMG acts swiftly to introduce the appropriate secondary legislation under the AEV Act to provide a minimum level of consumer experience. It is essential that that large numbers of EV drivers are not left unprotected should market failures result in inconsistent charge point reliability, inadequate coverage and poor customer service levels.
46. Finally, E.ON welcomed HMG's proposals to ensure that Building Regulations in both the residential and non-residential sectors are used to ensure that off-road charge points are installed in an increasing number of circumstances. However, we believe that more must be done to enable a substantial number of leaseholders to install retrofit charge points for both dedicated and communal leasehold parking spaces. A confusing legal picture has led to inconsistencies and held back the installation of charge points in this segment of the domestic market (in order to access OZEV home charge point grants freeholder/managing agent permissions are required along with third party access rights and permissions for installation of charge points with cabling crossing communal areas). Leaseholders should have a clear legal route to secure the installation of a charge point for dedicated parking spaces and a means of securing a communal charge points in a manner which appropriately shares any charge point liabilities with the freeholder of the land.

Q3. How do consumers decide which charge point services and providers to use? What information do consumers need to make this decision and at what stage in the decision-making process?

47. Consumers predominantly decide where to charge based on where they are staying/going. Pricing transparency is still very important though to encourage locational competition. We believe that price, reliability and ease of access are key drivers and that existing consumers are able to interact with the market successfully. It should be noted however that early adopters of EVs are perhaps better able to engage with the market on all of these aspects due to use of specific forums and by word of mouth with like-minded enthusiasts. This deep relationship with the market is likely to be highly correlated with the early adopters and should not be interpreted as a market which is necessarily functioning well from a mainstream perspective. Open access to data (and the facilitation of comparison sites/apps), regulatory provisions with respect to charge point availability, customer support and payment methods along with a potential role for price regulation for certain market sectors should all be considered going forward in order to better protect consumers.

Q4. Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?

48. No. Charging tariffs are extremely variable. There are different pricing options available which make price comparisons difficult (subscription models, connection charges, tiered rates and overstay fees often muddy the water). In addition, we believe that the bundling of cars/charge points with tariffs can make direct comparisons for consumers incredibly difficult.
49. Conversely, domestic charging rates can be very straight forward although this potentially masks the opportunity and potential of Time of Use (ToU) tariffs and so a certain level of tariff complexity is actually helpful for the consumer (e.g. reflecting daytime or night time rates or peak consumption periods such as breakfast/dinner). Going forward we believe that a portable electricity tariff will enable customers to use the high levels of competition and ease of price comparison that already exist in the energy market to secure a great deal for their EV charging (potentially resulting in a single itemised energy bill for home and away should they wish). However, a single itemised energy bill would rely on greater integration with the smart metering infrastructure.

Q5. Do particular groups of consumers face additional challenges to interacting with the sector and if so, who and why? How might these be overcome?

50. **Ownership:** Whilst perhaps beyond the remit of this study, it is important to recognise that the most significant barrier to interacting with the EV sector at present is the cost of new vehicles and the liquidity of the EV secondary market. HMG may wish to focus policies on ensuring that large organisations are mandated to switch their fleets to zero emission vehicles at a rate faster than that currently mandated by the 2030 phase out of new ICE vehicle sales. This will ensure that consumers with lower incomes will have access to affordable EVs and the lower operational costs and reduced environmental impact that EVs provide.
51. **Off-Road Parking:** The CMA report rightly identifies that between 40-50% of UK homes, do not have access to off-street parking. Whilst the total number of UK car owners without access to off-street parking is likely to be significantly lower due to the correlation between

homes without a vehicle and homes without off-street parking it would still be reasonable to assume that around a quarter of UK car owners will be unable to access the cheaper tariffs that are available when charging at home. This has significant implications for ensuring a just transition to low carbon personal transport. Consumers without access to private off-road parking are already penalised insofar as they do not qualify for OZEV funding. This will continue if a: you cannot charge at home or b: you can charge at home but not at domestic electricity unit rates (communal parking for example).

52. **Managed Charging:** With respect to the domestic charge point segment, we strongly oppose proposals to unilaterally enable DNOs to control customers' EV charging in order to secure their network as this will destroy fledgling competition that is only just developing. Managed charging should be market based, with consumer choice as to whether and how they participate in the market. The alternative approach risks both damaging the development of local flexibility markets and harming consumer confidence in their ability to charge their car at home at a time of their choosing.

Q6. Are there any technological developments or tools that could support consumers to navigate the sector, for example by helping to make more informed choices?

53. In the longer term we believe that ultimately consumers will be best served by the adoption of portable electricity tariffs which can enable billing on a single energy bill. This would require an industry wide standardised approach for calculating and applying consistent use of system charges along with the administrative back office systems enable the consumption and Use of System data to be securely provided back to the driver's energy supplier. Such a solution would rely on greater integration and interoperability between the charge point infrastructure and other energy industry solutions, such as the Smart DCC. The ability for EV drivers to utilise roaming chargers with a high level of confidence as to the cost of charging their car regardless of location or charge point provider would we believe be of significant value to consumers.
54. Real time, accurate, publicly available data for the status (and price) of all public charge points is already technically feasible and available to some EV drivers but should be universally available and going forward as with all aspects of the EV charging market, should be subject to regulatory oversight.

Q7. Are existing protections offered by consumer law and other measures (such as sector regulations) sufficient?

55. We believe that there is a genuine risk that some companies could establish customer lock in through bundling if there is insufficient regulatory oversight. Existing legislative powers may be sufficient to address this, but they will need to be actively and rapidly deployed to prevent the bundling model (and the potential for heavy cross subsidisation) leading to an erosion of competition in the market. It may also be necessary to create appropriate incentives/legislation that sufficiently cover DNOs with respect to charge point connection costs and timely network upgrades to facilitate a nationally and regionally coordinated charge point deployment strategy. Given the potential detrimental impacts to energy consumers, DNOs should not be permitted to disproportionately rely on Proportional Load Control functionality as a way of managing EV charge point related demand on their networks. Energy consumers must be given a way of over-riding such remote load control to minimise the impact on their day-to-day life.

Q8. What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps?

56. We note and support HMG's progress on this issue through the work of the Energy Data Task Force. Open data measures will be essential to ensure that consumers can develop a meaningful understanding of the charging market and have the confidence to interact with the market to cost effectively meet their needs.
57. E.ON believes that portability of energy contracts is in the long term interest of consumers. This will require charge point infrastructure usage to be settled against a particular power provision contract which will undoubtedly be a complex and significant undertaking. A pre-requisite to achieve this will be to ensure that charge points have the common technical specifications to enable the sharing of settlement data prior to the establishment of all the industry mechanisms given the life span of the charge points. Whilst portability of energy contract between home and charging posts is more complicated than the smart meter roll-out, we do believe that this provides a useful analogy in that this is a technology which can switch between suppliers intra-day. It is conceivable that the smart metering infrastructure could support secure and efficient contract portability between home and charging post, although this would take significant development to deliver.
58. However, should an industry solution to the challenges outlined above be unachievable over the coming decade, then we believe that it would be appropriate to consider an interim role for price regulation on the UK's Strategic Road Network (SRN) to ensure the consumer receives a competitive price for power (taking into account the higher cost of ultra-fast charging infrastructure vs rapid). This price regulation must sit alongside minimal charge point coverage provisions of the AEV Act. The protection of consumers in locations with necessarily limited locational competition (such as motorway service stations) is clearly in the interest of consumers. However, given the greater exposure to public charge point costs of a significant number of consumers (those without off-road parking), we believe that until consumers can take their own tariff with them, price regulation is likely to be a necessity at some point in the future.
59. In 2018 the Secretary of State for Transport wrote to the CMA and suggested that petrol prices at motorway forecourts should be investigated to ensure that consumers receive a fair deal. We believe that this issue should also be addressed for EV drivers sooner rather than later to ensure that a similar issue does not begin to manifest itself. It should also be noted that many of the trading complexities and operational costs that are arguably faced by petrol stations on the motorway network (e.g. fuel deliveries and the need for 24/7 staffing) are not faced by EV charge point operators.

Q9. What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs?

60. We believe that policy makers should consider the methods used for super-fast broadband roll out. Openreach engages with communities so that once enough interest is registered, they can then target specific areas to meet the required demand.