

# **Electric vehicle charging market study**

Invitation to comment

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## Overview

1. The successful transition to electric vehicles (EVs) will play a key part in delivering the Government's commitment to net zero emissions by 2050, as shown by the recent Government announcement banning the sale of new petrol and diesel cars from 2030. Supporting this is a key priority area for the CMA, as reflected in our [2020/21 annual plan commitment](#) on climate change.
2. Sufficient EV chargers are needed to meet future demand and to address consumers' 'range anxiety' concerns around the ability to recharge EVs while out and about. The EV charging sector is fast-growing and the focus has been on getting more chargers in place at pace. Whilst the number of EV chargers in the UK has grown substantially, more will be needed to encourage take up and meet demand. As the sector grows, it is an opportunity for the CMA to look more closely at its development to ensure there is a competitive and consumer-friendly EV charging sector across the UK over the longer term.
3. Unlike many of our previous market studies, this is a nascent sector that is still developing and so our review will help to make sure the sector works well for consumers as it grows and prevent any competition problems before they become embedded. We intend to focus on two key themes relating to passenger EV charging at home, work and publicly across the UK:
  - First, we will consider how to develop a competitive sector whilst incentivising investment, including looking at potential barriers for businesses to enter or expand and other factors impacting competition.
  - Second, we will look at how consumers will interact with this new and potentially complex sector, the possible challenges facing people when charging and what additional measures may be needed to protect consumers so that mistrust does not become a barrier to roll-out.
4. We will conduct our market study over the next 6-12 months – reaching out to stakeholders including chargepoint providers, industry bodies, regulators, local authorities and consumer groups, and engaging closely with Government and others carrying out work in this sector. We will also take into account the challenges facing many organisations as a result of Coronavirus (COVID-19). Following this we will publish a report setting out our findings on any emerging issues and measures to facilitate effective competition and consumer interaction in the sector.
5. We welcome comments on the broad issues we've raised and our consultation questions.

## Introduction

6. This document sets out the purpose, scope and proposed themes to be explored in the CMA's Electric Vehicle (EV) Charging market study.
7. Market studies are one of a number of tools the CMA can use to examine possible competition or consumer protection issues and address them as appropriate.<sup>1</sup> A market study formally begins with the publication of a Market Study Notice by the CMA.<sup>2,3</sup>
8. Market studies may find that a market, or parts within it, can be given a clean bill of health or that some aspects of the market are not working well. If the latter, we can look at different ways to address these issues. For example, we can issue guidance to businesses, provide information or guidance to consumers, take enforcement action ourselves and/or make recommendations to government.<sup>4</sup> The CMA has an open mind as to which outcomes, or combination of outcomes, may be appropriate in this market study.

## Background on electric vehicle charging infrastructure

9. The EV sector is critical to achieving UK Government's commitment to net zero emissions in road transport by 2050.<sup>5</sup> This was highlighted by the Government's [recent announcement](#) supporting the take-up of EVs and roll-out of charging infrastructure – alongside the announcement to bring forward the ban on the sale of new petrol and diesel cars to 2030. The Government also recently published its [National Infrastructure Strategy](#) which includes a number of commitments to the roll-out of EV charging infrastructure.<sup>6</sup>

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<sup>1</sup> Further information on market studies can be found in the following guidance documents: [Market Studies Guidance on the OFT Approach](#) (OFT519) and [Market Studies and Market Investigations: Supplemental Guidance on the CMA's Approach](#) (CMA3).

<sup>2</sup> A Market Study Notice must be published where the CMA is proposing to carry out its functions under section 5 of the Enterprise Act 2002 (the Act) for the purposes of: considering the extent to which a matter in relation to the acquisition or supply of goods or services of one or more than one description in the UK has or may have effects adverse to the interests of consumers; and assessing the extent to which steps can and should be taken to remedy, mitigate or prevent any such adverse effects (section 130A of the Act).

<sup>3</sup> Under section 5 of the Act the CMA has the function of obtaining, compiling and keeping under review information about matters relating to the carrying out of its functions, with a view (among other things) to ensuring the CMA has sufficient information to take informed decisions and carry out its other functions effectively.

<sup>4</sup> Other outcomes can include making a market investigation reference (MIR) (see section 131 of the Act and CMA3, paragraph 1.12) or accepting undertakings in lieu of a MIR, among others.

<sup>5</sup> In 2018 the UK Government set out its [Road to Zero strategy](#), outlining how it would support the transition to zero emission road transport and reduce emissions from conventional vehicles during the transition. Transport is the largest emitting sector of the UK economy, accounting for 28% of UK greenhouse gas emissions in 2017, with road traffic accounting for around 20%. See: BEIS Select Committee, [Electric Vehicles: driving the transition](#), October 2018, page 7 and ONS, [Road Transport and air emissions](#), September 2019.

<sup>6</sup> [National Infrastructure Strategy](#).

10. There are two types of EV - all-electric and plug-in hybrids, both of which require plugging in to a chargepoint connected to the electricity grid to recharge.<sup>7</sup> As of October 2020, 390,000 EVs were registered in the UK, representing growth of 22% since 2018.<sup>8</sup> But the number of EVs is expected to significantly increase over the next few decades.<sup>9</sup>
11. Putting in place sufficient charging infrastructure will be key to meeting future demand and help to encourage the uptake of EVs over time. One of the main barriers to purchasing EVs is 'range anxiety' - the worry the EV will run out of charge before finishing the journey, as there isn't an opportunity to recharge.<sup>10</sup> Access to reliable, working chargepoints and how easy chargepoints are to use – including public perceptions of this – can also be barriers and slow EV take-up. Therefore, building consumer trust and understanding of the sector will be crucial to its success.<sup>11</sup>
12. While our study will focus on the development of EV charging infrastructure, it is important to recognise that there are other factors, such as the price of EVs, also impacting EV take-up.<sup>12</sup>

### **Chargepoints**

13. To charge, EVs need to be parked and connected to a chargepoint for a period of time. Chargepoints may be used by consumers in passenger vehicles (cars, light vans)<sup>13</sup> in various private and public settings, each representing a different segment of the EV charging sector:
  - (a) Off-street home charging for EV owners with a driveway or garage, where they can install and connect to their home electricity supply via a dedicated EV chargepoint.<sup>14</sup> Home charging currently makes up a large

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<sup>7</sup> All-electric vehicles utilise a lithium ion battery as the sole power source and plug-in hybrids utilise an internal combustion engine (ICE) running on petrol or diesel, along with a small lithium ion battery.

<sup>8</sup> Based on figures from [Zap-Map](#), accessed November 2020. Underlying data attributed to SMMT, OLEV, DfT Statistics.

<sup>9</sup> Figures from the National Grid suggest the number of EVs could reach somewhere between 2.7-10.6 million by 2030, and 36 million by 2040. House of Commons Library Briefing Paper, [Electric Vehicles and Infrastructure](#), June 2019, page 3. These figures may be higher in light of the Government's recent announcement to ban the sale of conventionally fuelled vehicles by 2030.

<sup>10</sup> House of Commons Library Briefing Paper, [Electric Vehicles and Infrastructure](#), June 2019, page 12.

<sup>11</sup> DfT, [Using behavioural insights to increase uptake to electric vehicles in the UK](#), September 2020.

<sup>12</sup> On average EVs are approx. £10,000 more expensive than internal combustion engine vehicles. See: BEIS Select Committee, [Electric Vehicles: Driving the transition](#), page 17.

<sup>13</sup> Chargepoints are also used to charge vehicle 'fleets' - such as buses, coaches, delivery vehicles, trucks and taxis - either in depots or using available public infrastructure.

<sup>14</sup> Some consumers charge their EVs using a standard three-pin socket rather than a dedicated EV chargepoint, which could potentially raise safety concerns and be more costly.

proportion of the sector; around 80% of EV charging is done at home and it is anticipated that this will continue;<sup>15</sup>

- (b) On-street chargepoints set up on the kerbside, for example installed in lampposts or bollards, for those without access to off-street parking;
  - (c) 'Hubs', where multiple chargepoints are installed together, either in urban settings as an alternative to on-street chargepoints or along high-traffic travel routes;
  - (d) At workplaces with car parking space;
  - (e) At key 'destinations' that consumers have travelled to, such as shopping centres, cinemas, restaurants, tourist attractions or other places with car parks; and
  - (f) Along travel routes to allow motorists to recharge vehicles on a journey (ie 'en-route'), usually long distance and at motorway service stations or other major A road services.
14. EV chargers are generally split into three speeds – often distinguished as rapid/ultra rapid, fast, and slow – which refer to the power output of the charger and the consequent charging time.<sup>16</sup> Different speeds of charger will be suitable in different contexts eg slower chargers will be suitable for charging at home/at work, while faster speeds are required for effective en-route charging.<sup>17,18</sup> Chargepoints also have a number of connectors, which can themselves be at different speeds. The speed of chargers has implications for the number of chargepoints that will need to be deployed in different contexts to meet future demand.
15. There are currently 19,487 public chargepoints available in the UK, of which 3,530 are rapid. These offer a total number 34,573 connection points (of which almost 9,000 are rapid). This is a 632% increase in the number of chargepoints since the start of 2015 (2,664 chargepoints).<sup>19</sup> There are an

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<sup>15</sup> DfT, [Electric Vehicle Charging in Residential and Non-Residential Buildings](#), page 6.

<sup>16</sup> Note that these terms are not standard – rapid may also be referred to as ultrafast, for example.

<sup>17</sup> Rapid chargers can be AC or DC and will be rated at least 43kW (AC) or 50kW (DC). The key difference is that AC chargers convert the current to DC inside the vehicle while DC chargers convert the current in the charger itself. The size of the conversion equipment determines the speed of charging; limited space in the vehicle therefore limits the speed of AC chargers. Rapid chargers typically charge EVs to 80% in around 30-60 minutes, and are considered crucial to addressing range anxiety. Fast chargers charge a smaller EV in around 3-4 hours, with a rating of between 7 to 22kW. Slow chargers, rated up to 3kW generally take 6-13 hours to charge a smaller EV.

<sup>18</sup> Deloitte, [Hurry up and... wait: The opportunities around electric vehicle charge points in the UK](#).

<sup>19</sup> DfT, [Electric vehicle charging device statistics: October 2020](#). Data as of 1 October 2020. Underlying data is provided by Zap-Map.

estimated 141,400 chargepoints registered for private use at home, and almost 9,000 registered chargepoints for workplace charging. However, the figures for at home and workplace charging are likely to be an underestimate as these are not systematically recorded.<sup>20</sup>

16. In order to meet future demand, EV charging infrastructure will need to grow significantly; however by how much is difficult to predict, with wide-ranging variations in estimates.<sup>21</sup> The significant variation in forecasts is partly explained by their sensitivity to a range of factors including the demand for EVs and associated Government policy, different scenarios and the developing nature of the sector.
17. The off-street segment of the sector has grown faster and is more mature than other segments, given the relative ease of home chargepoint installation. However, for a substantial proportion of potential EV users, off-street charging will not be possible (around 40-50% of homes across the UK do not have access to off-street parking)<sup>22</sup> and on-street charging may be the most likely immediate option. The deployment of on-street EV chargepoints faces a number of difficulties, including costs for providers to install and practical constraints in space and capacity to meet likely demand. En-route charging, in particular along key strategic routes such as at motorway stations, is also critical so that people can be confident they can charge rapidly on longer journeys. Similarly, some challenges may be emerging here with respect to installation costs and access. Alongside deployment, reliability is also an important factor – ensuring consumers have easy access to reliable, working chargepoints will also help to address concerns about range anxiety.
18. The distribution of public chargepoints across the UK is varied, in terms of number and speed, with fewer chargepoints in rural or remote areas.<sup>23</sup> This could potentially cause issues for EV users who live or travel to these areas. Payment models also vary with a mixture of free to use (all/some of the time - usually slow chargers) and pay to use chargepoints using many different

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<sup>20</sup> There is no requirement to register a privately funded chargepoint so data on the number of chargepoints installed in homes and workplaces is likely to be an under-estimate. The available data is based on chargepoints installed through the Government's Electric Vehicles Homecharge Scheme (EVHS) and Workplace Charging Scheme (WCS).

<sup>21</sup> For example, analysis by [The Society of Motor Manufacturers and Traders and Frost and Sullivan](#) estimates that 1.7 million public charge points will be needed by 2030 and 2.8 million by 2035 to be ready for the phase out of petrol and diesel vehicles by 2035. [A 2020 report by Delta-EE](#) estimates around 500,000 chargepoints will be delivered by the sector by 2030 and a [2020 report by the International Council on Clean Transportation](#) estimates that less than 150,000 public chargepoints will be needed by 2030.

<sup>22</sup> BEIS Select Committee, [Electric Vehicles: Driving the transition](#), page 27.

<sup>23</sup> For example see Table 3 in BEIS Select Committee, [Electric Vehicles: Driving the transition](#); see also [DfT Electric vehicle charging device statistics July 2020](#).



pricing metrics.<sup>24</sup> Consumers may therefore face issues when navigating the EV charging sector due to complexities around pricing and payment options.

19. New technologies are expected to improve the functionalities of chargepoints and impact how consumers will engage with these in future. Smart chargers allow EV charging to be intelligently controlled, so the charging takes place at times when the electricity system has surplus capacity (such as overnight). This can save consumers money and help manage demand on the grid.<sup>25</sup> Wireless charger technology is in the early stage of development and would enable infrastructure to be embedded in the roadside. Through vehicle to grid (V2G) technology, EV batteries store energy and discharge it back to the grid when it is most needed, such as at peak charging times. V2G can help manage the load on electricity distribution networks<sup>26</sup> and EV owners can save or earn money by providing flexibility to the energy system in this way.

### ***Key players in the sector***

#### *Chargepoint network operators*

20. Chargepoint network operators comprise different types of commercial entities including independent chargepoint operators and owners of networks, chargepoint installers, EV manufacturers which install their own chargers (such as Tesla), and energy companies, which provide chargepoints as well as being involved in the generation or supply of electricity. Established players in other infrastructure or transport markets - such as oil and gas companies, and 'traditional' car manufacturers - have also recently moved into the sector through partnering with chargepoint operators/networks or through acquisitions.<sup>27</sup> We collectively refer to these as chargepoint providers.
21. The 15 largest chargepoint providers in the UK account for 75% of all public chargepoints, with the top three providers having a relatively similar share - Polar (12.6%), ubitricity (12%) and Podpoint (11.4%). The 10 largest rapid chargepoint providers account for 85% of rapid chargepoints with Polar having the biggest share (17%) followed by Tesla Supercharger (14.4%). These statistics include both free to use and paid-for chargepoints.<sup>28</sup> Currently

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<sup>24</sup> Varied pricing has been highlighted, for example, by the RAC Foundation, [Costs of charging electric car vary dramatically](#) and What Car?, [Electric vehicle charging – what does it really cost?](#)

<sup>25</sup> Smart chargepoints can currently be used for off-street charging though there is potential for them to be deployed in other contexts such as on-street. This is currently being explored through the Government's '[Beyond off-street smart meter electric vehicle charging infrastructure](#)' programme.

<sup>26</sup> Transmission lines carry electricity produced by generators which is then distributed through networks to individual buildings.

<sup>27</sup> For example, Shell acquired new Motion in October 2017 (then the largest network in Europe), BP purchased Chargemaster in June 2018 (BP Chargemaster's 'Polar' network is currently the largest in the UK), and Total signed the acquisition of Source London (a large London focussed EV network) in September 2020.

<sup>28</sup> Data as of 14 October 2020 from [Zap-Map](#).

the sector appears relatively fragmented at the national level, but there is potential for it to become more concentrated as it develops, or for there to be concentration in certain segments or geographic areas. This may reflect particular barriers to entry or expansion that could affect incentives and ability to invest.

### *Other relevant players*

22. Local authorities play a role in enabling the provision of EV charging through procuring services from chargepoint providers for roll-out in their areas (such as for on-street charging and public carparks). Motorway service areas, retailers and other types of businesses provide sites on which to install public chargepoints and therefore also play a role in shaping chargepoint provision.
23. Distribution network operators (DNOs) are licensed companies<sup>29</sup> which manage the local electricity infrastructure that runs to homes, businesses and industrial users. Their network of cables and wires transport energy from the point of generation to the point of use. DNOs play an important role in the sector, in particular facilitating the installation of new chargepoints and making reinforcements to the network if additional capacity is required.
24. Comparison websites and apps have recently started to appear in the sector, helping consumers to find and use public charging networks such as Zap-Map and compare home charging providers and EV energy tariffs such as RightCharge.

### **Government support**

25. The UK Government has placed significant focus on the roll-out of EV charging infrastructure. Its policy approach has focused on encouraging and leveraging private sector investment to build a self-sustaining chargepoint network.<sup>30</sup> The Government has also used public funds and subsidies to support and incentivise investment in EV charging infrastructure, offering financial support to install a chargepoint at home, on-street, at workplaces and on the strategic road network such as at motorway service stations.<sup>31</sup>

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<sup>29</sup> Regulated by the Office of Gas and Electricity Markets (Ofgem) in Great Britain. Uregni is the utility regulator in Northern Ireland.

<sup>30</sup> Page 12, [Electric Vehicles and Infrastructure](#)

<sup>31</sup> The [Government recently announced](#) £1.3 billion in funding to help accelerate the roll-out of EV charging infrastructure for home and public charging, including £90 million for a new EV infrastructure fund to cover a range of segments, including on-street. Other examples of Government support include: Electric Vehicle Homecharge Scheme, which provides grants towards the cost of installing a home chargepoint; On-street Residential Chargepoint Scheme, which provides grants for local authorities to install on-street charge points in

26. Transport policy is partly devolved and there is some variation in approach in each of the devolved administrations to EV charging infrastructure roll-out.
27. England has over 16,400 public chargepoints (offering around 28,700 connection points) provided by a wide range of chargepoint network operators, and has adopted the Government's policy approach outlined above (for further details on the regulatory framework see paragraphs 31-34).<sup>32</sup>
28. Scotland has over 2,000 public chargepoints (offering around 4,400 connection points).<sup>33</sup> Over 1,400 of these public chargepoints are connected to a single chargepoint network ([ChargePlace Scotland](#)). The Scottish Government has spent over £30 million since 2011 on establishing and rolling out ChargePlace Scotland, which is funded in partnership through a public grant from local authorities and other organisations.<sup>34</sup> Most public chargepoints are currently free to use in Scotland. Funding has also been provided to support the installation of chargepoints in homes and workplaces. The Scottish Government has committed to continue to support the deployment and roll-out of chargepoints to achieve its climate change ambitions.<sup>35</sup>
29. Wales has over 600 public chargepoints (offering approx. 1,100 connection points) provided by a mix of providers, including UK-wide networks and Wales specific providers.<sup>36</sup> The Welsh Government's 2020/2021 budget includes £29 million to support the transition to ultra low emission vehicles including improving charging infrastructure. The Welsh Government has published its strategy to achieve a substantial increase in the number of electric car charging points in Wales. It is based on a vision that 'by 2025, all users of electric cars and vans in Wales are confident that they can access electric vehicle charging infrastructure when and where they need it.' Following consultation, the strategy will be accompanied by an Action Plan to track and manage delivery, which will be monitored and reviewed annually.

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areas where properties lack off-street parking; Chargepoint Infrastructure Investment Fund, which oversees the investment of £400 million in companies active in the EV charging sector; and the Rapid Charging Fund, which aims to help businesses with the cost of connecting fast chargepoints to the electricity grid (the Government committed an additional £450 million in recent announcements). In addition, £15 million has been allocated by Highways England to fund charging infrastructure along the strategic road network. The Go Ultra Low Cities scheme provides funding to local authorities to encourage consumers to switch to an electric car.

<sup>32</sup> DfT, [Electric vehicle charging device statistics: October 2020](#). Data as of 1 October 2020. Underlying data is provided by Zap-Map.

<sup>33</sup> Ibid and Zap-Map.

<sup>34</sup> See [Scottish Government: More electric vehicle charging points](#) and [ChargePlace Scotland: About Us](#).

<sup>35</sup> Transport Scotland, [Switched on Scotland Phase 2](#).

<sup>36</sup> DfT [Electric vehicle charging device statistics: October 2020](#). Data as of 1 October 2020. Underlying data is provided by Zap-Map.

30. Northern Ireland has over 300 public chargepoints (offering around 500 connection points) mostly run by a single provider, the Electricity Supply Board.<sup>37</sup> The Northern Ireland Department for Economy is developing an Energy Strategy to decarbonise the energy sector by 2050 at least cost to the consumer, and as part of this is considering requirements for facilitating EV charging, how that might impact on electricity networks and how best to address any challenges that could potentially arise. A consultation on policy options will be undertaken in March 2021 with the final Energy Strategy scheduled for publication at the end of 2021.<sup>38</sup>

### ***Regulatory framework***

31. Ofgem, the GB energy regulator, is responsible for regulating the supply, transmission and distribution of electricity, including obtaining new electricity network connections for chargepoints. Uregni is the utility regulator in Northern Ireland, covering electricity. There is no specific regulator responsible for the installation and operation of EV chargepoints themselves, though there are product and installation standards that must be complied with.
32. There are two key pieces of UK-wide legislation relating to the sector. The Alternative Fuels Infrastructure Regulations 2017 which apply to public chargepoints in destination, hub and en-route settings – covering technical specification and consumer experience standards.<sup>39</sup> The Automated and Electric Vehicles Act 2018 (AEV Act 2018) also provides various powers to improve the consumer experience, ensure provision at key strategic locations and require that all connections are smart. Secondary legislation is required for Government to introduce these changes.

### ***Regulatory developments***

33. The Government recently announced it was bringing forward the end to the sale of new petrol and diesel cars and vans from 2040 to 2030.<sup>40</sup> The Government has also consulted on proposals to support the roll-out of smart chargepoints. These proposals include mandating smart capability for all new private chargepoints, all new-build homes and workplaces to be fitted with

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<sup>37</sup> Ibid.

<sup>38</sup> Department for the Economy, [Northern Ireland Energy Strategy 2050](#).

<sup>39</sup> [Alternative Fuels Infrastructure Regulations 2017](#). This includes chargepoints for public use otherwise located on private land. The regulations exclude chargepoints in the home (which includes residential care homes, resident car parks), off-street chargepoints for local residents, workplace car parks, proprietary networks aimed at exclusive use by one car manufacturer, car dealership forecourts, and chargepoints for fleet vehicles.

<sup>40</sup> [Press release: PM outlines his Ten Point Plan for a Green Industrial Revolution for 250,000 jobs](#).

chargepoints, and longer-term solutions to support smart charging such as the use of smart meters.<sup>41</sup>

34. The Government will be undertaking further work on improving the consumer experience of using public EV chargepoints, with a consultation expected imminently. This will seek to inform regulations laid under the AEV Act 2018. The focus of our market study will be broader (see paragraphs 38-48), however we anticipate that there will be some linkages in the issues considered and we will engage closely with the Office for Zero Emission Vehicles (OZEV) as we carry out our review.

### **Relevant work**

35. A number of organisations have recently undertaken or are currently carrying out work related to the take-up of EVs and EV charging sector. These have highlighted a number of issues including: the need for smart chargepoints; interoperability between chargepoints and vehicles; minimum standards/technical requirements for chargepoints; current gaps in chargepoint provision in particular geographic locations such as remote areas; challenges for consumers for example in understanding pricing, finding chargepoints and reliability issues; and the need for a national strategy for EV charging infrastructure provision, among others.<sup>42</sup>
36. We will draw on relevant information, research and reports as part of our market study. It will also be important for us to engage with organisations undertaking relevant work, for example the Electric Vehicle Energy Taskforce, UK Government, the devolved administrations, Ofgem and other public bodies.
37. Other countries are facing similar considerations around the provision of EV charging.<sup>43</sup> As part of our study we will consider whether there are useful learnings from other countries leading the way on EV transition and developing charging infrastructure, such as Norway and the Netherlands.<sup>44</sup>

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<sup>41</sup> OZEV, [Electric Vehicle Smart Charging consultation](#).

<sup>42</sup> These include: [The Electric Vehicle Energy Taskforce Phase 1 Report](#) and the Taskforce's recently announced [second phase of work](#); BEIS Select Committee, [Electric Vehicles: Driving the transition](#); Committee on Climate Change, [Plugging the gap: An assessment of future demand for Britain's electric vehicle public charging network](#); and Citizens Advice, [Smart electric vehicle charging: what do drivers and businesses find acceptable?](#), among others.

<sup>43</sup> The [UK was recently ranked third](#) (after the Netherlands and Norway) out of 11 EU countries for 'readiness' for the transition to EVs, including in terms of its charging maturity.

<sup>44</sup> Norway has around 16,000 public chargepoints as of September 2020 and its EV market is growing rapidly (31% of passenger cars purchased in 2019). The [Netherlands Authority for Consumers and Markets recently announced](#) that it will take enforcement action against EV charging companies not complying with price transparency rules by 1 December 2020.

The German competition authority, the Bundeskartellamt, has also launched an inquiry into the public EV charging sector earlier this year.<sup>45</sup>

## **Scope and themes we propose to consider**

38. The scope of this market study is the supply of chargepoints for plug-in hybrid and all-electric passenger EVs, comprising cars and light vans. It will look at EV charging in a range of different settings including home/off-street; on-street; workplace; hub and destination; and en-route charging. We may choose to focus on certain issues or segments once we have considered initial evidence. We will cover the United Kingdom, taking into account relevant differences in the development of the sector and policy approaches.
39. We have identified two key themes that we propose to investigate in our market study. Within these themes we intend to consider a range of areas, taking a 'horizon scanning' approach to look ahead at the development of the sector as it grows and identify any emerging competition or consumer issues and how they could be addressed. This will help to shape the development of a healthy competitive sector over the longer term, one which works well for consumers and supports the take-up of EVs.
40. We will consider how the EV charging sector has evolved to date, to better understand how the sector will need to develop to meet future demand and create the conditions for healthy competition. We will explore the size and structure of the EV charging sector, for example in terms of the number and types of chargepoints in different settings, and the providers that are active. We will also look at the installation costs and different charging tariffs and any emerging evidence on outcomes such as service quality (including the reliability and functionality of chargepoints), innovation and chargepoint availability. We will consider the interactions between different segments of the sector and the extent to which emerging issues may differ across these, prioritising our work accordingly.

## **Theme one: developing competition while incentivising investment**

41. The EV charging sector will need to grow significantly so that it can serve large numbers of future EV users. Competition can help stimulate investment, innovation and growth, and will also ultimately enable consumers to get a good deal for EV charging.

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<sup>45</sup>Bundeskartellamt, [Sector inquiry on publicly accessible charging infrastructure for electric vehicles](#), July 2020.

42. We will explore how to ensure effective competition can be developed alongside fostering investment into the charging network. As part of this, we intend to consider the different ways that competition may develop in the sector and the issues that might arise such as the potential for concentration and the use of data. We also plan to look at the current incentives to build EV charging infrastructure and assess the impact of costs, demand and subsidies on future provision, and how these incentives might need to change to meet demand. There may also be some existing and potential barriers to businesses entering or expanding in the sector (for example, rurality or low population density, contractual provisions such as exclusivity, and connection costs among others), which could also impact on the development of competition and future chargepoint provision.
43. We intend to consider how different policy approaches, including varying levels of oversight and coordination (as set out in paragraphs 25-30), can build on the current support for sector growth and the development of competition in the future. This will include the role local authorities play in supporting the delivery of public EV charging infrastructure. We want to understand the challenges they may face, and how their approach and interaction with providers impacts the development of the sector.
44. Should we identify any issues under this theme, we will consider how these might be addressed. This could include recommendations to Government on areas where additional support may be required (for example, to local authorities) or to cover emerging gaps in provision, and/or ways to promote competition and address any barriers in the sector as it develops over the longer term. Other options might include guidance to providers to help develop competition in the sector.

## **Theme two: effective consumer interaction with the sector**

45. It is vital that consumers can effectively navigate this new EV charging sector, so that they are able to choose the services that are best for them and ensure they are getting a good deal. If consumers struggle to interact effectively because charging is too complex or opaque, this could lead to poor outcomes and in turn damage people's trust, which may act as a further barrier to EV take-up. Enabling consumers to interact confidently and easily with EV charging in future will help to build trust in the sector as it grows and to ultimately help drive EV take-up.
46. We will consider consumer interaction with the sector, as well as potential challenges (actual and perceived) and how these might be addressed. For example, this might include considering what information consumers need to make informed decisions in this sector, including the range of charging

options and tariffs that are available and how easy it is to understand and compare these. We may also consider whether potential complexities in the sector - such as around price and payment options - make it difficult for consumers to compare and switch providers.

47. We also intend to look at factors which might impact on consumers' experience of using chargepoints, such as access and reliability. As part of this we will consider whether some groups of consumers, in particular more vulnerable consumers, may be more likely to experience difficulties. There may also be insights we can draw from behavioural studies of consumers – particularly when considering switching, shopping around and the role that subscription services/apps play in this sector. The general issues explored in this theme are relevant to various ongoing work by Ofgem, BEIS, DfT and OZEV, including OZEV's forthcoming consumer experience consultation. Therefore we will work closely with others in exploring this theme.
48. Should we identify issues then we will explore measures to address these. This might include recommendations to Government covering different aspects of consumer interactions with the sector. Other options might include guidance to consumers and/or a consumer awareness campaign, and/or guidance to the sector on pricing transparency and presenting information on prices.

## **Areas where we do not intend to focus**

49. We do not intend to explore broader aspects of electricity supply and grid/network capacity which is under consideration by BEIS/Ofgem (beyond the impact on charging infrastructure), upstream aspects of EV charging infrastructure such as chargepoint manufacture, maintenance or software, or competition between car or battery manufacturers. We also do not intend to focus on EV charging infrastructure for vehicle fleets (ie hub charging at depots),<sup>46</sup> where our scoping work found that the key considerations appear to relate to grid connection and capacity.
50. However, we will consider any relevant links between these areas and the key issues set out in the two themes above.

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<sup>46</sup> Some vehicle fleets such as taxis may also use public chargepoints and therefore many of the issues relating to the provision and use of those chargepoints will be captured as part of our study.



## Consultation questions and next steps

51. The CMA welcomes comments on any of the issues raised in this Invitation to Comment and the accompanying Market Study Notice<sup>47</sup> from consumers, businesses and other interested parties. We particularly welcome responses to the following key questions, focusing on both the sector generally and the six sector segments (set out at paragraph 13).

### Box 1: Our 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?
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)?
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?
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?
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?
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?
8. What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?
9. What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?
10. What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development?

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#### Theme two: effective consumer interaction with the sector

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<sup>47</sup> Including on whether the CMA should make a market investigation reference under section 131 of the Act.

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?
2. What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows?
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?
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?
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?
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?
9. What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs?

52. In addition to considering responses to this document, we intend to gather evidence through a range of methods to inform our review including information requests to key parties; analysing existing datasets and research; reviewing contracts; and roundtables and bilateral meetings with key interested parties. We will also consider ways to better understand consumer views on the market eg via EV user forums, research or engagement with consumer representative bodies.
53. As the study progresses, we may choose to use other means of seeking additional information. Information and updates about this study will be added to the [case page](#) on a regular basis.

***Responding to this invitation to comment and market study notice***

54. Please email written submissions on the market study to: [EVCharging@cma.gov.uk](mailto:EVCharging@cma.gov.uk) by **5 January 2021**.
55. Due to the ongoing Coronavirus (COVID-19) pandemic, we are not able to process any documents or correspondence by post or courier to our offices.

56. We intend to publish responses to this Invitation to Comment, therefore:
- Please supply a brief summary of the interests or organisations you represent, where appropriate.
  - Please consider whether you are providing any material that you consider to be confidential, and explain why this is the case. Please provide both a confidential and non-confidential version of your response.
57. If you are an individual (ie you are not representing a business), please indicate whether you wish your response to be attributed to you by name or published anonymously.
58. An explanation of how we will use information provided to us can be found in the Annex. The Annex sets out how the CMA may use information provided to it during the course of this market study, including where we may need to refer to information in order to pursue enforcement action against a business in this sector.

## **Annex – use of information provided to the CMA**

1. This annex sets out how the CMA may use information provided to it during the course of this market study.

### ***Why is the CMA asking for information?***

2. The information you provide will help us to understand how to incentivise investment and develop competition in the EV charging sector, and identify potential competition and consumer issues in the sector as it grows (for further details of the issues considered see paragraphs 38-48).

### ***What will the CMA do with the information I provide?***

3. Your information will inform our market study report. The report will set out our findings and any proposed remedies to any existing or potential issues we find.
4. Where appropriate, we may also use information you provide to take enforcement action, using our competition or consumer powers, against businesses operating in the EV charging sector or may share your information with another enforcement authority (such as local authority Trading Standards Services) or with another regulator for them to consider whether any action is necessary.
5. We may only publish or share information in specific circumstances set out in legislation (principally Part 9 of the Enterprise Act 2002). In particular, prior to publication or any such disclosure, we must have regard to (among other considerations) the need for excluding, so far as is practicable:

(a) any information relating to the private affairs of an individual which might, significantly harm the individual's interests; or

(b) any business of an undertaking which, if published or shared, might significantly harm the legitimate business interests of that business.

6. We will redact, summarise or aggregate information in published reports where this is appropriate to ensure transparency whilst protecting legitimate consumer or business interests.
7. If you wish to submit information either in writing or verbally that you consider confidential and therefore do not wish us to publish or share, please let us know when you contact us with your reasons.
8. Any personal data you provide to us will be handled in accordance with our obligations under the General Data Protection Regulation and any other applicable data protection legislation. Any personal data provided to us will be processed for the purposes of this market study under Part 4 of the Enterprise Act 2002. For more information about how the CMA processes personal data, your rights in relation to that personal data (including how to complain), how to contact us, details of the CMA's Data Protection Officer, and how long we retain personal data, see our [Privacy Notice](#).
9. Further details of the CMA's approach can be found in [Transparency and Disclosure: Statement of the CMA's Policy and Approach \(CMA6\)](#).