REA response to the Competition and Market Authority's market study of the EV charging sector

Final for submission
Public Version

Introduction

This response has been prepared by the Association for Renewable Energy and Clean Technology (known as the REA), the UK's largest trade association for renewable energy and clean technologies. The REA represents around 550 companies operating across the heat, transport, power, and natural capital sectors and hosts 12 technology 'Forums,' ranging from biogas to renewable transport fuels and solar PV.

The REA's EV Forum is the UK's leading voice for EV charging infrastructure, representing over 85 companies operating across the public and private charging sectors and includes Charge Point Operators (CPOs), payment service providers, eMobility Service Providers (eMSPs), equipment manufacturers (OEMs), roaming hubs (also known as clearing houses), financiers, legal firms, installers, support providers and others operating in the market.

In February 2020 the UK Electric Vehicle Supply Equipment Association (UK EVSE), which had been in operation since 2013 and was Chaired by Cenex, merged with the REA's EV Forum. A press statement announcing the merger can be found here: https://www.r-e-a.net/rea-uk-evse-tie-up-to-provide-clear-voice-for-uk-electric-vehicle-charging-sector/

The REA believes that a competitive and interoperable market for the provision and operation of charging infrastructure and related services is essential to supporting the mass uptake of electric vehicles in the UK. Over the past few years the REA has seen an extensive expansion and deepening of the size and complexity of the sector. Overall notable developments (which includes some themes which are out of scope for this market study but are still relevant in creating background context) include:

Market Dynamics

- The number of developers, manufacturers, and operators of public and private charging infrastructure has increased over the past five years. This includes standalone British charging and software companies, existing companies operating in the British energy, infrastructure, property management, and/or technology markets which have expanded into the EV charging space, and new companies entering from the United States, Europe, and Asia-Pacific.

- During this time the software capability of the sector has greatly increased, complemented by new dynamic energy pricing driven by innovation in the electricity supply sector. Dynamic electricity pricing is particularly relevant for the home, workplace, destination and depot charging sectors. Software capabilities for chargers in 'private' locations has increased in part as a response to the Government's requirements for all new home chargers supported by the EV Homecharge Scheme to

be 'smart'. For public charge points, backend capability improvements have been in part driven by market dynamics towards data sharing and roaming.

- For fleet operators, telematic software and hardware has improved leading to a greater capacity for those looking to transition to an electric fleet to be able to better plan charging capacities, locations, and vehicle requirements.

- The financial capital behind and available to many charge point developers has significantly expanded, and business models are evolving with lease-to-own options becoming available for landlords and local authorities.

- The ownership of companies operating in the sector has shifted in this period, notably with publicly traded companies buying out a number of start-up charging networks and / or offering their own products in the market.

- Landlord interest in the opportunities of EV charging has steadily increased, with a notable spike following the Government's 2030/35 phase-out date announcement in Q4 2020.

- Open communications protocols have increasingly been utilised in the UK market by eMobility Service Providers (eMSPs) and Charge Point Operators (CPOs).

- The adoption of roaming has significantly increased, as British charge point operators connect with leading roaming hubs and engage in Peer-to-Peer based (also known as bilateral) agreements between operators and other eMobility Service Providers.

- The payments and settlements capabilities for companies settling balances between each other through roaming agreements has improved.

- The number of domestic roaming / eMobility Service Provider options has increased and domestic energy suppliers / technology companies have recently launched their own systems.

- The energy regulator Ofgem has prioritised electricity grid 'flexibility' and launched a Strategic Code Review to revaluate electricity grid access and utilisation costs. Outputs from this 'Access and Forward Looking Charges' work has not yet been released but many companies are preparing business cases (or are already deploying business models) which involve the coordination and co-location of multiple low-carbon energy assets, including EV charging, electricity storage, and some form of generation asset (mainly solar PV). In the future this is expected to also incorporate some form of hydrogen generation/storage/utilisation.

- The capability of the Electricity System Operator (ESO) to integrate flexible EV charging demand into their operations has increased. Crucially, this relies on visibility of activity on the distribution electricity networks, the ability to send and receive real-time signals to that infrastructure based on market dynamics, and the ability to

compensate operators, aggregators, and ultimately consumers for using their demand capabilities flexibly.

Governance and Government

- Long-term planning and coordination for grid upgrades and charge point deployment at strategic locations from central and devolved government has begun to emerge with initiatives such as 'Project Rapid' and the Rapid Charging Fund. Cross-industry bodies such as the EV Energy Taskforce are starting to take a more active interest in this area as well following it's Q4 2020 re-launch and creation of Work Package 1.

- Select local authorities are increasingly engaging with the low-carbon mobility agenda and developing long-term low carbon transport strategies and tenders (see tenders in Manchester, Scotland, and Nottingham). However, the REA's view is that tender utilisation by local and combined authorities is still piecemeal and baseline standards need to be further developed.

- A vision from Central Government relating to the deployment of public and private charging is emerging, along with a package of ongoing support measures. Milestone documents include the Prime Minister's 10 Point Plan (November 2020) and the Road to Zero Strategy. However, in the REA's view the sector is still lacking is a detailed infrastructure plan from Ofgem (the energy regulator) and Government (which the REA understands to be forthcoming from both organisations) and active coordination of infrastructure roll out at strategic sites (but not necessarily needed across the whole market).

The REA's response highlights a range of industry trends and issues but we would like the emphasise the three key themes which are crucial for developing electric vehicle driver confidence in the market and ultimately creating mass-market uptake of electric vehicles:

1. The need for competitive provision of public rapid charging along the strategic road network and at Motorway Service Areas
2. The need for more resourced and streamlined local authority tendering
3. The need for baseline expectations of equipment maintenance and service

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?

As set out in the Introduction to this response, the UK's EV charging market is expanding rapidly and deepening in complexity and number of players.

The **key developments relevant to this consultation that we expect** in 2021-2025 in the EV charging market include:

- Demand for EV charging (overall kWh sold) and flexible EV charging (when kWh are sold) will increase significantly to 2025, largely depending annual on vehicle deployment rates which to a significant extent are driven by central Government emissions regulations on vehicle manufacturers (on which there is a forthcoming government green paper). New EV charging players will enter the market (including those entering from outside the UK, those currently operating in the UK expanding in from other sectors, and domestic standalone start-ups), particularly in the backend software and installation sectors.

- The green finance market continues to mature and access to capital for charge point developers, operators, and others in the sector becomes more available and affordable. Finance streams which are currently unavailable to many in the market, such as access to debt, open up.

- Local and combined authorities increasingly utilise tender models and standardise these contracts, with the support of centralised procurement organisations like Crown Commercial Services.

- For domestic, workplace / commercial, and rapid hubs, charging becomes more co-located with local solar PV and energy storage products which provides differentiated income streams developers and landlords and in some cases impacts site planning and selection.

- As distribution network constraints along the strategic and A road networks are addressed by the Government's Rapid Charging Fund, a significant expansion in the speed and size of rapid charging capabilities for cars, vans, and heavier electric vehicles (such as coaches and busses) at existing Motorway Service Areas (MSAs).

- In parallel to deployment of rapid charging hubs at existing MSAs, the creation of a suite of new standalone rapid charging hubs (150 kW+) in semi-urban and suburban locations, and along the smaller road networks.

- Payments for EV charging to become more streamlined for fleet and individual drivers as charging equipment manufacturers produce more interoperable means of access driven by common open protocols, and charge point operators open to roaming. Towards 2025, we expect increasing pressure to integrate payments into vehicles themselves with the advance of developments such as ISO 15118 Plug-and-Charge. Pay-as-you-go solutions are also becoming more digitalised and web-based, following overall developments in the payment sector.

- DNOs standardise processes between themselves and streamline domestic charge point installation processes (such as Maximum Demand Assessments), reducing the time and complexity for a consumer to have a new home charger installed. The REA is

also calling for DNO process standardisation for public charging, for example relating to securing wayleaves.

- Government to regulate the public EV charging market to a certain extent, in particular requiring dynamic data sharing between operators; minimum equipment maintenance rates; greater payment transparency; access standardisation; and cyber security minimum standards. We expect this to be set out in a consultation and call for evidence from the Office for Zero Emission Vehicles in Q1 2021.

- Government to set out a regulator for the EV charging sector, potentially the Office for Product Safety and Standards (OPSS), or other entity.

- Government to mandate minimum charge point provision (or at least enabling infrastructure including trenching and ducting) in new homes and commercial properties as part of the implementation of the EU Energy Performance of Buildings Directive and the Future Homes Standard.

- Development and use of various new technologies related to charging infrastructure, such as connected autonomous vehicles (CAV), wireless charging (dynamic and static), and robotic charging. These technologies have potential long-term impacts on market dynamics, diversifying the potential products what CPOs can offer while also providing the opportunity to improve customer experience if these technologies receive uptake.

We expect each of these developments to deepen, change, and ultimately strengthen the EV charging market creating it into one of the most exciting and dynamic markets for charging in Europe and abroad.

Key competition-related challenges that we see emerging from the above developments, which developed in greater detail later in this response, include:

- Potential challenges along the strategic and A road networks at existing Motorway Service Area Operators, for example in the instance where a sole party maintains the commercial relationships along that network. Alternatively, we could see challenges if new EV-focused greenfield or brownfield sites are not opened up by Government and Highways England for development.

- The need for standardisation of local authority tenders and greater resourcing of local authorities so that they can produce integrated transport decarbonisation strategies.

- The market for roaming does not open up more extensively in the UK. This would create a more complex operating environment for drivers (of both personal vehicles and fleet-owned vehicles) and reduce overall confidence in the public charging sector's accessibility and ease.

- The current lack of baseline expectations for maintenance for public charging infrastructure. These need to be set in place by central Government and/or in local authority tenders. At present companies with business models that build in equipment maintenance and replacement are potentially penalised in practice compared to those who do not but may have been in the market earlier and are able to sit on strategic locations until EV uptake increases. This harms driver confidence in the electric vehicle market overall.

- Enforcement of safe installation practices, particularly in domestic settings, needs to be improved under the EV Homecharge Scheme (and subsequent supports in the mid-2020's) as at present high-quality installers can be undercut by those with potentially lower standards as there is limited fear of enforcement activity. It is particularly vital to enforce this as the government seeks to mandate the provision of cabling, ducting or charging equipment in all new homes. The REA has created the EV Consumer Code for Home Chargepoints to address such concerns in the market and create a certification mark for its members that consumers can ask for from their installers. Further details here.

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)?

Overall the REA sees a healthy market evolving for the provision of public and private charging infrastructure in the UK across the four main segments – equipment provision, installation, operations, and backend software/payments provision.

Our leading area of concern for the market is around the potential for monopoly of the public charging at existing motorway service area (MSA) sites. The REA would like to flag case studies from Switzerland and other markets where the Government has had a more active role in ensuring that there are competitive tender processes for provision of charging infrastructure at MSA sites, and that one operator is not able to dominate provision ubiquitously across the majority of sites.

In **Annex 1** we have detailed examples of how other European countries have delivered rapid charging at MSA sites.

Local authority tendering processes need to improve, as detailed in Section 9.

An additional potential area of concern is following building regulations amendments (see the 2019 consultation on amending Part L of the Building Regulations and implementing the EV charging-related aspects of the EU Energy Performance in Buildings Directive) and the potential for a small number of equipment providers, software backend systems, and installers to be selected by the largest housing developers, skewing the market and potentially inhibiting innovation.

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?

The REA expects central Government to make the following interventions in the coming months which are relevant to the strengthening of market competition:

1. A consultation on, and subsequent intervention mandating, dynamic data sharing, minimum maintenance rates for public charging networks, roaming and accessing chargers, and payment transparency for public charging infrastructure.

2. A plan and structure for the deployment of the now £950m Rapid Charging Fund. We are advocating that Government hand off the administration and deployment of the Fund to an arms-length development authority accountable to Government who can ensure equitable and future-proofed grid upgrades are developed, while also ensuring these upgrades are made in strategically important areas, where there is a real or predicted demand for charge-points. See the REA's blog on this here.

3. The soon-to-be-finalised PAS 1878 and 1879 standards to set a floor for 'smart charging' so that companies installing and operating infrastructure that are providing public goods (e.g. reducing net electricity system costs to consumers and overall grid carbon intensity) are not undercut by non-smart equipment.

4. Government makes changes to building regulations or other interventions that improve standardisation in the domestic charge point installation sector.

What we do not currently expect are interventions in the following areas, which may be required in the future:

1. Action to address any potential monopolisation of the provision of charging infrastructure at MSA sites, such as the creation of a framework that helps establish a balanced mix of EV charging operators across the MSAs, creating competition between MSAs rather than on the MSAs. A competitive, open, and non-discriminatory tender process would be a suitable instrument to ensure such a balanced distribution of operators across MSAs.

2. Clear direction to local authorities around their role in the electrification of road transport and standardisation of local authority tendering processes. An absence of such guidance could lead to 'capture' of local authority procurement.

3. LA's or DNO's taking responsibility for below-the-pavement upgrades, enabling smaller on-street CPOs to operate competitively.

4. Action to ensure minimum provision of customer service hotlines at public EV charging stations.

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

New entrants to the public and private EV charging markets are able to access a suite of equipment providers; back-end software service providers; payment service providers; roaming service providers; legal, land, and planning experts; third-party staff training, and interested financiers. As few as 3 years ago many new entrants had a significantly restricted access to such market products and services. Going back 10 years many of the EV charging companies then had little choice but to produce the full suite of services from scratch (e.g training their own installers, manufacturing their own hardware, managing their own equipment and billing, managing their own maintenance) as the market was in its infancy. Overall we believe that there the number of barriers to new entrants has reduced to date.

However, new entrants do face:

- A second-mover disadvantage in some cases in access to strategic sites (e.g. Motorway Service Area sites but also relevant to other locations)
    - The cumulative effect of a sole party having exclusive commercial rights on these areas means that it is not possible for other charging providers to enter and/or expand into providing charging infrastructure on MSAs. The lack of any effective form of regulation over how MSAs procure charging infrastructure services also acts as a potential barrier to entry and expansion going forwards.
    - As has been shown to date, MSAs lack the incentive to run competitive tender processes that lead to positive outcomes for EV drivers. Without intervention, there is therefore a high risk that MSAs stick with an incumbent provider going forwards and thereby prevent entry by potential competitors and stifle competition and innovation.
- Significant competition for access to persons trained in progressing electricity grid connections
- In some cases, land-banking of strategic sites
- Overly high upfront costs for land in areas where charging will be required, for example in London
- As media coverage of electric vehicle deployment becomes more prevalent, and more companies enter the charging market, private land-owners are asking for increasingly significant shares of rent/revenue/profit that was not expected of early market movers, which is slowing increased supply significantly.

For the expansion of existing companies, one of the major barriers at present is constrained access to debt markets resulting in companies building business models requiring equity-based funding rounds.

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?

Charge point provision at a high level is the product of a number of factors, including access to capital for developers, equipment provision and availability, availability of affordable land and grid connections, availability of trained staff, and clear visibility of vehicle deployment so operators are able to set out business models to investors.

The REA is supportive of Government intervention to address grid-related constraints to charge point provision, for example via the Rapid Charging Fund. The REA would also like to see the outcomes of the forthcoming green paper on the post-EU regulatory regime for CO_2 emissions from new road vehicles (see commitment here), and publication of the corresponding estimation of vehicle deployment rates annually that result from such regulations.

Local authorities will play an essential role in supporting the deployment of charging infrastructure. The REA believes this role should be one of local/regional coordination and tenders, and in some cases opening up grid capacity, rather than local or combined authorities operating charging infrastructure themselves. Sufficient local charge point supply can be incentivised by Government providing more clear communications and funding to local authorities around their role in facilitating the electrification of road transport and producing more standardised tender documents. The REA has welcomed the new £90m funding for local authorities to be deploying on-street and rapid charging infrastructure made available in the November 2020 spending review / Budget.

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?

Public and destination charging incentives

Charge point operators and others in the market may derive incomes from:

- The sale of electricity to consumers (prices include operational costs and that of electricity)
- Connection fees, overstay fees, and/or bundled parking fees
- Co-located energy technologies, including energy storage and generation (e.g. solar PV)
- Co-located amenities, such as the deployment of coffee shops
- Partnership-derived revenues, such as from an existing retail site where customers who are charging are staying longer / purchasing more whilst charging
- Advertising revenues
- Roaming service agreements
- Membership revenues for those who pay a monthly subscription to be a member of a particular charging network
- Fleet operator revenues, for example derived by guaranteeing access to a partner fleet operators' vehicles at certain times.

- Upfront installation, maintenance, and service provision such as customer help lines or parking enforcement.

Workplace incentives

Charge point operators (including employers) may derive incomes from:

- The sale of electricity to consumers (prices include operational costs and that of electricity)
- Inclusion of charging as an employee benefit-in kind
- Advertising revenue
- Upfront installation and maintenance services
- Aggregation of smart charging services for electricity price arbitrage or grid constraint management

Note that several revenue streams are not available to workplace operators as the current terms of the Workplace Charging Scheme (WCS) do not allow for access to chargers funded by the scheme to non-employees.

Domestic incentives

Incentives for this sector include:

- The sale of electricity to vehicles
- The switching of one's overall domestic electricity supplier to one with bespoke time-of-use EV offerings
- Upfront installation and maintenance services
- Upfront bundled sales of other low-carbon energy technologies, such as solar PV and/or battery storage
- Aggregation of smart charging services for electricity price arbitrage or grid constraint management

For the home and workplace sectors, there needs to be a significant expansion of the deployment of time-of-use tariffs (see Ofgem's proposals on introducing domestic half-hourly settlement) and expansion of 'flexibility markets' from distribution network operators / the Electricity System Operator.

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?

The REA believes that public subsidy (including the grants for home, workplace, and on-street residential charging) in the past five years has been appropriate to need and on balance well administered. Key gaps, which the REA sees as possibly being addressed following the November 2020 Spending Review / Budget announcement, include:

- Requirements for targeted support for leasehold properties / apartments
- Requirements for significant support to upgrade distribution electricity networks along the strategic road network

- Requirements for expanded support for local authorities to be developing local strategies and tenders for charging infrastructure

Other areas which need be addressed, either by public subsidy and/or by Ofgem's price control framework for distribution network operators, includes:

- Distribution electricity grid upgrades in semi-urban, suburban, and rural areas
- Greater investment in local distribution network substations to improve visibility of electricity flows at the low-voltage level, which in turn will support the creation of localised flexibility markets to address grid constraints with smart AC charging stations

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

The REA believe there is a need for Government to expand its 'Project Rapid' initiative once it is confident that concerns around grid constraints along the strategic and A road networks are addressed. In this second stage Government should focus on rural and semi-urban areas and address concerns with targeted funding.

The Government should appoint an arms-length development authority to coordinate this funding along with the existing capital allocated as part of the Rapid Charging Fund, both for the installation works and the access to the upgraded grid capacity.

For rural areas, particularly where there is seasonal road travel (e.g. parts of Scotland and Wales) a charging network needs to be in place to ensure market confidence, Government could introduce a contracted price floor model akin to the Contracts for Difference successfully utilised in the renewable power sector. In addition, innovation is needed to provide appropriate EVSE in areas with building restrictions such as heritage areas which may otherwise limit the installation of public charging.

For on-street charging and semi-urban rapid charging hubs, local authorities need to take a more active role in developing transport decarbonisations strategies and rolling out tenders for public charge point provision and operation. More on this in section 9.

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

The REA envisions an expanded role for local authorities in the provision of public and destination charging infrastructure. Our position is that greater direction and funding from central government is needed and that local and combined authorities should be strongly encouraged to develop transport decarbonisations strategies and roll out tenders for infrastructure.

Numerous players in the UK charging market are developing, or are already offering, lease-to-own infrastructure which can reduce upfront capital expenditure costs for local government.

The REA has welcomed the £90m of funding set aside for local authorities to be deploying rapid and on-street charging schemes in the 2020 Spending Review, in addition to the expanded On-street Residential Charging Fund (ORCS) in the Spring of 2020.

The tenders that are offered by local authorities need increased standardisation and transparency. Local authorities should only be able to use Crown Commercial Services' Vehicle Charging Infrastructure Services Dynamic Purchasing System (VCIS DPS) or the forthcoming Transport Technology and Associated Services (TTAS) Framework to roll out tenders for infrastructure.

The REA has identified a number of issues that could impact competition in the market going forward. Note that not all of these issues are present in each tender and there have been success stories to date. Many of these issues stem from a lack of standardisation in the provision of tenders to date. Issues with some of the tenders run so far that the REA has identified include:

- Language in tenders around equipment specifications (e.g. charging speeds) that functionally means that only one party could plausibly bid for the installation and operations work.
- A lack of language in tenders requiring interoperability (use of common communications protocols) and roaming, meaning public land and funding are being used to support business models not fully aligned with drivers interests.
- Language in tenders that explicitly limits access to charging infrastructure to local residents, which creates confusion and a major barrier to an open and interoperable charging network
- In some cases a lack of tendering for charging infrastructure, whereas existing energy service providers working for a local authority are offered a contract to provide and operate charging infrastructure without a competitive bidding process.

Many of these issues could be addressed if all local authorities were required to follow Crown Commercial Service EV charging tendering guidelines (which the REA understands are forthcoming but local authorities will not be required to follow). This would create a regularly-updated standard baseline level of quality and service in the market and reduce barriers to entry to new market participants.

For many local authorities a lack of internal skills and capacity (following ten years of staffing and funding cuts) is impacting the ability for 'systems thinking', the ability to put in place long-term infrastructure plans, and at times produces reactive rushes to put a baseline level of chargers in place to meet internal targets or political cycles that are not part of a longer-term plan.

Providing charging for their residents is a wholly new obligation for councils and in many cases is being delivered by staff responsible for parking management who have overly high expectations of charging as a major revenue stream (as opposed to a public good). However, different types of EV charging business models:

- have different abilities to generate a profit

- create a different user experience better suited to some use cases and driver groups over others,
- and provide varying public good outcomes for target community groups.

Utilisation of chargers overall is still relatively low and the ability for charge point operators to deliver long-term stable revenue streams to councils is at times challenging. Councils are required to operate balanced annual budgets. Therefore, they prefer to cover investments in infrastructure such as EV charging via their Capex budgets as much as possible.

The value of land in some cities such as London can be prohibitive to the deployment of needed infrastructure and local and combined authorities should be able to consider compulsory purchasing when deployment is part of the area's strategic plan.

Additionally the REA sees a future requirement for standardised maintenance requirements in local authority tenders which should be aligned with expectations/regulations that are shortly expected by central government.

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

The REA would point to the low number of privately-owned and operated DC chargers in Scotland as an example of what not to do regarding funnelling public funds into the MSAs. By subsidising all public charging via ChargePlace Scotland such that electricity was given away for free, the Scottish Government developed an environment where no new commercial entrant was able to compete. With the number of EVs and need for charging now growing exponentially, the Government is now arguably not able to deliver the pace of rollout that could be achieved by a diverse, competitive commercial market. It has also created distortions in the public's expectations of how much charging should cost, which will again affect the market in Scotland in the near term.

This network is also a 'closed' network, which prevents access by third-party eMobility Service Providers and drivers seeking to roam and pay across multiple charging networks using one streamlined account or card.

Wales

The REA welcomes the Welsh Government's EV charging strategy published in November 2020, but note with concern that it also does not emphasise interoperability, roaming, and simplified payments. Instead it simply prioritises infrastructure deployment, which in the long run will negatively impact drivers.

Theme two: effective consumer interaction with the sector

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

The REA believes the following barriers need to be addressed by Government and industry in order to facilitate the mass market uptake of electric vehicles:

- Payments for individual drivers and fleets needs to become more streamlined, in particular via the adoption of roaming (via peer-to-peer arrangements and/or connecting with roaming hubs). In addition, all payment options should include a 'guest payment' functionality as per the UK's Alternative Fuels and Infrastructure Directive.
- Communications for public charging infrastructure needs to be more standardised. The REA notes the increasing adoption of open protocols in the UK market and an expectation amongst the charging sector that the market may move towards IEC 63110, 63119, and 61850. The REA would not like to see, however, a specific protocol mandated in regulation but instead a preference towards open protocols.
- Maintenance of public charging infrastructure needs to improve, which could be addressed in a market-based way if greater data on uptime of public chargers is made available to drivers.
- Dynamic data on charge-point availability and location should be provided to EV drivers to encourage confidence in access to charging.

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

The REA is aware of some concerns from representatives of the disabled community around public charging infrastructure. The REA is working with some of these groups and Government to categorise such concerns and ensure greater visibility of the location of public charging infrastructure that addresses different disability types. There is an opportunity, while the market is growing, to standardise the expectations for disability-friendly EVSE.

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?

Many consumers will use private mapping services such as Zap-Map or Google Maps, and/or information integrated into vehicle dashboards. Tools such as the EV Consumer Code can be used by consumers at the start of the installation process to find installers.

The REA would like to see more data be made available to consumers on apps and in vehicles, including some types of dynamic data such as that relating to maintenance, price, and availability This begins on the website of MSP/CPO, before the consumer has installed the App or purchased the vehicle.

The REA would also like to see greater Government / Highways England / local authority signposting of existing and forthcoming charging hubs, particularly rapid charging hubs, as is provided for the traditional petrol and diesel refuelling industry.

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

The REA welcome Government efforts to increase transparency of pricing in the public EV charging sector as part of its forthcoming consultation on the consumer experience of public charging. The REA also welcomes the emergence of new consumer-facing organisations such as Electric Vehicle Association (EVA) England, and the growth of EVA Scotland, which we hope will play a key role in communicating to new EV drivers about driving behaviours and practices.

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?

Research is required into what is necessary for EV charging services to meet the requirements of different disabilities, which should translate into clear recommendations on good practice, or standardisation. The REA and the charging industry is actively in discussion with a range of disability groups on topics such as screen and cable heights, screen brightness, and distance of chargers from curbs. Industry is also considering how best to promote disability-friendly sites to the public, for example through open database systems.

Certain networks, including those on MSAs, lack acceptance of fuel fleet cars and/or roaming. This is partly as some sites do not have RFID card readers in their equipment, and others choose not to accept them. This creates an additional level of complication for drivers and can particularly impact older generations less familiar with apps and mobile payments. Company car drivers, commercial vehicle drivers, taxi drivers and anyone who would like to see information about their charging event, perhaps for tax or expenses purposes, are all particularly impacted by this as they cannot have their billing information made available to them in a simple and streamlined way. These challenges can be overcome by implementing full interoperability between all charging networks, allowing drivers to roam between charging networks with their preferred app.

For private charging, low income households and those in rented accommodation (both domestic and commercial) often struggle as EVSE provision either comes through or requires the permission of the property owner.

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

As indicated in Response 4, the REA is supportive of consumers having greater access to charging information via mobile phone apps and vehicle dashboards, in addition to greater road signage for larger charging sites. The National Charge-point Registry (NCR) should be replaced with a system that can include dynamic data, which will require industry engagement and acceptance of a standard API for either pushing or pulling data to the NCR.

The REA also understands that EVA England / Scotland to be producing / have produced introductory guide packs for their individual EV driver members who are new to the technology which are reportedly highly beneficial to ensuring consumers are able to make informed choices. There is also independent information provision from sources such as Fully Charged and Energy Savings Trust.

Finally, multimodal rapid charging hubs present the opportunity to further tailor consumer experience, giving the opportunity for charging to suit all drivers and dwell times.

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

The REA has launched the EV Consumer Code for domestic charge point installers to ensure that all existing consumer protections and best practice (e.g. installer insurance) are in place and adhered to. Link: https://www.electric-vehicle.org.uk

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

The REA welcomes the Government's forthcoming consultation on the consumer experience of public charging, which we expect to propose baseline standardised open data requirements for entities operating in the EV charging ecosystem. We hope that this includes opening access to static or semi-dynamic data on EVSE type, location, and pricing.

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

The REA believes that Government should allow the market for charging infrastructure to develop, and focus only on key "guardrails" to guide development. Over-regulation can be detrimental to development and interventions should be well considered and selective. We appreciate the dialogue with government and the CMA to support the development of sensible regulation.

ANNEX 1 – Examples of rapid charging at MSAs in other European countries

Dedicated fast charging tenders lead to high-quality service: Switzerland's FEDRO

The Swiss Federal Roads Office (FEDRO) organised a tender for 100 fast charging stations along Swiss highways in 2018. With this tender FEDRO aims to provide quality charging infrastructure along the national roads in Switzerland. The sites for the charging stations will be contracted for a period of 30 years and come with a pre-installed grid connection, which saves considerable time in the realization process of the stations. The tender allocated 100 locations in 5 batches of 20 sites. All packages/batches contain locations directly along the motorway and are spread out across Switzerland.

Because the Swiss Federal Authority is making key locations available for charging infrastructure through a public tender procedure which is separated from the tender process for petrol stations, and allocates an individual plot for fast charging on the service area, this allows new players to join the bid, increasing competition, and thereby invest in quality charging infrastructure on high traffic locations.

- increases quality of the fast charging stations
- allows companies to give a complete 'fast charging' experience to customers, instead of an 'add on' to a gasoline station
- opens up the market to pure play fast charging operators.

Open and competitive markets enable construction of the low-carbon infrastructure of the future: The Netherlands fast charging concessions for highway service areas

The Dutch government introduced a policy in 2012 opening the service areas for exploitation for EV charging by any interested party. It organized a lottery system where any market party could express interest to exploit individual service areas of their choice. The selected party obtained the right to request a permit for a selected lot on the service area for 15 years exploitation for fast charging. It allowed fast charging operators to set up their business on publicly owned service areas directly along the highway, next to existing petrol stations.

Petrol stations afterwards claimed they had the exclusive right to sell energy along the highway but the policy was upheld by the courts. The Dutch Court in High Appeal rules that: the sale of electricity was deemed a new market because it is not a fuel, so it does not belong exclusively to owners of petrol stations. The result is that many parties, both incumbents and new players, can now compete in the public procurements process of the right to exploit part of a service area for fast charging. The Netherlands now has Europe's most comprehensive network of fast charging stations directly along the highway with cross-country coverage.

Most recently (November 2020), the highest court of the Netherlands ruled that the exclusive issue of permits for chargers as an additional service to restaurants and petrol stations along the highway is not allowed. Instead, in line with EU and Dutch competition law a public procedure open to all interested parties must take place when granting these permits.

Bundling services reduces competition and stalls development of fast-charging services : Belgian national highway policy

According to the Belgian policy dictating highway service area concessions, tenders include the exploitation of an entire service area, including all its services. The bundling of these services means that only market parties large enough to be able to execute all these services and delivering different forms of energy are able to participate. In practice, this means that only incumbent market parties, and in particular owners of petrol stations can participate in these tenders, while for independent EV infrastructure companies or other interested parties, there is no chance to participate. As a result, there is less competition and a reduced level playing field. In particular, there is no opportunity for the EV charging industry to build an independent position and business case in this new market for the sales of electricity on highway service areas.

The Belgian design of the highway concession policy has led to a situation where the concession holder is responsible for the overall service area quality of service, including the quality and speed of roll-out of charging infrastructure on their sites. The roll-out of fast charging infrastructure on highway service areas is still in its infancy in Belgium and shows a stark contrast with the Netherlands, its neighboring country.

Creating conflicts of interest at the detriment of fast charging: French national highway policy

In France, concessions for highway service areas on the public highway system are awarded to a consortium that must include petrol, fast-charging and food services. Forcing a consortium of companies with competing business models creates an inherent conflict of interest. Large, established companies have more negotiation power and can exclude high-quality EV charging partners who offer premium services that threaten their business model. EV charging companies that are not able to find a petroleum company partner willing to accept the conditions needed for high-quality charging services are thus completely excluded from the market and successful consortiums propose compromise solutions where not necessarily the best, or economically viable, EV charging solution is offered.

Moving to dedicated EV charging tenders, on the other hand, would permit all market players to propose uncompromised fast-charging solutions that compete on their own merits. This would lead to contracts being awarded for the best EV-charging solutions, ultimately providing better service and value for customers**.**

Similar to the situation in Belgium the availability of charging infrastructure on highway service areas is still limited in France.