REA Response to the OZEV consultation on the Consumer Experience of Public EV Charging

The full consultation document can be found here.

About the Association for Renewable Energy and Clean Technology ('the REA')

The REA is the UK's largest trade association for renewable energy and clean technology, representing around 550 member companies operating across the heat, power, transport, and circular bioresources sectors. The REA has technology-specific member Forums, each with its own elected Chair and Steering Group. The REA EV Forum represents over 85 companies operating across the electric vehicle charging infrastructure value chain, from public Charge Point Operators to energy suppliers, eMobility Service Providers, roaming hubs, installers, manufacturers, and financiers. The REA's EV Forum has been active since 2018 and in 2020 the UK Electric Vehicle Supply Equipment Association merged its operations into those of the REA.

Developing a response to this consultation

This consultation response was developed in consultation with our members. The REA held two member meetings that specifically covered this consultation once it was published, and additional meetings over the past 12 months on many of the themes of this consultation prior to its formal publication.

The REA operates a consensus-based policy decision making structure. All members have equal power in the Association (one member, one vote) and significant member feedback was received by the REA to the draft of this consultation response and in past REA workshops.

Individual members have also engaged directly with OZEV workshops and submitted their own response.

Contact

With questions, please contact Daniel Brown, Head of Transport at the REA: dbrown@r-e-a.net

Payment Access

Q1: Are you in agreement that the payments specified should be allowed as an acceptable payment options? If you don't agree, please set out why.

Our response to these questions is broken out by AC and DC rapid charging as we see them as distinct markets with separate commercial models and technologies.

DC Rapid Charging Market

The REA is supportive of Government proposals to mandate contactless credit/debit card payments as a baseline non-smartphone means of access to public DC rapid charge points between 50kW and 350kW. We see this as a preferred consumer means of payment and satisfies the Government's requirements for non-smartphone payment at these sites.

We perceive over 350kW to be more relevant for the electric bus, coach, and heavy goods vehicle markets (should they emerge) and services targeting these segments should not be required to offer the same payment and access technologies as those targeting the mass car and van markets.

Contactless card payment requires upfront and ongoing costs to operators that other forms of payment do not. For example, there are terminal (the contactless equipment) costs, integration costs, standing charges, and percentage-of-transaction charges typically associated with contactless.

We note many operators will also choose to integrate contactless terminals that also allow for Near-Field Communications (NFC) payments, such as Apple and Google Pay. These should be allowed in regulations.

We acknowledge QR code and text-to-pay options but note that there is low utilisation of such options on DC rapid charge points that currently offer such functionality. Both also require a smart phone and/or mobile phone signal.

Government should allow flexibility to Charge Point Operators in how they provide contactless access to DC rapid charge points. For example, given retrofit (hardware and software integration) costs, terminal prices, and ongoing standing charges per terminal we would ask that CPOs be able to set up their systems whereby they do not need to integrate one terminal into each DC rapid charge point but be able to provide a centralised 'hub' where charging at several stations at a site can be paid for at one terminal. Government could set out expectations for this (e.g. 'CPOs must offer at least one contactless terminal for every 6 DC rapid charge points and the ability for all customers to pay for their charge at any one of these DC chargers at the payment terminal'). This is aligned with the current petrol/diesel refuelling experience where some customers enter a retail facility on-site to pay for their charge via debit or credit card.

Some CPOs may make the decision to offer contactless at every DC rapid charging point on strategic / reputational grounds, but the flexibility (particularly for retrofits) will help CPOs keep costs down for customers.

Additionally, for fleet operators and individual drivers, rapid DC charging networks should be required to offer RFID access and/or app access and have roaming agreements in place.

AC Slow Charging Market

For the AC charging market (between 7kW and 22kW), primarily for on-street and destination charge points, we caution against mandating contactless credit card payments.

AC charging is designed to be a slower and often more affordable option for consumers. From a distribution electricity system management perspective, the ability for AC charging sites to 'load balance' across multiple charge points in use at any given time makes more efficient use of existing grid capacity and reduces requirements for costly and time-consuming distribution electricity network upgrades. This in turn reduces costs for distribution network upgrades, which in part are paid for from customer electricity bills.

AC charging often has a lower utilisation rate than DC rapid charge points and a longer dwell time. The commercial model for AC charging at destinations is also often wrapped up with such longer dwell time; for example, near-site retail sites (e.g., supermarkets) benefit from consumers spending more time in their shops.

The charging market overall requires a broad range of charging types, at different prices and specifications to be developed in order to create consumer choice. However, the government needs to balance this need with the desire to offer all drivers need a non-smartphone means of access.

It is essential that affordable and widely available AC charging is made available at on-street and destination locations. REA analysis indicates that mandating contactless at AC sites could raise AC charging prices to consumers and reduce AC charging availability to drivers. Other options for providing non-smartphone access to AC sites are therefore required.

The REA proposes that AC charge points are required to be equipped with RFID cards and that AC network operators be required to enter into roaming contracts with other CPOs / eMSPs directly or via roaming hubs. More details on the REA's proposed roaming arrangements can be found in the roaming section. RFID card integration into AC charging sites is a less expensive process for units and does not come with the same standing costs / transactional costs in the way contactless credit/debit cards do.

Whilst the RFID-and-roaming route does require customers to sign up to third-party accounts prior to using the service, we believe that this should be allowed as the main functionality that delivers 'non smartphone access' as set out in the consultation.

We note that some AC charging sites may also voluntarily adopt contactless card payments depending on the charging site's location. This is particularly relevant for those AC units

being installed in existing parking facilities where payments can be incorporated into pre-existing parking payment terminals.

For AC units, the REA sees QR code access and text-to-pay access as not particularly intuitive or user friendly. QR code access is also largely another means of credit card payment, whereas most webpages that customers are directed to then ask for a card details to be entered. QR codes on chargers can also be more easily 'spoofed' or damaged, which make them a less attractive means of Government guaranteeing access.

Text (reverse or direct carrier billing) or Call-to-Pay, in our view, is not a solution that is in demand by consumers and is not widely utilised presently. We also believe the costs associated with reverse or direct carrier billing (text to pay) are too high to be considered a viable system to be mandated by government with estimates from members that providers charge 8-11% of a billing session, which would increase public charging costs. Members have highlighted that Interactive Voice Response (IVR) remains a leading means of payment in the pay-for-parking sector but are generally agreed that this is not a preferred outcome for the public charging sector. For further information on driver preferences for means of access, we encourage Government to review submissions to this consultation from EV drivers user groups such as EVA Scotland and EVA England.

Q2: If implemented, do you think these requirements should apply to all chargepoints? If not, which chargepoints should be covered and why?

The REA believes that the contactless credit/debit card requirements should apply to current and existing DC charge points (with some flexibility on implementation as described in Q1). RFID card access should apply to all new and existing AC and DC charge points, in order to achieve the expectations set out by Government of the drivers' experience in this consultation.

The Government should use legislation to set high-level expectations of the UK public charging market and then work with industry to maintain guidance documents that can lay out clear technical specifications which can be adapted over time if market conditions change.

Q3: What alternative solutions to contactless would provide consumers with a comparable quick and simple payment mechanism (provide evidence on costs)?

Please see answer to Q1. An app or RFID-based experience linked to roaming would providing a comparable experience and reduce costs for operators, particularly AC charging stations.

The REA will not be submitting specific cost-related data but have encouraged member companies to submit this information directly.

Any regulations impacting hardware solutions on AC and/or DC charge points need *at least* one year lead-in time from the point of regulations being laid in order for manufacturers, operators, and installers to have time to comply.

Roaming

Q4: Do you agree we should intervene now to implement roaming? If not why?

The REA sees the widespread adoption of roaming amongst the UK's public charging sector as essential for the creation of a mass market for electric vehicles in the UK.

We are strongly supportive of the adoption of open communications protocols which help facilitate roaming and services, ranging from the rise of the eMSP, Peer to Peer, and roaming hub business models that facilitate this for drivers.

Roaming is the preferred means of access in some European markets for individual drivers and is essential for fleet electrification in the UK (and subsequent creation of a second-hand market for EVs, which reduces costs for many first-time buyers). Fleet ownership accounts for a higher proportion of car ownership in the UK than in other markets, making it an even more essential proposition for the UK. Roaming provides centralised billing and receipts for employers which enables them to better account for fuel sales, track behaviour, and manage accounts.

To facilitate roaming in the UK the REA has worked for the past three years with members and international organisations to provide a framework, training, and direction to the market. In February 2019 we launched *The Interoperability of Public EV Charging Networks in the UK* (link here), a milestone report which outlined the opportunity of interoperability and roaming, derived from interviews with over a dozen significant market actors. Subsequently we have worked with fleet, consumer, and manufacturing associations to brief them on roaming adoption and have supported members who have opened their networks, with most of the companies that are 'pro-roaming' in the UK market today being REA members.

In February 2020 we organised a one-day seminar for the UK market featuring leading roaming solutions providers and subsequently designed, developed, and delivered (in partnership with EV Technology) the Charge Point Professional (details here) series of training courses which provide half-day, full-day, and two-day training sessions from independent experts on the commercial and technical operating environment for charge point operators, including roaming.

In September 2020 we launched, via our subsidiary Renewable Energy Assurance Ltd., *EV Roam* (details here) which serves as the UK's ID Registration Organisation (which plays a similar role to eViolin in the Netherlands as noted in the consultation). 18 companies are now currently (as of 9 April 2021) registered on the EV Roam platform.

Over the past three years we have seen the entrance of numerous international roaming market players into the UK, the emergence of automotive manufacturer-led roaming offers (e.g., KiaCharge), and importantly, the emergence of UK-based payment products which seek to simplify the user experience of public charging (such as the Octopus Electric Juice Network, Zap-Pay, Paua, and Bonnet Electric).

To date, our position has been that the roll-out of roaming should be industry-led. We are concerned that Government intervention will not lead to as efficient and innovative a market than one that was purely championed by the charge point sector itself. That said, we acknowledge the limited progress of roaming in the UK so far, that automotive manufacturers, fleet operators, and consumers are all calling for its widespread rollout as a prerequisite to the mass adoption of EVs, and that it is unlikely that several large charging market participants will adopt roaming without Government intervention due to their particular strategic position in the market, technical (hardware/software) abilities, or commercial model.

Therefore, we are supportive of the Government's intention to mandate roaming in the UK market and believe now is the approperiate time for such intervention, given the 2030 phase-out announcement, recent landmark commitments of vehicle manufactures and fleets to electrify their offerings, and timescales involved with the charging market incorporating roaming.

We note that our support for Government intervention in the roaming market is also linked to Q1 and proposals for Government to mandate contactless card payments on some charging units – we see RFID and app-based roaming as a more approperiate means of guaranteeing simple access to AC charging units compared to mandating credit and debit card access.

Q5: Which option do you think is the most suitable approach for delivering roaming in the UK? Please rank the options in order of preference.

The REA prefers Option 4 as it meets the REA's criteria for good roaming outcomes (details below).

The REA sees Options 2 and 3 as the least desirable options. Specifically, the REA does not consider QR code access which forwards drivers to pay via a credit/debit card to be roaming based on our criteria. The REA also does not support the creation of a Government-funded standalone roaming hub for the UK due to the costs involved, the ability for other existing market participants to fulfil this role, and because CPO members do not support having their business models fundamentally linked to a yet undesigned and untested Government-backed product where costs to operators are not clearly laid out.

The REA sees Option 1 as likely untenable for Government at this stage, following the 2030 phase-out announcement, and the expectation on Government to streamline the charging sector in order to build confidence amongst fleet operators, EV drivers' groups, and automotive manufacturers in the UK's ability to achieve a mass market for EVs.

The REA's member-agreed priorities for implementing roaming are:

- **Beyond ad-hoc**: any definitions adopted should build on, and go beyond, those outlined in the Alternative Fuels Infrastructure Directive
- **Inclusive of innovation and choice**: definitions should not prescribe a single delivery organisation for roaming, should enable multiple business models for

delivering roaming (e.g., both via eMSPs and hubs), and should not inhibit innovation in payments / data from coming forward
- **Build on what's being done**: roaming regulation should integrate with / be implemented with an eye to other developments in the sector, including around mandatory data sharing (see OCPD Project Alpha)
- **Ultimately deliver a superior customer experience for drivers**: regulations should be implementable, practicable given current technology, enforceable, and result in a simplified and more streamlined experience for individual drivers and fleets

The REA worked closely with central Government in developing Option 4 and submitted our position paper on roaming to Government in September 2020 (details here). RFID and app-based access options can facilitate this option. In addition to the above principles, it is essential that any roaming mechanisms introduced by Government incorporate the following considerations:

- CPOs should be price-setters, as the market participant taking on the most commercial risk in the public charging ecosystem it is essential that they are empowered to set a baseline price for their service that allows for sustainable business models and the continued expansion of their network.
- Networks should be open, but if CPOs are being required to open they need flexibility as to who their commercial partners are or a baseline operating standard for commercial partners to ensure they are not required to do business with actors that deliver a poor service for drivers. As such, if CPOs are required to open their networks under regulation then some controls on the organisations that they are being required to do business with (e.g. eMobility Service Providers and/or roaming hubs) must be put in place. By extension, we support industry-led mechanisms, in line with the eViolin model of setting out a baseline set of operating requirements for market actors (details here), to ensure this baseline is put in place.
- Members have also flagged that the NCSC's Cyber Essentials scheme could be considered as a requirement in any regulatory structure for eMSPs.
- Government should not over-intervene in the specific commercial arrangements struck between CPOs so as to allow for location and brand-specific offers to emerge, such as free charging at certain sites for certain customers.
- To facilitate this, a roadmap-style implementation plan may be relevant where different levels of roaming and adoption of technical functionality to facilitate roaming are required over a multi-year period.

Q6: Please provide reasons for your answers, including supporting evidence or analysis, and suggest any alternative approaches to achieving roaming. Please state any challenges you foresee and what you would need to address them.

See Q5. In order to develop a strong Government intervention in this sector, we propose the following definitions:

- **Charge Point Operator (CPO):** A CPO operates one or more charging stations on its own account and is responsible for the installation, operation and service thereof.

- **Electromobility Service Provider (eMSP):** An eMSP is a provider of charging services to customers. Such services typically include providing access to charging stations for vehicle users via charging cards or apps, processing requests to charge, and taking payments for charging sessions. A Charge Point Operator may also perform the role of an eMobility Service Provider but for the purpose of these regulations these business functions are considered separate.
- **Roaming**: Sustained commercial agreements between Charge Point Operators, either directly or via an intermediary, that enable a customer (an electric vehicle driver) to charge on multiple charge point operator's equipment and receive a receipt that is held on an ongoing account.
- **Back-office service provider**: the provider of back-office software to a Charge Point Operator.

Q7: Do you agree with our suggested criteria when requiring chargepoint operators to allow access to their network?

The REA would support the developing of technical guidance documents by Government, in conjunction with industry, that can set technical specifications and expectations within the sector. We highlight the work of eViolin in the Netherlands in establishing a Code of Conduct for CPOs and eMSP members of their organisation, which are a set of baseline technical expectation of market participants. Details here.

We are not supportive of FCA-regulation for eMSPs at this time and any controls placed on the eMSP and/or roaming hub market should be informed by industry in partnership with Government.

Open Data

Q8: Are there any 'must-have' data types that should not be made available? If not, state which data sets and why, providing evidence.

The REA supports the following data fields becoming mandated by Government to be made available to consumers:

Static:

- chargepoint ID, linked to the EV Roam system
- owner/operator
- location (* address and coordinates)
- operating hours
- power (kW)
- connector type (type 2, CHAdeMO, CCS)
- payment method (RFID card, contactless, smartphone app, QR code)
- cost of obtaining access
- parking enforcement arrangements (and physical access restrictions)

Dynamic:

- pricing (p/kWh)

We **do not** support the following fields, which have been labelled 'must have' in the consultation, becoming mandated by Government at this stage as this will require more advanced CPO back-office functionality and partnerships with eMSPs to deliver:

- disabled access information
- state of repair
- availability (in-use, available, booked)

For Disability Access Information – we believe that before Government intervenes in this area a clear schema for detailing the types of disabled EV drivers and standardised means of 'accessible access' for each type of driver needs to be established. The REA has been working closely with Motability to develop such a scheme and understands that the British Standards Institute is likely to develop a Publicly Available Specification (PAS) relating to this in due course.

Once a PAS is set up and clear requirements set out for charge point operators to be providing 'accessible' charging infrastructure to the different types of disability, we would welcome the Government updating its open data architecture to allow CPOs to list the chargers it has built that certified as 'accessible' for different types of drivers. In this way CPOs are able to promote the benefits in a standardised way of the different types of chargers it has deployed.

The REA wishes to set the expectation that not all chargers currently deployed (or in the future) will be fully 'accessible' to all types of disabled drivers but Government can play a key role in helping disabled drivers find chargers suitable to them. The CPO community is also supportive of enabling the disabled driver community to 'go electric' and will strive to align many new sites with the forthcoming PAS once it is published.

For State of Repair: in the future we would welcome this becoming a requirement as the primary means of addressing the themes in this consultation pertaining to maintenance of public charge points. Whereas we do not support large-scale Government intervention in maintenance, for example requiring CPOs to be submitting annual state-of-repair reports to the Office for Product Safety and Standards (OPSS), we see it being a reasonable requirement for CPOs to be notifying drivers if their charging units are not operational for over a certain period of time (for example, if a charger is in disrepair for over 1 hour CPOs be required to share this information through the open data structure enacted by Government).

We do not see it as feasible, however, to presently mandate CPOs to provide state-of-repair data to drivers as this will require work to develop back-end systems and open communications protocols to enable the clear and simple communication of maintenance to drivers. For example, we understand that the Open Charge Point Protocol (OCPP) to have data-fields available that enable operators to identify various charge point faults. However, there is not yet a process for taking this fault information, amalgamating it in a CPO's back-end system, and then concisely communicating it out to third-parties via the Open Charge Point Interface (OCPI) protocol in a 'red light' (meaning the charger is not working, from the drivers perspective) and 'green light' (meaning the charger is working) system so drivers can

clearly see that the charger is or is not working. Individual drivers do not need to know the reason for a charge point fault, just that it either is or is not working. To enable the 'red light' 'green light' system Government should sponsor code-development work from the EV Roaming Foundation, which manages the OCPP and OCPI protocols, which might take up to 12 months to deliver and then 12 months for CPOs to implement.

For example. the charge point error communications fields specified in OCPP 1.6 can be found below (see OCPP v1.6 section 7.6 ChargePointErrorCode below), many of which could constitute a 'red light' for drivers:

- **ConnectorLockFailure** Failure to lock or unlock connector.
- **EVCommunicationError** Communication failure with the vehicle, might be Mode 3 or other communication protocol problem. This is not a real error in the sense that the Charge Point doesn't need to go to the faulted state. Instead, it should go to the SuspendedEVSE state.
- **GroundFailure** Ground fault circuit interrupter has been activated.
- **HighTemperature** Temperature inside Charge Point is too high.
- **InternalError** Error in internal hard- or software component.
- **LocalListConflict** The authorization information received from the Central System is in conflict with the LocalAuthorizationList.
- **NoError** No error to report.
- **OtherError** Other type of error. More information in vendorErrorCode.
- **OverCurrentFailure** Over current protection device has tripped.
- **OverVoltage** Voltage has risen above an acceptable level.
- **PowerMeterFailure** Failure to read electrical/energy/power meter.
- **PowerSwitchFailure** Failure to control power switch.
- **ReaderFailure** Failure with idTag reader.
- **ResetFailure** Unable to perform a reset.
- **UnderVoltage** Voltage has dropped below an acceptable level.
- **WeakSignal** Wireless communication device reports a weak signal.

The full OCPP specification is available for free download at the Open Charge Alliance website: https://www.openchargealliance.org/

Once data from a charger or vehicle is collected, it is then amalgamated in a CPO's back-office. The open protocol OCPI is used as a means of eMSP and CPOs communicating and would be one way of communicating this information to drivers. OCPI has the following EVSE status codes relevant to state of repair:

- **AVAILABLE** - The EVSE/Connector is able to start a new charging session. (this could be the GREEN LIGHT functionality)
- **BLOCKED** - The EVSE/Connector is not accessible because of a physical barrier, i.e., a car. (RED LIGHT)
- **INOPERATIVE** - The EVSE/Connector is not yet active or it is no longer available. (RED LIGHT)
- **OUTOFORDER** - The EVSE/Connector is currently out of order. (RED LIGHT)

- **REMOVED** - The EVSE/Connector was discontinued/removed. (RED LIGHT or not visible at all on maps)
- **RESERVED** - The EVSE/Connector is reserved for a particular EV driver and is unavailable for other drivers. (RED LIGHT)
- **UNKNOWN** - No status information available (also used when offline). (GREY LIGHT or RED LIGHT?)

For Availability (in-use, available, booked) data, we do not support Government intervention to mandate this data. We believe that drivers should have access to this data, but see it as the role of the eMobility Service Provider to be delivering this information. Government interventions in the public charging space should be the minimum required interventions to ensure mass EV driver confidence but not tread too far into commercial products on the market. Availability data is seen as highly commercially sensitive as competitor CPOs could 'scrape' this information and then use it to site their own charge points at another CPO's most profitable locations. Additionally, making availability data available requires significant technical ability on the part of the eMSP and CPO and not all networks are currently equipped to make this information available.

Therefore, we support drivers having access to this information, and believe that for many networks it eventually will be made available, but it is not the role of central Government to mandate that this data is made available through its central open-data system at this stage.

The REA notes that many data-related requirements are already in place for the sector but are not regularly enforced. Enforcement of future data-related requirements on Charge Point Operators will be essential so as to ensure a positive consumer experience and that individual compliant CPOs are not bearing costs that their competitors do not take on.

Q9: Do you think that the 'should have' and 'could have' data types should not be mandated to be available now?

Akin to our comments about availability data fields, the REA supports the roll out of **Booking Information** on a commercial basis through eMSPs and/or roaming hubs and not being mandated by central Government.

Regarding **Ancillary Services** on site, we support the Government creating provisions in the public open data service it is establishing for CPOs to provide this information in a standardised way but do not think it needs to be mandated at this stage.

Regarding **Who is Charging**, the REA strongly disagrees with this data field becoming available. To make Who is Charging openly available would be a major breach of GDPR and undermine confidence of EV drivers in the public charging network. Additionally, most public charge points are not technically capable of understanding or retaining this information. At present there is not yet a sophisticated charge point to vehicle communications framework in place for individual chargers to identify and keep a memory of who is charging at any given time. Instead, this information is retained by the CPO itself via its app or membership account, and is typically not communicated to the vehicle (unless access to a charge point is negotiated by an automotive-manufacturer owned roaming or payment service such as

Digital Charging Solutions). It will require the widespread rollout of the ISO15118 Plug-and-Charge international standard, which is not likely before 2025, before there is the widespread ability in the market available for vehicles and chargers to identify and remember each other to a sufficient extent to request this.

Regarding **Queue Length**, akin to our answer to the Available data fields we believe that this should not be mandated by central Government at this time and CPOs should be able to make this data available to drivers on a commercial basis though their eMSP or other software partners.

Regarding **New Chargepoints Coming Online Soon**, the REA does not see this as an essential requirement for CPOs to communicate through a central Government data service and it should be up to individual CPOs and their own marketing and communications departments to communicate this to drivers.

Regarding **Historic (aggregated)** and **Utilisation** data fields, we are strongly in opposition to any requirement to make this data publicly available as this information is extremely commercially sensitive. If Government or other relevant parties (e.g. Distribution Electricity Network Operators in the interests in network upgrade planning) are interested in having access to this information they are able to directly procure it from individual charging networks on a bilateral basis.

Q10: What, in your view, should be included in the disabled access information?

The REA is working closely with Motability to address this question and defers to their independent research, and any forthcoming Publicly Available Specification (PAS) from the British Standards Institute, to inform disability access standards. Once this is produced we would welcome Government creating the option for CPOs to share information as to which of their chargers are accessible, and for which disability-types they are accessible, in a standardised way.

The REA would be open to sitting on any BSI committee that steers the PAS development process that defines accessible charging infrastructure so as to ensure the future scheme is implementable and effective.

Q11: Do you think that Open Charge Point Interface should be adopted as the standard for the provision of public chargepoint data across the chargepoint operator's systems?

The REA supports the adoption of open communications protocols, including OCPI, in the UK market. That said, we do not wish to see particular protocols or technical specifications adopted into UK legislation as the market is evolving rapidly. If Government were to legislate for open data, we would wish to see reference to the adoption of open standards in the legislation so as to set a clear direction of travel for the sector, but reference to specific protocols should be set out in technical guidance documents following the passage of legislation that are produced by Government, in conjunction with industry, which can be periodically updated.

Q12: Do you think that adoption of a standard will present challenges? If so, what challenges?

As the back-office software of some CPOs in the UK are not yet capable of managing OCPI, a one-year lead in time will be required for these players to incorporate this protocol.

Q13: Do you think that the preferred hybrid data architecture achieves the overall policy aim to make data available to support electric vehicle drivers?

The REA notes many members were directly involved in the development of the hybrid data architecture system set out in this consultation when KPMG was initially commissioned to scope this structure in January-July 2020. The REA supports the conclusions of KPMG's overall data architecture work as set out in the consultation.

Q14: What opportunities or challenges will this present for your organisation?

This will not set out particular challenges for the REA as an industry association representing the charge point, renewable energy supply and generation, and electricity storage sectors.

The REA would welcome the opportunity to be part of any group developing and updating guidance documents associated with this consultation.

The REA has already launched EV Roam, the UK's ID Registration Organisation for organisations using OCPI as a roaming protocol. Details at: https://www.realschemes.org.uk/ev-roam

Q15: Are there any future technology, policy, or regulatory changes you are aware of that might impact the preferred data architecture?

REA members have been asked to respond directly to this question.

Q16: What does government need to do to further minimise costs for industry?

Ensure enforcement of existing and future regulations, to ensure compliant market participants are not bearing costs that others who are non-complaint are not having to take on.

Q17: Do you think the government should use the data architecture that emerges from the Modern Energy Data Access competition as a vehicle for open electric vehicle data?

The REA notes that the requirements and considerations for open data in the electricity generation, storage, and heat sectors are significantly different to those in the public EV charging sector. We would welcome alignment with the MEDA work but believe that Government should progress the open data architecture work for the public EV charging sector in its own right.

Q18: Are there any related data platforms which the Open Public Chargepoint Data should be linked to? If so, please specify.

Government should consider the National Access Point project being developed by the Department for Transport. Slides from December 2020 on this project can be found here.

Government should also be aware of the work of the Alliance for Parking Data Standards.

Payment Transparency

Q19: Do you think the government should mandate a p/kWh metric? If not, why?

The REA supports the adoption of the p/kWh metric as sees it as the primary metric utilised by both the public charging industry, and preferred by drivers, in the UK.

Q20: Do you think the government should allow chargepoint operators to have the flexibility to determine how the cost of charging, the energy consumed, and the total cost of a charging event is made available to a consumer?

The REA strongly supports the ability for the charge point sector to set its own prices and commercial arrangements, particularly with landlords, energy suppliers / grid network operators, and on-site retailers. Whilst Government should intervene to mandate p/kWh as a primary metric for the sale of electricity as a baseline, other charges should still be permitted to ensure that business cases for charging 'stack up' and that CPOs are able to have some control over how long an individual vehicle is using a charging unit or charging space, specifically:

- Connection fees
- Time-of-Use pricing
- Overstay charges
- Parking fees
- Free charging
- Discounted charging as part of third-party loyalty schemes, e.g. supermarket points schemes

The REA is aware that some operators in other markets that have the p/kWh requirement choose to present the p/kWh as lower than is commercially the reality to drivers to make themselves look more competitive (as the operators will make their margins on other associated fees such as parking). The REA does not believe that this issue is of significant enough concern at this stage in the UK for Government to intervene in the issue.

Q21: Do you think the government should allow the exemptions to the p/kWh proposal and are there others we should consider?

The REA is supportive of the p/kWh proposal so long as other types of charges remain acceptable. The REA would support the creation of a technical guidance document by the

OPSS or other authority who will be enforcing these regulations that lays out options for how Government would like p/kWh and other charges to be laid out.

The REA notes that a CPO should only be responsible for displaying p/kWh prices that they set themselves – note that CPO integration with an MSP sometimes results in higher or lower costs than the CPO's standard rate to end drivers who are using that MSP service.

Prices displayed should also be at a location-specific level rather than a network level to allow for operators to set their pricing depending on different charge point locations and speeds.

Q22: Do you think that Measuring Instruments Regulations-compliant meters should be mandated for newly installed and renewed chargepoints to ensure the energy provided to a vehicle is accurately recorded?

The REA is open to MIR-compliant meters to be installed in new and renewed AC charge points but is strongly opposed to Government mandating MIR meters on new and renewed DC chargers either in public or private settings. Evidence from Germany, which will be submitted by individual member companies directly to OZEV, indicates that the requirements for DC metering under their recent Calibration Law has significantly inhibited the rollout of DC rapid charge points in the country as:

1. MIR-complaint DC meters do not currently exist in the market, with the regulations originally drafted for AC meters
2. Those companies that do bring MIR-compliant DC meters to market in the short term are likely to do so at prohibitively high costs, which will slow deployment of DC charging infrastructure and inflate its cost to drivers.

The REA also notes that there are already controls in place within the sector to ensure that customers are being accurately billed for the volume of power being delivered to a charge point. Specifically, we note software in most vehicles that stops a charging session if there is greater significant discrepancy between the power reported to be delivered from the charger and the power being received by the vehicle as part of the charger-vehicle 'handshake'.

Q23: Do you think that all chargepoints should have a Measuring Instruments Regulations compliant meters?

See answer to Q23 above. We would welcome as a first step Government mandating that electricity sold is displayed in p/kWh, and then conducting further work to more specifically identify where there are billing accuracy issues and regulating based on that evidence.

Reliability

Q24: Do you think that a reliability standard should be set?

The REA is supportive of high levels of reliability in public charging equipment. A 99% reliability standard is an ambitious target and one that the REA is urging the industry to work

towards. The REA welcomes Government setting this ambition but, following discussions with members, there are a range of views as to its immediate implementability. Some members are already able, or nearly able, to achieve this standard and others are on a journey towards it.

The REA believes that market pressures from drivers, fleets, and other consumers on charge point operators is improving the reliability of the public charging network and that it is increasingly unviable from a reputational perspective for most charge point operators to have major uptime issues at sites on their network. The recent emergence of driver-facing surveys and CPO reliability rankings, for example by Zap-Map, is in our view are having a real-world impact on the reliability of individual charging networks and the network overall.

We would welcome Government requiring CPOs to make available to consumers data (via a 'red-light' 'green-light' system outlined in Q8) relating to whether a charge point is operational or not, so consumers are able to better plan their journeys and can more visibly identify charging networks with a good level of reliability.

To provide context to our response, we note that there are many reasons for a charge point to experience a 'fault' and not work (or to default into free-vend mode). These include:

- hardware failures, either due to wear or damage, both in the charging unit, the power supply, or the cable itself,
- dirt or other debris in the cable interrupting the charger-vehicle digital 'handshake',
- the CPO's back-office software or eMobility Service Provider experiencing a fault, either due to an error, software bug, or security incident,
- issues arising from third-party roaming service providers,
- fluctuations in the 3G or 4G mobile network signal, which is at times weather dependent and patchy depending on the location of the charger (we note most public charge point manufacturers connect to back offices via the GSM mobile network and are not 'hardwired in' with a telecommunications cable directly connected with a charge point),
- the SIM card provider or SIM card itself,
- issues with a particular vehicles' software connecting with a particular charging or back-office unit,
- issues with electricity supply, stemming from a loss of power to a site or a unit.

Furthermore, when there are faults with charging infrastructure that cannot be addressed remotely by a charge point operator, roaming provider, equipment manufacturer, or eMobility Service Provider, it is typically up to a CPO to instruct a maintenance team visit a site. CPOs often have Service-Level Agreements (SLAs) with installers or product manufacturers, and landlords often have SLAs with CPOs themselves, to fix faults within a certain amount of time. However, the ability to procure and replace equipment, depending on the fault and model, can take time (that is often outside of a CPO's control).

Most REA members build in an equipment replacement cycle (depending on if it is AC or DC, and expected utilisation) into their business models and other charge point operators with

'legacy' (7+ years) infrastructure have recently made announcements to retrofit older equipment.

To inform our response, the REA investigated and evaluated out a number of possible interventions that the Government could make in the maintenance space:

Intervention 1 **(not seen as viable)** – Government requires reporting of charging network performance to the Office for Product Safety and Standards:

Under such an intervention:

- CPOs over a certain size annually submit a report to Office for Product Safety and Standards (OPSS)
- Report details overall network uptime, and reasons for outages (differentiating between telecoms, hardware faults, cable faults, vehicle faults, electricity network faults, and damage caused by third-parties)
- OPSS reviews and publishes a high-level annual report with a score
- OPSS can appoint an auditor for networks (e.g. Energy Savings Trust)
- OPSS can fine individual CPOs for lateness of reports and for poor scoring based on their assessment of the factors within the CPO's control
- CPOs need to negotiate distribution of liabilities with partners including EVSE OEMs and landowners

The REA identified such a sweeping intervention and set of requirements as unviable as it would require high compliance costs for CPOs. Additionally, it would require significant re-negotiation of contracts between CPOs and landlords, equipment manufacturers, service providers, and other entities which would result in high costs and risk being applied to businesses with exiting commercial arrangements in place. Additionally, it does not address a CPO's exposure to the viability of vehicle software, for which the REA has already identified several vehicles on the market that experience issues when connecting chargers from particular EVSE manufacturers.

Intervention 2 **(the REA's leading short-term option)** – Government requires charge point operators with equipment that is not in a good state of repair to remove them from public charge point maps within 24 hours.

The REA would welcome a simple requirement from Government on CPOs to be removing charge points that are broken or not available for customer use from public charging maps within 24 hours of their being a fault. We see this as being a reasonable first-step intervention which would ensure consumers are better able to journey plan. Technical guidance, developed between Government and industry for under what conditions and timescales a CPO should be removing sites from third-party maps, should be produced following legislation and periodically updated.

Intervention 3 **(the REA's leading long-term option)** – Government creates the conditions for charge point operators to communicate out state of repair ('red-light' 'green-light' system) to drivers so they can make informed decisions.

The REA would welcome Government funding module development of OCPP and OCPI so that back-office service providers to CPOs (and CPOs themselves) are able to simply gather, amalgamate, and communicate out state-of-repair data under a 'green light' (charger is in operation) and 'red light' (charger is not in a good state of repair and drivers are not advised to try and use it) system to drivers. We note that there is likely a 12-month lead time for the delivery of this standards development work by the EV Roaming Foundation and a likely 12-month delivery timetable by CPOs and back-office providers to implement this. Further details on this system can be found in Q8.

The REA sees this intervention as being the best enduring intervention given the costs/benefits to drivers and CPOs, and is a clear reputational incentive to CPOs to be ensuring good reliability of their networks.

If reputational impacts alone are not enough to compel good maintenance rates, the Government could use this 'red light' 'green light' system to more easily track maintenance issues and levy fines on underperforming operators once it has come into force in the mid 2020's.

Intervention 4 **(a complementary option to Interventions 2 and 3)** – Government sponsors the creation of a 'gold standard' maintenance regime so consumers can easily identify the most well-maintained charging networks.

The REA is supportive of the Government sponsoring, in addition to the open maintenance data proposals above, a 'gold-standard' scheme where charge point operators can be certified as having 'well maintained' networks by a third-party. The REA's subsidiary Renewable Energy Assurance Limited (REAL) has significant experience in scheme creation and management, and currently runs the Renewable Energy Consumer Code, Green Gas Certification Scheme, EV Roam, and EV Consumer Code for Home Charge Points.

A third-party scheme would set out definitions for uptime across AC and DC (or along the lines of charger speed – different for rapid and fast) charging networks in line with Government expectations of 99% reliability and annually would certify charging networks that met such uptime targets and response times for different faults at different sites. Annual reports could be submitted by participating CPOs to the scheme and if scheme criteria were not met then certification could be removed. CPOs approved under the scheme could then promote that it is complaint to drivers directly or via third-party apps and data services to encourage brand loyalty. CPOs would pay a small fee to the scheme for participation to manage administration costs.

Q25: Do you think that the 99% availability standard should be set on a fleet average basis?

We believe a fleet-average basis is approperiate.

Q26: Do you have any other suggestions to achieve a more reliable network?

See answer to Q24.

Q27: Do you agree a one-year lead time for operators to achieve reliability compliance after the regulations come into force is sufficient to implement the reliability proposals?

See answer to Q24.

Q28: If the reliability metric across fleets was enforced, we propose that there should be exemptions from the availability target that are out of the operator's control. What types of failures should be exempt?

As outlined in Q24, the REA prefers a data-led solution that enables drivers to make more informed choices as to the chargers they use. There are numerous potential faults that are outside of a CPO's control, particularly when there are issues with vehicle-related software and/or hardware.

We would welcome an enforcement and compliance regime, led by the Office for Product Safety and Standards, for the data-led solution we have suggested in Q24.

24/7 Customer Service

Q29: Do you think the government should mandate that chargepoint operators provide 24/7 call centres? Should we mandate this be low-cost or free-to-call?

The REA supports the uptake of 24/7 customer service hotlines for drivers. The REA notes our involvement in the work of the EV Energy Taskforce in mapping customer complaint journeys with Citizens Advice and several Ombudsmen. The REA's membership largely already offers this service to drivers and are supportive of it being made a requirement in the UK market. Charge Point Operators should enable access to (but not necessarily provide themselves) 24/7 support but this should be online chat or phone, or a combination of both. We do not have a view as to whether this should be free-to-call or if there should be a cost associated per call levied by the CPO or service provider on a customer.

Q30: Provide any cost and consumer data you may have to support a detailed assessment of these impacts (provide separate data for minimum payment methods, roaming, open data, price transparency and reliability).

REA members will input directly regarding costs.

Q31: Do you think there are other impacts that have not been identified? If yes, what other impacts are there that you think have not been included (provide supporting evidence)?

N/A

Q32: Are there any groups you expect would be uniquely impacted by these proposals, for example small businesses or people from protected categories? If yes, which groups do you expect would be uniquely impacted by each of these proposals? Provide supporting evidence.

No response.

Q33: Do you have concerns about consumer protection related to the use of public chargepoints that haven't been discussed in this consultation? Please provide reasons, analysis or evidence on what other consumer protection issues should be considered by government in the future.

The REA awaits the work of the EV Energy Taskforce on consumer protection and mapping the consumer complaints journey at public charge points to inform our thinking on this issue.

The REA would welcome the publication of detailed plans on how it intends to address the issue of 'ICEing', whereas a petrol or diesel 'Internal Combustion Engine' (ICE) vehicle parks at an EV charging bay and blocks it from use for electric vehicle drivers.

Accessibility

Q34: Do you agree with the accessibility issues raised?

The REA supports Government action to ensure disabled drivers are able to easily locate suitable chargers depending on their accessibility requirements.

The REA and members are working with Motability and others to clearly define the different types of access issues currently being experienced with existing infrastructure and to set out, with the British Standards Institute, a system for standardised requirements for CPOs if they wish to label their particular charging locations as 'accessible' to different user groups.

Q35: Are there any accessibility issues we should regulate on?

We do not think Government should intervene in the market until the outputs of Motability's work are published and industry is able to review them. We would welcome the BSI developing a PAS outlining the different requirements that CPOs need to comply with if they wish to label different charging sites as 'accessible' to different user groups. We do not support any requirements on charge point operators to retrofit existing equipment (unless it does not comply with existing requirements under the Equality Act), or any general mandate that requires all charge points to be 'accessible' as this needs to be broken down to specific user types and solutions.

Charge Point Operators should be able to use the PAS to label their units as accessible where approperiate and Government should enable the open data architecture it is designing to

allow for a standardised means of CPOs communicating this to the disabled driving community so they can easily identify chargers that will work well for them.

The REA also notes that 'ICEing', where a petrol or diesel vehicle blocks an electric vehicle charging point, is an accessibility issue for EV drivers (though not necessarily relating to disability) and should be addressed by Government,

Q36: Should there be standards that are enforced/brought in across chargepoints (such as payment height and instructions)? If so, what standards?

The REA looks forward to working with Motability and the BSI to develop specific standards depending on disability type so that different sites that are accessible to different disability groups can be easily communicated to drivers.

Q37: Do chargepoint operators need to provide supervised stations to help assist those with accessibility needs?

We do not support Government intervention which would require supervised stations – this would undermine most AC charging and many DC charging commercial models. CPOs should be allowed to make commercial choices to provide supervised sites where approperiate, and government should provide a framework for defining and supporting disabled drivers to charge which industry can then opt to comply with.

Weatherproofing

Q38: Does the lack of weatherproofing and lighting at most chargepoints require improvement? If so, what would this look like in your view?

Akin to our answers to questions on maintenance and disability access to public charge points, if central Government has concerns about lighting and weatherproofing we would welcome action to create standardised definitions for what a 'well lit' and 'weatherproofed' charge point looks like (likely via the BSI) and a standardised open-data structure by which sites that achieve the standardised definitions are able to be promoted to drivers. Requiring all AC and DC charging units at different speeds and locations would be detrimental to the rollout of affordable infrastructure at a host of locations. For example, requiring minimum lighting conditions for onstreet residential charging infrastructure that are the same as DC rapid charging locations would impact local residents' charging experiences and would create problems for developers looking to secure onstreet planning permission. The same applies for weatherproofing – requiring a cover to a charger may undermine many companies' ability to secure 'permitted development' status for their equipment, slowing rollout.

Q39: Should any improvement apply to all chargepoints or those in specific locations? If specific locations, can you identify which?

The REA would like to see specific 'well lit' and 'well covered' requirements be determined by the British Standards Institute or other industry-led scheme, with breakdowns by charging speed, type, and location, and relevant charge points that comply can then officially list themselves as 'well lit' or 'well covered' on charging maps or via Government's open-data system.

Signage

Q40: Is signage to chargepoints an area that requires improvement? If so, what would this action look like in your view?

The REA understands that most drivers currently locate charge points via apps or other online platforms. We therefore welcome basic static location information being required under Government's proposed open-data system.

For AC onstreet and destination charging points, we see it largely the responsibility of local authorities to be providing good signage for charge points. Government and the Crown Commercial Service should be encouraging local authorities to be promoting onstreet and destination chargers, as well as semi-urban charging hubs, to local residents via procurement frameworks and tenders for charging infrastructure.

For DC rapid charging at Motorway Service Areas, standardised signage is required – not only to indicate if there is EV charging, but:

- Where it is (in car park, on fuel forecourt)
- How many stations are present
- The network operator
- The types of connectors available

Government should draw up proposals for consultation on this.