



THE ASSOCIATION
FOR RENEWABLE ENERGY
& CLEAN TECHNOLOGY

REA Roadmap – options for consulting on roaming

Final for presentation to OLEV

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Background

- Market for EV charging payments and roaming has advanced considerably in the UK in the past 12 months
- Growing driver, fleet, auto OEM and governmental frustration with lack of roaming and other payment-related public charging issues
- Government is intending to consult on roaming in forthcoming 'Consumer Offer' consultation (Q4 2020)
- REA concerned about potential options for roaming being considered by Government, and has drafted preferred language if the Government is to consult on this issue

Other:

- REA establishing [EV Roam](#) to assign IDACS compliant IDs to eMSPs and CPOs using OCPI to roam



REA principles for roaming in the UK

The below principles have informed our process to date:

- **Beyond ad-hoc:** *any definitions adopted should built 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 peer-to-peer 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*



Draft accompanying definitions for consultation

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: Charge point operators and e-mobility service providers entering into agreements between each other or with an intermediary body that enable customers to use one membership account to access and pay at the stations of multiple charge point operators.



Lead options for consulting on roaming

- Following 5 months of testing ideas and consulting members, REA has developed two lead options – ‘soft’ and ‘firm’
- REA to provide overview of strengths and weaknesses of each option
- REA suggests Government consult on multiple options and start from the question ‘what do we need to achieve and by when’
- There remains some division within the membership and wider sector, including within the part of the sector which is very pro-roaming, about the preferred way forward



REA member list

- Presentation of external Excel spreadsheet with full list of active REA EV Forum members.



Firm Option: Government requires all public Charge Point Operators to publish a public roaming tariff 1/2

Regulatory option: *All Charge Point Operators in the UK are required to publish and maintain a roaming tariff. This tariff should be the minimum price a CPO would accept for a third-party eMobility Service Provider to pay per kWh to access their charging sessions. Charge Point Operators should also publish terms of payment (e.g. expected payment timeframes).*

Roaming tariffs should be, at maximum, the highest ad-hoc price charged by a Charge Point Operator.

Charge Point Operators should allow access to a charging station from an eMSP who is willing to pay the roaming tariff, agree to the published terms, and who meets a minimum level of baseline criteria.

CPOs with fewer than 100 DC public charging stations and/or 500 AC stations can satisfy these regulations by registering with one recognised roaming hub.

Government should publish and update a list of recognised roaming hubs, which includes Hubject, Gireve, and Plugsurfing.



Firm Option: Government requires all public Charge Point Operators to publish a public roaming tariff 2/2

The UK Office for Low Emission Vehicles will nominate an organisation to maintain a public list of roaming tariffs and payment terms which can be amended by Charge Point Operators if tariffs change.

Government should appoint an independent Authority to monitor the market annually to ensure compliance. The Authority should have powers to fine non-compliant entities.

Government should mandate that roaming is delivered via open protocols, but not specify any particular protocol.

These regulations should apply to public and council –owned charge point networks. These regulations should not apply to private (automotive manufacturer – operated) networks.



Firm Option: Criteria for eMSPs

eMSPs who wish to gain access to UK CPOs through this regulation must meet minimum criteria (below). eMSPs that do not satisfy this criteria can still operate in the market but CPOs would not be compelled to work with them.

Option 1: *Minimum baseline criteria will be published and updated annually by OLEV or another organisation, and relate to level of technical development, size, and business processes. See Annex 1 for draft criteria (see slides 10-13).*

OR

Option 2: *Only FCA-regulated eMSPs are able to secure access to all UK CPOs under this regulation.*

- Industry and government would need to work with FCA to deliver a regulatory regime which ensures minimum cyber security levels and payment processes by eMSPs.



Firm Option - ANNEX 1

Potential topics that an eMSP must adhere to if they want to comply (to be updated semi-regularly by Government or industry body) are outlined below. These are based on eViolin minimum eMSP criteria ([link here](#)), and are included to alleviate some CPO concerns about having to integrate with all third-party eMSPs.

- *When authentication of an EV driver at the charge point is done, this is at least possible via access system based on NFC (Near Field Communication) with radio frequency of 13,56 Mhz and NFC Tag 1- functionality according to ISO/IEC 14443A*
- *CPO's accept NFC Mifare Classic 7 byte charge tokens. MSP's only distribute 7 byte tokens.*
- *The MSP is responsible to inform his/her EV drivers / customers upfront about the tariff of charging at any charge station when using a subscription token of this MSP. This is the tariff the MSP will bill towards the EV driver*



Firm Option - ANNEX 1

- *All tariffs shown towards the EV driver must be understandable and without hidden cost.*
- *For their EV driver contracts, MSPs use unique coding according the eMI3/ISO 15118 standard concerning IDs*
- *Authentication risk (e.g. fraud, cloning) of tokens is the risk of the MSP.*
- *To enable the CPO helpdesk to support the EV driver, the MSP provides to the EV driver sufficient information to identify his contract/card.*
- *New or modified tokens are available within 24 hours on the charge point of the CPO.*
- *CPO's and MSP's must be registered with at least one organisation for ID management with the ID for it's CPO and/or MSP organisation.*



Firm Option - ANNEX 1

- *The CPO's deliver direct (real time) after a charge session Charge Detail Records (CDR's) to the MSP's as required by consumer right regulations, latest by 1st January 2020.*
- *Before the CPO sent the CDR, the CPO does validation check on the values to prevent sending wrong values (e.g. impossible values in combination with a certain charge point).*
- *For their EV driver contracts, MSPs use unique coding according the eMI3/ISO 15118 standard concerning IDs*



Firm Option - ANNEX 1

Questions from customers/EV drivers about the cost of charging are always directed to the MSP.

If there are doubts on the correctness of CDR, the MSP can send a request for information to the CPO. This request contains the CDR_ID and a description of the complaints.

Within 5 working days, the CPO replies to the MSP containing:

- The original CDR or the charge point logging of it*
- Which data are validated*
- Answer / reply to the complaint.*

If this answer is not sent within the agreed period and the concerning data is not validated, the MSP has the right to not pay or settle the cost of this CDR with the CPO. This is only possible for CDR's that are delivered the last 90 days.



Funding to deliver Firm Option

In order to manage the cost for CPOs of delivering the Firm Option, the Government should:

- Provide funding through Innovate UK to address technical issues emerging in the roaming market, including around the standardisation of APIs and around ensuring that customer data (also known as digital identify) remains intact as it is passed between market actors (£100k requested initially).
- Create an additional one-time pot of funding that CPOs can apply for which would help them cover the costs of eMSP integration when this regulation first comes in.
- **OPTIONAL:** Government could provide a pot of funding to update 'legacy infrastructure' which could be preventing some networks from embracing roaming.
 - This point is controversial within the membership.



Firm Option - Strengths

Strengths:

- Ensures a minimum level of roaming without Government being prescriptive
- Allows for alliances and strategic partnerships to be made - CPOs & eMSPs are still free to form deals at rates below the public roaming rate, either negotiated bilaterally or via a roaming hub
- Integrates with existing processes – e.g. Gireve already requires CPOs to publish a roaming tariff
- Enables membership models to continue - companies who offer a p/kWh discount to those who pay a monthly membership would be able to publish a roaming tariff similar to the non-membership price and their members would maintain their benefits.
- Avoids situation where CPOs are being forced to comply with terms and prices they are not comfortable with.
- This may result in roaming in some instances to be as expensive as the normal ad-hoc price but guarantees a minimum level of coverage, ease, and integration between market participants



Firm Option - Strengths

Strengths:

- This option would alleviate the need for Government to mandate contactless credit/debit card payment on AC charging stations
- Allows for business models where access to AC charging stations is via Apps or QR codes.
- These regulations should satisfy many Government concerns around the safety of users at charging points, particularly if they struggle to pay and have a low vehicle battery.
- This would increase the ease of 'guest' (non member) use of charging networks, which supports the ad-hoc regulations required under the Alternative Fuels Infrastructure Directive.
- Requiring baseline criteria for eMSPs controls the quality of the market and ensures CPOs are doing business with quality partners
- This option would send a clear message to automotive manufacturer, fleets, EV consumer groups, and others in the sector that the payments issue is being firmly addressed.



Firm Option - Weaknesses

Weaknesses:

- Requires resources from CPOs to develop a solution and integrate with eMSPs
- Concern about the number and size of eMSPs that CPOs would need to integrate with & associated required resources (est. £10k in legal and development costs per roaming agreement for those already with OCPI)
- Some older charging stations will need to be replaced or upgraded to be compliant
- Further work needs to be done around consumer data as it is transferred between market participants
- Requirements on eMSPs could impact new entrants to market
- Could result in high roaming tariffs for drivers
- Places limits on freedoms of CPOs to choose eMSP partners, potentially exposing CPOs to eMSP partners with poor reputations (particularly if controls on eMSPs are not introduced)



Firm Option - Roadmap

REA roadmap to delivery:

- September 2020 – Government develops it's 'lead option' solution internally and pitches this to Ministers
- December 2020 – Government formally consults on their preferred options
- June 2021 – Government confirms intention to mandate REA vision of roaming solution
- June 2021 – Innovate UK funding competition opens
- June to December 2021 – UK CPOs are able to bid for funding to address industry questions (e.g. around digital identity) and to upgrade older infrastructure
- June 2022 – CPOs publish roaming tariffs and regulations come into force.



Soft Option – Regulatory Text

Regulatory Option: *All Charge Point Operators receiving public funding and all eMSPs are required to adopt open roaming protocols.*

- Questions to be defined on this include whether this is retroactive, and if this is just central funding or if it can be also applied to funding from LA's and/or devolved nations
- REA expects that this would result in the acceleration of an existing trend – the adoption of OCPI
- REA would not want to see OCPI explicitly mentioned in regulation however.



Soft Option – Strengths and Weaknesses

Strengths:

- *Simple, not overly prescriptive, easy to monitor and allows for commercial flexibility*
- *Does not set a particular protocol into regulation but establishes the principal of open protocols – greatly reducing costs for integration between CPOs / eMSPs*
- *Defines market participants and roles which can lead to more clearly defined and standardised responsibilities and practices*

Weaknesses:

- *Does not facilitate 'full roaming'*
- *Does not ensure that all parties will participate in the roaming market in some way*
- *Does not send a clear message to automotive manufacturing and feet sectors that the roaming problem is 'sorted'*



Funding to Support Soft Option

In order to encourage the uptake of open protocols and market-based roaming, the Government should:

- Provide funding through Innovate UK to address technical issues emerging in the roaming market, including around the standardisation of APIs and around ensuring that customer data (also known as digital identify) remains intact as it is passed between market actors (£100k requested initially).



Thank you

With questions or to organise follow up discussion, please contact Daniel Brown at the REA – dbrown@r-e-a.net and/or Clive Southwell of Enel X (Chair of the REA interoperability working group)

