



THE ASSOCIATION
FOR RENEWABLE ENERGY
& CLEAN TECHNOLOGY

**The Future of Payments for EV
Charging:** *how will consumers pay
to use public EV charging
infrastructure by 2030?*

6th July 2020, 11:00am

Kindly sponsored by:



Agenda

Welcomes from Scott Edy, UK Business Development Manager, Virta (Chair)

- **Christelle Verstraeten, ChargeUp Europe (12 minutes)**
 - *An introduction to the key trends in, and EU policy relating to, EV payments*
- **Donald Hopper, Founder & CEO, EVA Global (12 minutes)**
 - *On the consumer experience of payments across the UK & Europe*
- **Daniel Brown, Policy Manager & EV lead, REA (12 minutes)**
 - *On the current regulatory framework relating to payments for EV charging in the UK and key innovations in the payments space*
- **Ed Lea, Founder, ChargeFairy (5 minutes)**
 - *On ChargeFairy's vision for mobile charging infrastructure as an alternative to on-street and other forms of public charging.*
- **Tom Hurst, Network Development Manager UK, Fastned (5 minutes)**
 - *On Fastned's experience of payments across multiple market as a CPO*

Followed by Q&A



Presentation

Christelle Verstraeten, ChargeUp Europe

- *On the new European EV alliance ChargeUp Europe, an introduction to the key trends in EV payments, and their vision for how payments develop by 2030.*



EV CHARGING PRICE TRANSPARENCY

CHRISTELLE VERSTRAETEN

SENIOR EU POLICY DIRECTOR

CHARGEPOINT

6 JULY 2020



ChargeUp
EUROPE



A new electric vehicle charging infrastructure industry alliance that has come together to work towards an expeditious and effortless rollout of EV charging infrastructure in Europe.

WHO WE ARE

Our member companies represent over 160.000 charging points across 27 Member States.





PRICE TRANSPARENCY

Core values of ChargeUp Europe

1. To promote a consumer centric model for EV charging in Europe by:

- Raising citizens understanding and support for electro-mobility.
- Promoting open communication protocols and related standards in EV charging infrastructure.
- Providing quality and real-time POI data for all consumers of their networks.
- Ensuring interoperability and choice with regard to authentication and payment systems.
- **Committing to real-time price transparency in every use-case in the networks to optimize driver experience.**

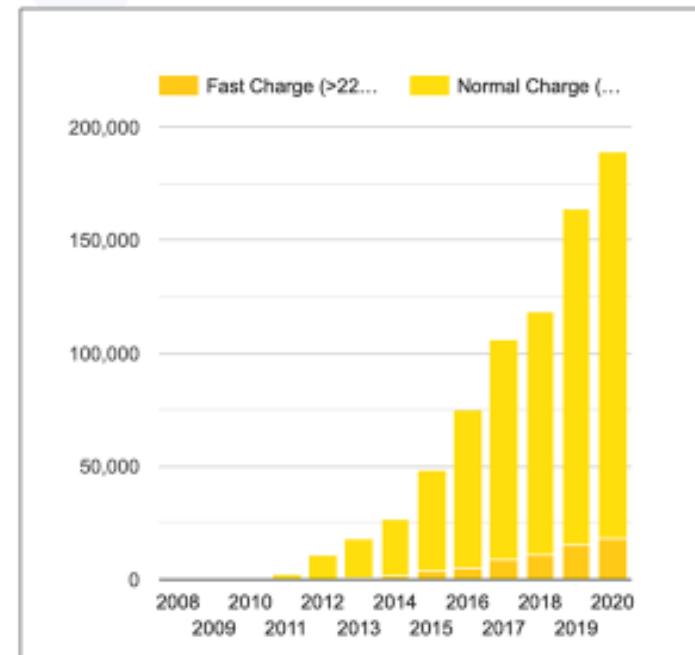
2. To advocate for a predictable, non-discriminatory and market-based regulatory framework for electro-mobility in Europe

3. Work in partnership partnership with our stakeholders to ensure a smooth transition to low emission mobility

The current framework in Europe

EU Directive on « Alternative Fuels Infrastructure » (2014/94)

- Target: only "public" and "publicly accessible" infrastructure
- Obligation for public stations to offer ad hoc charging (art. 9)
- Obligation for Member States to ensure prices charged by CPOs of publicly accessible stations are reasonable, easily and clearly comparable, transparent and non-discriminatory
- Revision of Directive has started, with legislative proposal expected at beginning of 2021

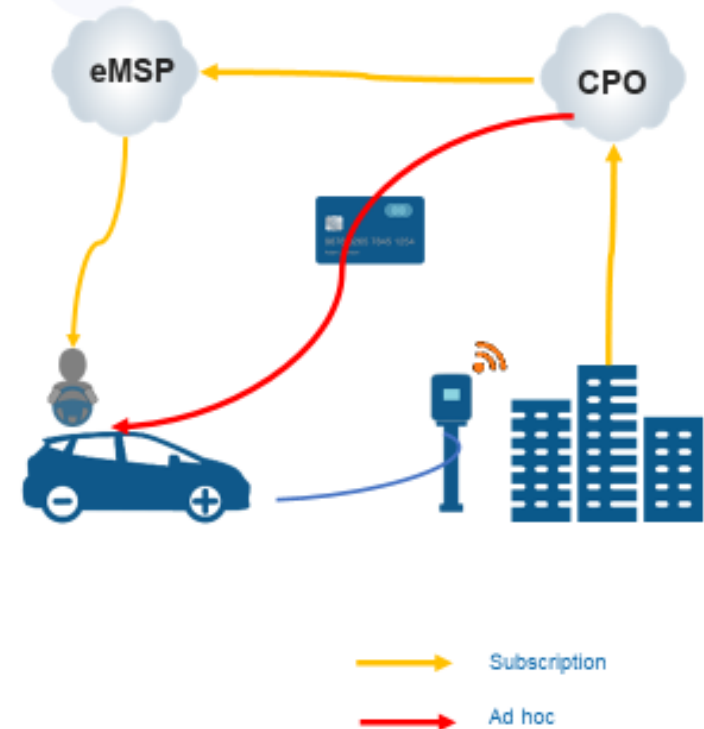


Normal and fast public charging points – EU
28, 2020

Source: EAFO

CHALLENGES

- Ad-hoc charging vs. subscription model
- Time based tariff vs. kWh
- Charging and additional services
- Bill components for full transparency
- Need for harmonization in Europe
- VAT component to be outlined
- Market design
- Arbitrage mechanism





CHARGEUP EUROPE RECOMMENDATIONS

- EU guiding **principles on the type of information** to be displayed
- **Clear information** should be provided to consumers by CPOs and EMSPs on price applied at the station (publicly accessible) **before** starting a charging session.
- Open markets: access should be guaranteed to **all** players



WWW.CHARGEUPEUROPE.EU

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EU Transparency register: 987000037766-14



Presentation

Donald Hopper, Founder & CEO, EVA Global

- *On the consumer experience of payments for EVs across the UK and Europe, derived from EV Assist's experience managing consumer calls at charging points in 18 countries.*



Leading Managed Services Provider in eMobility





25,000+

Charge Points

180,000+

Interactions with EV Drivers

19+

Countries

About Us

Founded in 2017, EVA is a professional services company that creates new value and opportunities for businesses in e-mobility.

Fully dedicated to the mobility industry, when we started, we knew that a relentless focus on a driver's charging experience was how we wanted to contribute to the transition to EVs.

We've been serving drivers and troubleshooting charging stations day and night, and know them better than anyone else. That's why we're able to make operating charging infrastructure easy.

We now serve CPOs and MSPs across Europe and help drivers at more than 25,000 locations across 18 countries, designing and delivering localised customer experiences.

EVA
GLOBAL

Our Solutions

Our specialized teams are ready to fuel your growth and drive mobility into the future.

EVA Assists

Driver support to ensure you deliver superior customer experience – one driver at a time.

EVA Assures

Infrastructure Management as a Service to ensure uptime and availability.

EVA Desk

OCPI Ticketing System compatible with Charger Management, CRM and ERP systems

EVA Assists

Customer Experience



Simple to set up, we offer unbeatable speed to market.



24/7



10 Languages



Shared /
Dedicated



Ticketing
System



CMS
Integration

English, German, French, Dutch, Norwegian, Swedish, Finnish, Italian, Spanish and Portuguese

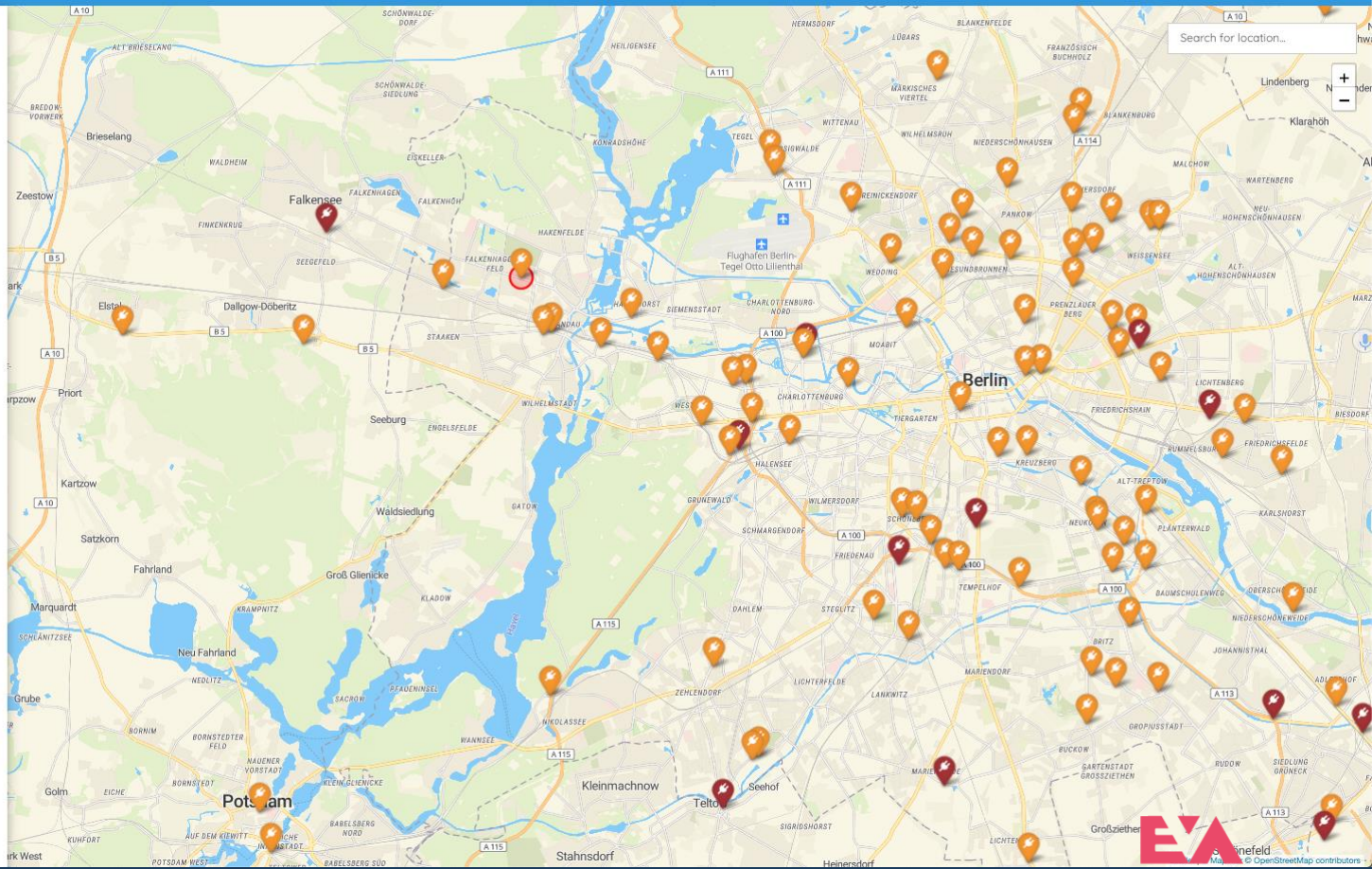


Alternative Fuel Infrastructure Directive

Article 4-10:

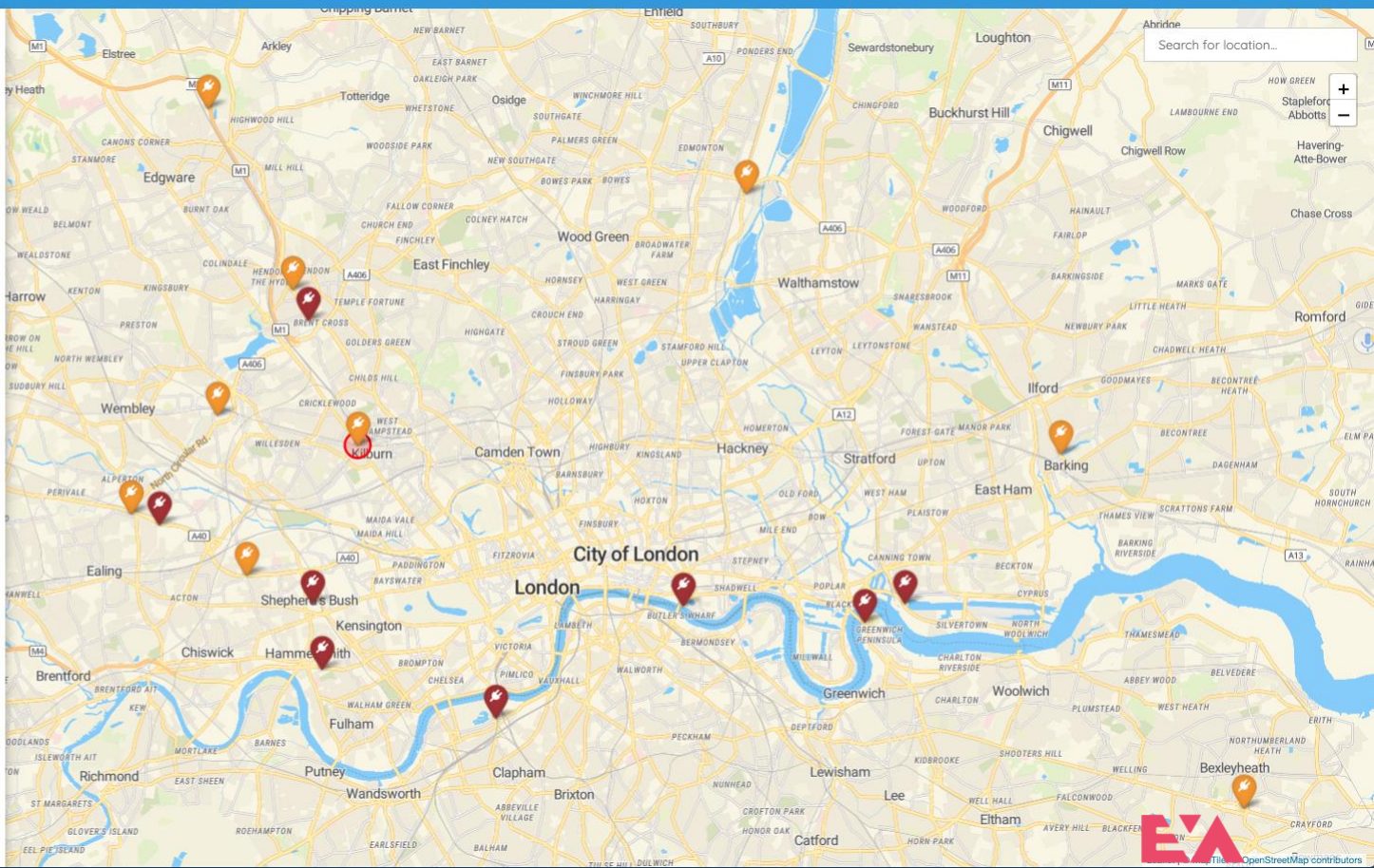
*“Member States shall ensure that **prices charged by the operators of recharging points accessible to the public** are reasonable, easily and clearly comparable, **transparent** and non-discriminatory.”*

Tariff	EUR
Autostrom rhenag	5.00 € 0.10/kWh Session fee
ePower direct innogy eRoaming	7.95 € 0.16/kWh Session fee
Plugsurfing Plugsurfing	10.47 € 0.21/kWh Session fee
EMC Ladekarte EMC	13.19 € 0.27/kWh per ⓪
E-Mobil eins	15.75 € 0.32/kWh per kWh
EinfachStromLaden Maingau Energie	17.09 € 0.35/kWh per kWh
evwqu evway	17.58 € 0.36/kWh per ⓪
e-CHARGE ADAC	19.05 € 0.39/kWh per kWh
GET CHARGE Alpiq	19.05 € 0.39/kWh per kWh
EWE Go EWE / SWB	23.93 € 0.49/kWh per kWh
Standard EnBW	23.93 € 0.49/kWh per kWh
EinfachStromLaden Business Maingau Energie	23.93 € 0.49/kWh per kWh
Move light Move	36.06 € 0.74/kWh 9% Session fee 15% per ⓪ 75% per kWh
inCharge Vattenfall	38.41 € 0.79/kWh



Search for location...

E-Mobil eins	15.75 € 0.32/kWh per kWh
New motion New Motion	16.66 € 0.34/kWh per kWh
evway evway	17.58 € 0.36/kWh per kWh
EinFachStromLaden Maingau Energie	19.54 € 0.40/kWh per kWh
FWS Ladekarte EWS	20.02 € 0.41/kWh 15% per kWh 85% per kWh
SWE App SWE	20.56 € 0.42/kWh 19% Session fee 81% per kWh
Mobil Strom Wels Strom	23.64 € 0.48/kWh 61% per kWh 39% per kWh
Standard EnBW	23.93 € 0.49/kWh per kWh
EinFachStromLaden Business Maingau Energie	26.37 € 0.54/kWh per kWh
Plugsurfing Plugsurfing	26.56 € 0.54/kWh per kWh
Move light Move	36.06 € 0.74/kWh 9% Session fee 15% per kWh 75% per kWh
GET CHARGE Alpiq	38.58 € 0.79/kWh per kWh
X JuicePass Enel Drive	38.58 € 0.79/kWh per kWh



Trust and Interoperability

- Subscribing to one contract might not be enough
- On average, EV drivers still use 2.5 charging cards (Newmotion, Feb 2020)
- 1 CP:10 cars can therefore not be measured accurately
- Opportunity for national governments to organize cross-network compatibility. (eg: MOBI.E in Portugal)
- Driving an EV today is more complicated than driving an ICE.

What have we learnt at EVA?

30% payment related (20% at CP!)

- How can I pay? Directly with my credit card?
- Why the deposit? How much?
- Why so complicated? Why won't I know how much I'll pay until the session has finished?
- Early Adopter vs Mass Market
- Always compared to ICE process

Preferred method by region

Germany: APP

Benelux: MSP

Nordics: Monthly Invoice

UK: NFC

ACCESS DISCRIMINATION

'If you only have one way to pay and it's not a credit card,
I don't want to hear about it'



Future of Payment

- Provide fair and transparent prices, including for ad-hoc payment
- Be available 24/7 on an open and non-discriminatory basis to all users
- Three broad opportunities: improving customer experience, eMaaS, and enabling "car as credit card"



THANK YOU!



Presentation

Daniel Brown, Policy Manager & EV lead, REA

- *On the current regulatory framework relating to payments for EV charging in the UK, how this may be shifting, and key innovations in the payments space that have caught the REA's eye.*



Our Vision

A future built on renewable energy and clean technology

*A world that has surpassed fossil fuels;
where clean technologies and renewable energy
is accessible for all.*

We, the REA, are a coalition *built* to promote renewable energy and clean technologies.



Our Mission

DECARBONISING THE ECONOMY

We are here to help our members build commercially and environmentally sustainable businesses

We do this by:

- **CHAMPIONING** the role and benefits of renewable energy and clean technologies and the new disruptive decentralised business and market models supporting them
- **INFLUENCING** governments, industry and individuals
- **EMPOWERING** renewable energy and clean technology businesses to achieve sustainable growth



Sample of
REA EV
Forum
Members



Automated and Electric Vehicles Act (2018) + Ad Hoc

The **Automated and Electric Vehicles Act** (2018) gives Government the ability to regulate public charge points around:

- Means of payment
- Performance, maintenance and availability
- Provision of chargers, particularly at Motorway Service Areas (MSAs)
- Provision of data

Charge point operators must also comply with '**Ad Hoc**' regulations under the Alternative Fuels Infrastructure Directive.

- Requirement for credit/debit on new DC chargers from 'Spring 2020'



21 Jan / 2020
16:25

Image: Getty.

Alice Grundy
Reporter, Current±



The government is looking into making information on all public chargepoints openly available in a standard format for the first time, it says.

Information including locations, power ratings and whether chargepoints are in working order would be included, with the Department for Transport (DfT) to look at how this real-time information could be published.

This could then be used by developers and incorporated into sat navs and route mapping apps, DfT said.

[Source:](#)



Forthcoming consumer experience consultation

Further efforts to encourage drivers to make the switch include the upcoming launch of a consultation which hopes to make charging electric vehicles just as easy as filling up a traditional petrol or diesel car. It will explore measures such as requiring rapid charging points – which are fundamental for longer journeys - to offer contactless payment, improving transparency on pricing and giving drivers better access to information about the chargepoints available on their journey.

[Source](#)



Consumer experience issues Government is looking at

Under our vision we expect that any new chargepoints will be easy to use and hassle-free.

That means:

- drivers can pay for the cost of charging their vehicle using debit or credit card payment
- information about the chargepoints on motorways will be openly available, helping drivers choose when, where and how they charge
- chargepoints will be available 99% of the time
- drivers will be supported by 24/7 customer care to handle any technical issues
- sites will have chargepoints that support all types of electric vehicles
- there will be clear pricing information available in pence per kilowatt hour

Working with industry, the government will continue to monitor the number of chargepoints being installed across our motorways and the associated customer experience.

We have powers under the [Automated and Electric Vehicles Act](#) to bring in regulations if necessary, to improve the consumer experience of using electric vehicle charging infrastructure and to ensure levels of chargepoint provision at key sites such as motorway service areas.



REA roaming position

The REA's February 2019 report [The Interoperability of Public EV Charging Infrastructure in the UK](#) outlines the basis for the REA's position on roaming:

On ad-hoc payments at public EV charge points: *"Fundamentally, 'ad hoc' represents a solid first step but does not equip CPOs and MSPs with the ability to fully communicate with each other, it does not set the industry up fully for value added and energy sector services, and it leaves room open for interpretation."* (p15)

On the role of Government and roaming: *"Industry needs to develop solutions, potentially through individual networks adopting common roaming protocols such as OCPI, that strengthen their business cases. Direct Government intervention to force companies to adopt particular protocols or business models is not warranted, but support to foster collaboration between networks and for any industry-led schemes would be welcome."* (p36)



REA notable payments developments

A few payments-related developments in the UK over the past 12 months.



Zap-Map's new payment channel Zap-Pay – integrated within app and available to >100,000 users per month

User benefits:

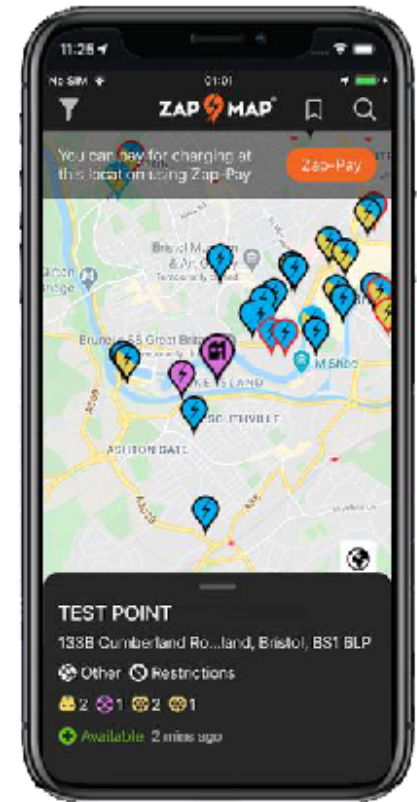
- Single, simple-to-use app to pay across networks
- Real-time session info, charging history, receipts

CPO benefits:

- More PAYG revenue alongside existing channels
- Monthly reporting of customer profiles and user behaviour

Zap-Pay also offers strategic solutions to EV sector:

- Interoperability across all participating UK CPOs/networks
- OCPI data platform to integrate multiple CPOs and MSPs



Plug and Charge will improve the charging customer experience



Streamlined membership



In car charger control



Improved data security



Enhanced roaming



What is the business case to pursue Plug and Charge?



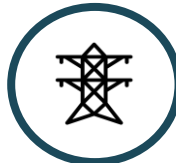
Automakers

Secure ownership of the charging experience?



Tech Players

Capture data and extend the tech ecosystem?



Utilities

Extend customer relationships into the public space?



Simple monthly subscription

Like a phone contract, but for your car. Provides 'coverage' everywhere in the UK with no varying prices/kWh and no extra fees.



Reliable charger data

Constant status checks, user reviews and machine learning provide 4x more reliable charger status/availability data.



Instant access

Your phone is your RFID card. Contactless payment on any charger without the need for a card reader.

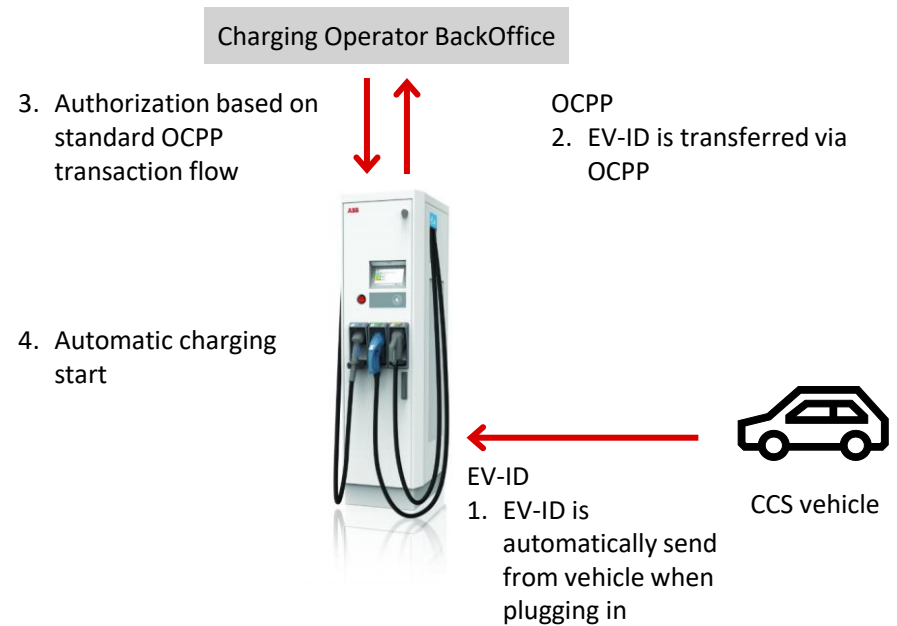


ABB's vision of the future

Plug 'n Play: Autocharge

Currently ABB offers "Autocharge"

- Automatic authorization solution based on open standards (OCPP/CCS)
- During start-up of charging a unique identifier is sent from CCS vehicles. This can be used in standard OCPP flow to identify a car and perform a transaction
- Key benefits:
 - Maximum user-friendliness
 - After first-time enablement, the user can just plug in and walk away
 - Works with "old" and new CCS cars: most CCS cars on the road today (since 2012) send the EV-ID
 - Works with standard OCPP back-ends
 - Limited software changes required, simple implementation



powermyev.co.uk



A free-to-use tool that matches cleantech checks suitability ranks options and validates the numbers

Quick & impartial

Save ££ & lower CO₂

Find an EV that fits



We **compare** EVs to check range is suitable and **rank** clean home energy options by savings, carbon reduction or financial payback using a time-based analysis, incorporating user demand and off-peak pricing

Current framework for payments in UK

Other payment developments to note:

- All Star has launched an electric vehicle version of their fuel card
- Octopus Energy has launched a new roaming service
- Roaming agreements between ChargePoint and other UK players (peer-to-peer)
- Numerous actors have signed up to Hsubject and Gireve (hub model)
- Digital Charging Solutions announced a host of partners



Contact

Thank you for listening!

- Daniel Brown – Policy Manager & EV lead – dbrown@r-e-a.net



Presentation

Ed Lea, Founder, ChargeFairy

- *On ChargeFairy's vision for mobile charging infrastructure as an alternative to on-street and other forms of public charging.*

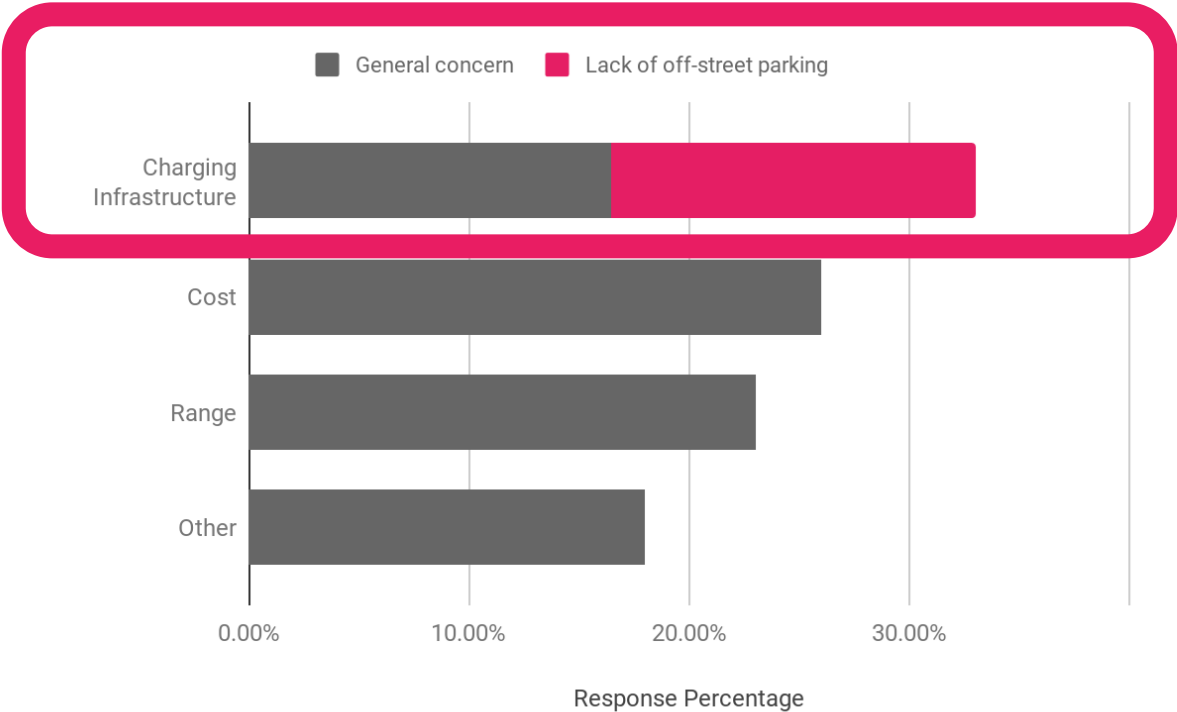




Removing the biggest barrier to electric car ownership

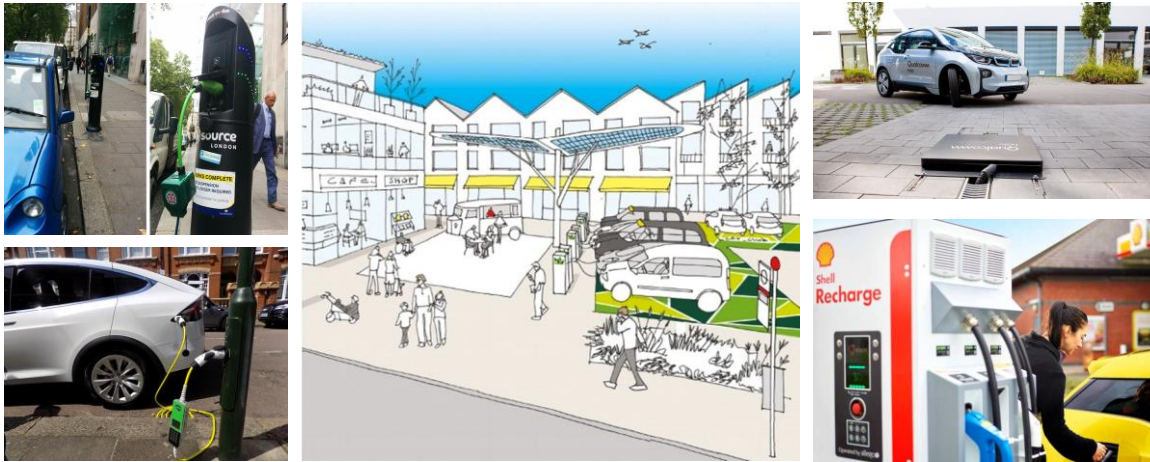
To enable mass consumer adoption of electric vehicles, we must address the charging challenge for the **65%** of urban residents without off-street parking.

Greatest consumer concern is charging infrastructure



Source: BBC Article <https://www.bbc.co.uk/news/business-48340202>, May 2019.

More geostationary chargers aren't enough

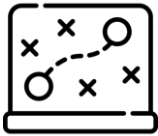


- Deployment of fixed infrastructure can not keep up with EV growth
- Time cost and inconvenience of charging
- Reliability and availability of charge points

Charging as a Service



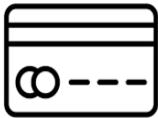
Connect to car APIs to monitor data in real-time



Utilise predictive modelling to create optimised charge routes



Visit and charge car at night as needed, wherever it's parked

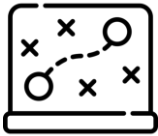


Customer payment taken automatically from linked card

Charging as a Service



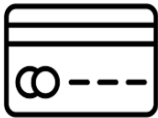
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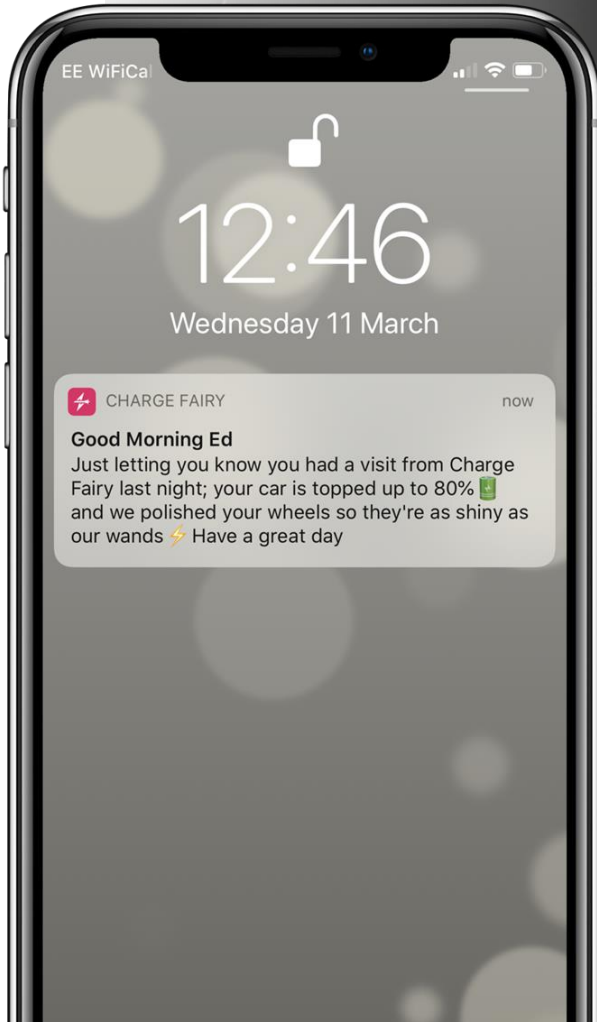
Utilise predictive modelling to create optimised charge routes



Visit and charge car at night as needed, wherever it's parked



Customer payment taken automatically from linked card





Comments

Tom Hurst, Network Development Manager UK, Fastned

- *On Fastned's experience of payments across multiple market as a CPO*





FASTNED

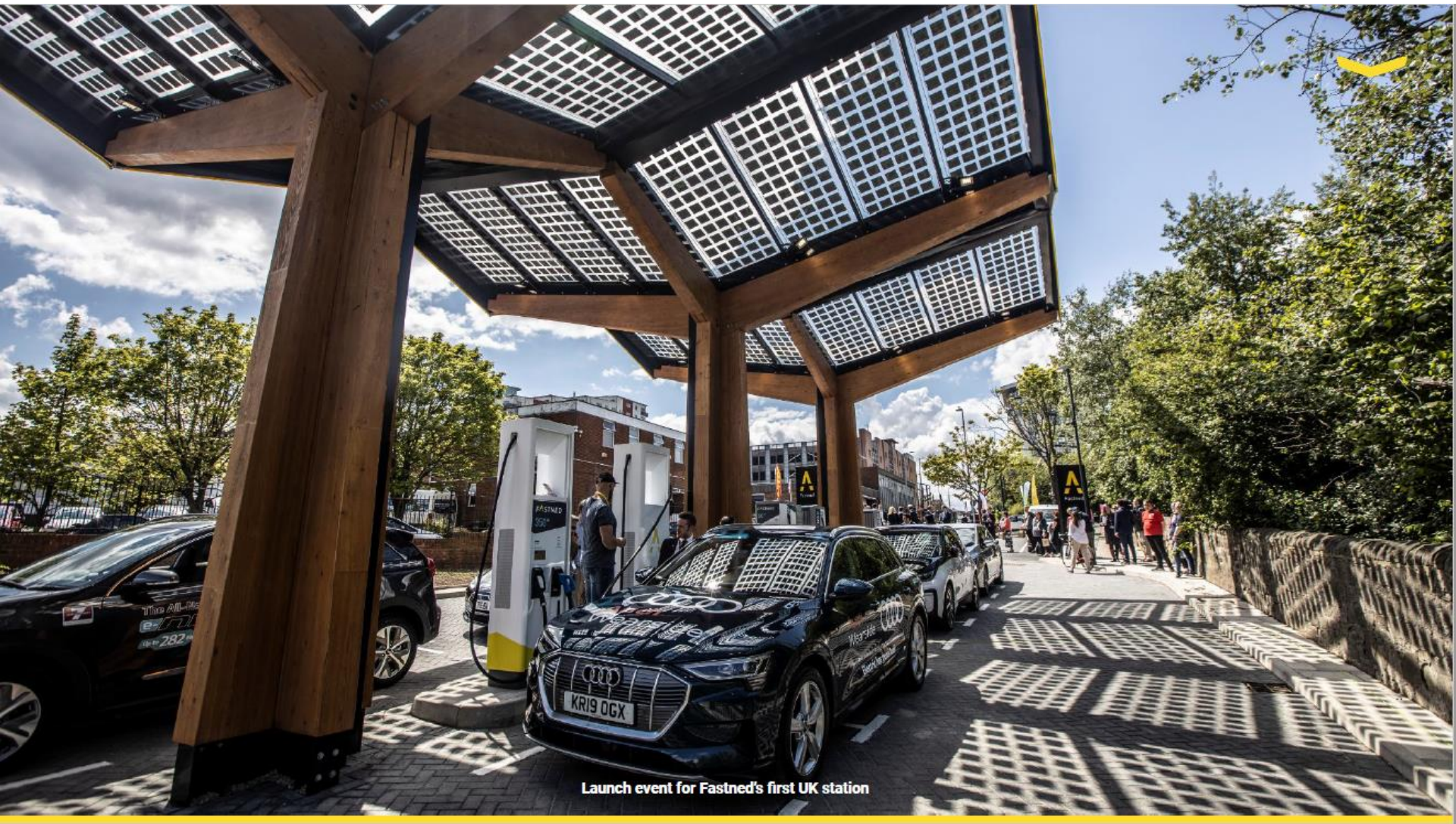
Freedom for Electric Drivers

Tom Hurst, Head of UK Network Development



The EV market is exploding. But how do you create freedom?





Launch event for Fastned's first UK station

The Fastned proposition

- The fastest charging in the country
- Every car on the market is able to charge as fast as possible
- Multiple chargers at scalable, future-proofed stations
- Familiar, drive-through experience
- Customers are protected from the rain under a solar canopy
- Electricity from 100% renewable sources
- Comfortable, safe charging day or night



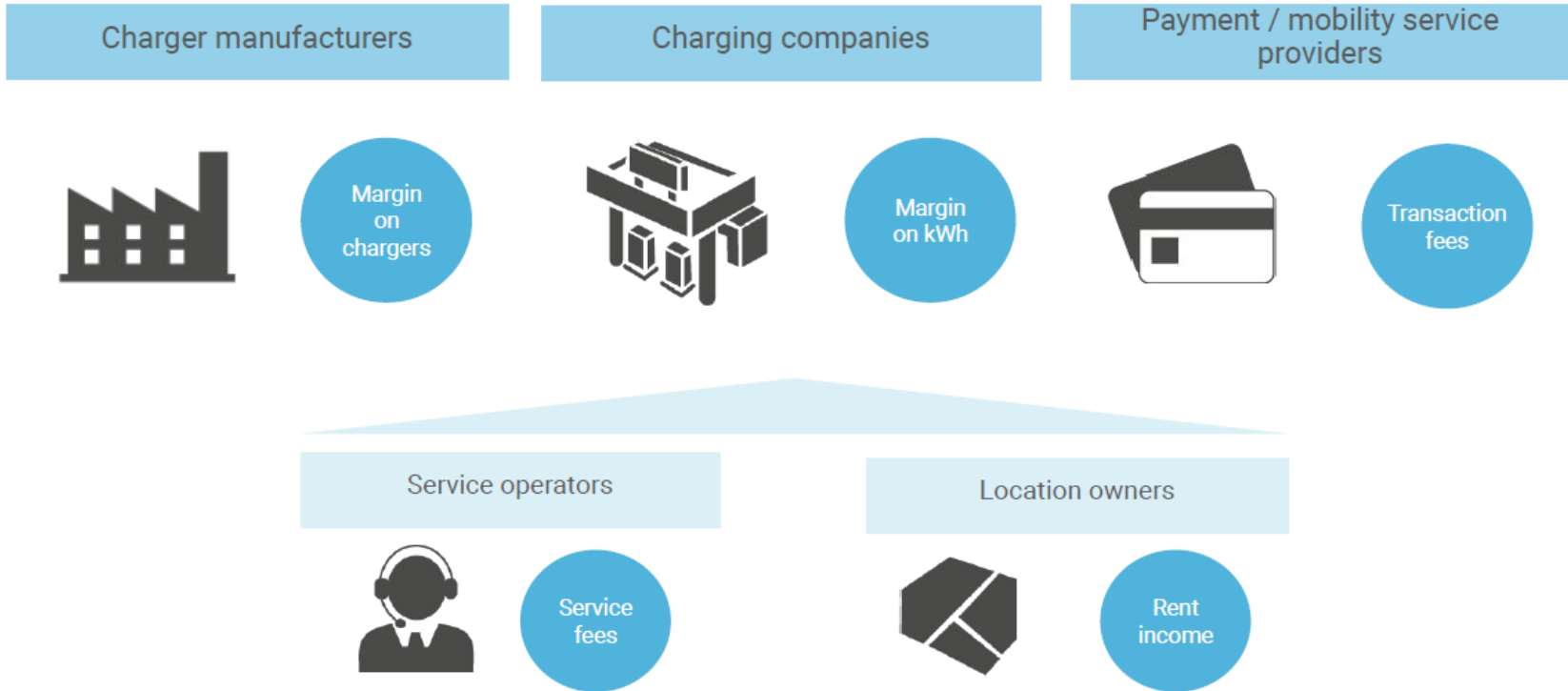
A growing European network: 116 stations and counting



EV Customer Focus



The charging marketplace



Charging at Fastned



Any method you like:

- Credit / debit card
- Apple Pay / Android Pay
- Roaming RFID card
- Fastned App
 - Membership or PAYG
 - Start via phone
 - Register your favourite RFID card
 - **Autocharge**





FASTNED



Q&A

- **Open Q&A with attendees** – please enter your questions into the 'Questions' box on the GoToWebinar panel



Forthcoming Webinars

How do we stay relevant and compliant when engaging with stakeholders in the post-COVID recovery?

At this REA hosted event, we will bring together leading players from across the low carbon sector to discuss the ways in which development planning and community consultation for energy projects can be successfully managed in a socially distanced society.

madano
insight | communication | impact

Speakers Include:

Daniel Brown, Policy Manager, REA

Andrew Turner, Infrastructure lead, Madano

Patrick Robinson, Partner, Burges Salmon, Energy and Infrastructure practice

REA THE ASSOCIATION
FOR RENEWABLE ENERGY
& CLEAN TECHNOLOGY

10.30 - 11.30
Friday 10th
July 2020

Webinar

Please register for
joining information

**Burges
Salmon**

