



# BEYOND FORECOURT

Mobility in a data-driven world

## IFSF 30th Anniversary Conference





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# Integrated fuel retail and e-mobility through the use of industry standards



**Ian Brown**  
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**Kor Meelker**  
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**Sven Renders**  
ICASA



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Dover Fueling Solutions



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# Integrated fuel retail and e-mobility through the use of industry standards

Sven Renders  
ICASA



**ICASA**



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- **Multi-energy BOS/HOS cloud solution for Fuel Retail and EV Charging**
  - Modular features for Logistics, Fuel & Energy, Convenience, QSR, Mobility and Finance
  - We offer our eMobility customers tools to: (1) operationally manage charging stations (2) handle financial settlement/administration
- **Hot topic: enable EV drivers to pay with debit/credit card**
  - RFID card is the most commonly used payment method, but is it sustainable?
    - UX: easy to use, however coverage not guaranteed, pricing not transparent
    - Security: can be copied, no pin code
    - Credit/limit checks: no available credit/limit check in authorization
    - Commercially: no control of pricing to EV driver, margin loss to EMSP partners
  - Ad-hoc payment options obliged by recent European legislation (AFIR)
- **Potential solutions**
  - Separate payment terminal per (group of) charger(s)
  - QR code which redirects to mobile payment options
- **What about integrating payments into existing fuel infrastructure and processes?**





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## EV Charging Stations at the Forecourt

### Kor Meelker

ChargePoint, Director Global Standards

EV Roaming Foundation, co-writer OCPI 2.x - Board member

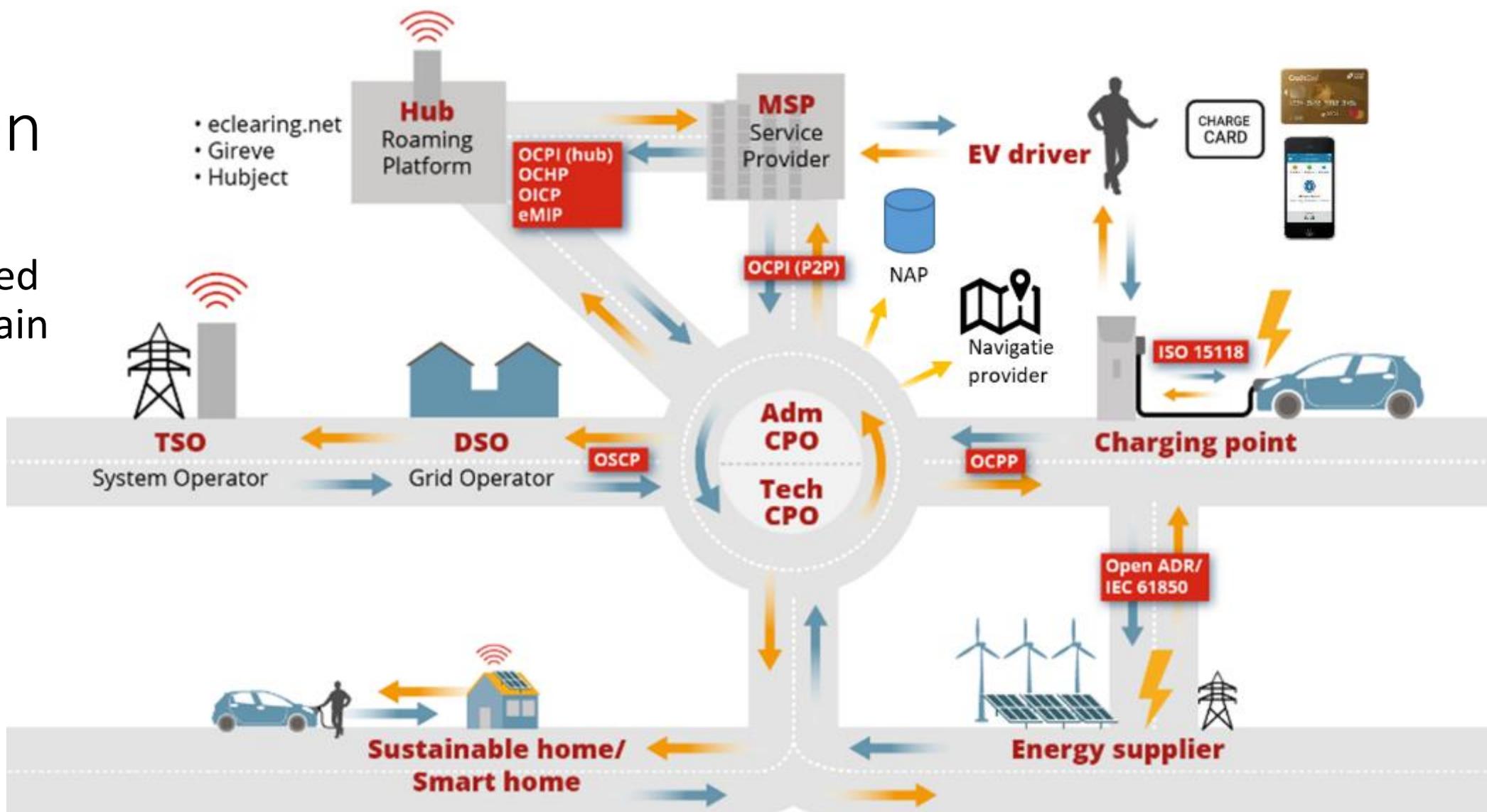
Open Charge Alliance, co-writer OCPP 2.x





## EV Protocollen

- Map of the Protocollen used in the EV Domain





# ACCOUNT BASED EV CHARGING

## Account based charging

- EV Driver has a contract with an eMobility Service Provider
- Process done by CPO and eMSP





# Ad Hoc Charging

- Authorisation and payment done via credit card
- Options for Payment Terminal
  - Integrated in Charging Station, handled by CPO
  - External via POS and OPT, handled by retailer. Needs communication between CPO and retailer via OPCl

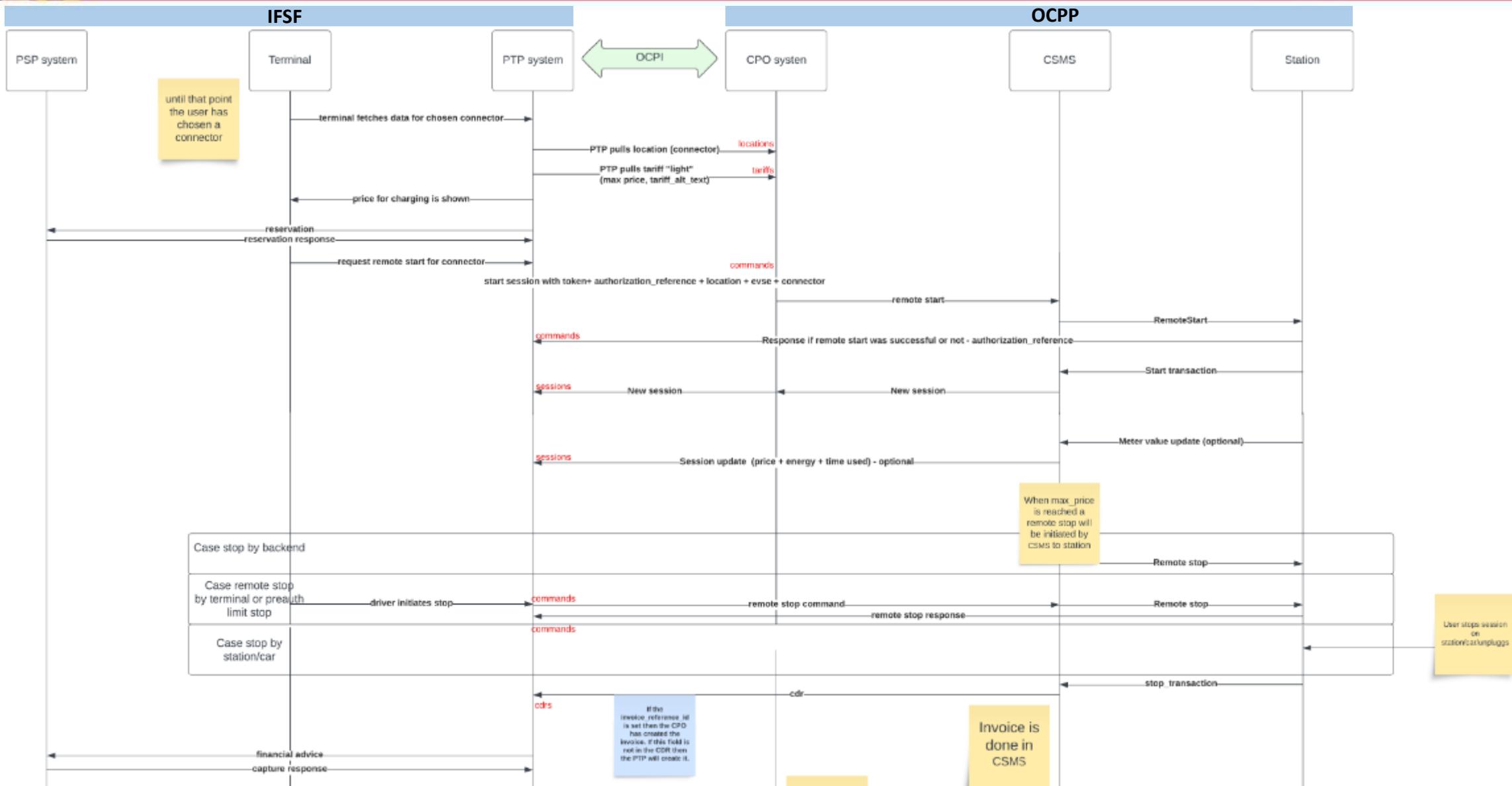




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# Ad hoc payment with Retailer





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# AFIR

# Alternative Fuels Infrastructure Regulation (AFIR)

★ **Replace the Alternative Fuel Infrastructure Directive (AFID) with a Regulation** to ensure harmonisation

★ **Widen the scope** to privately owned charging which is publicly accessible & privately owned charging not publicly accessible

★ **Prioritise interoperability, open networks** to enable open & uniform communication protocols

★ **Urge Member States to develop site allocation strategies for fast charging stations** and ensure open and transparent tender procedures

★ **Introduce ambitious binding weighted targets** for charging infrastructure at Member State level

★ **Take a consumer-centric approach** so EV driver has quality data on charging locations, price transparency & payment system choice

★ **Focus only on zero emission fuels** in order to decarbonise the road transport sector.

★ **Improve transparency & market governance** to speed up grid connection & enable efficient market access

★ **Increase focus on electric heavy-duty vehicles** to allow HDVs to charge across the road network & in urban areas

★ **Introduce a "Right to Plug"** so people can request the installation of charging points in or near their residence or workplace

★ **Ensure charging infrastructure is future proof** & provide a clear definition of smart charging

★ **Ensure the conditions for roaming** so EV drivers can travel seamlessly across the EU





## Alternative Fuels Infrastructure Regulation (AFIR)

Relevant articles from the AFIR, published on 13 September 2023

- Art.3 – Targets for recharging infrastructure dedicated to LDV-EVs
  - Charging Locations available every 60 km at the TEN-T network (end 2025)
  - At least 400 kW power available on location, with at least one CS with 150 kW (end 2025)
- Art.4 – Targets for recharging infrastructure dedicated to HDV-EVs
  - Charging locations available every 60 km at the TEN-T network (end 2030)
  - At least 3600 kW power available on location, with at least one CS 350 kW (end 2030)
- Art.5 – Recharging Infrastructure (Publicly Accessible Charging Stations)
  - Must support ad-hoc payment (as of 13 April 2024)
  - Must support automatic authentication (PnC) for Charging Stations 50kW and higher
  - Prices shall be reasonable, easily and clearly comparable, transparent and non-discriminatory
  - Charging Stations 50kW and higher shall show the ad-hoc price
  - Price components are: per kWh, per Minute, per Session, other components that apply
  - Within parking and rest areas along TEN-T, the exact location of Charging Infrastructure is adequately signposted
- Art.20 – Data provisions
  - Operators shall use their own unique identification, handed out by the IDRO of each country
  - Operators shall provide Static and Dynamic information to the National Access Points (NAP)



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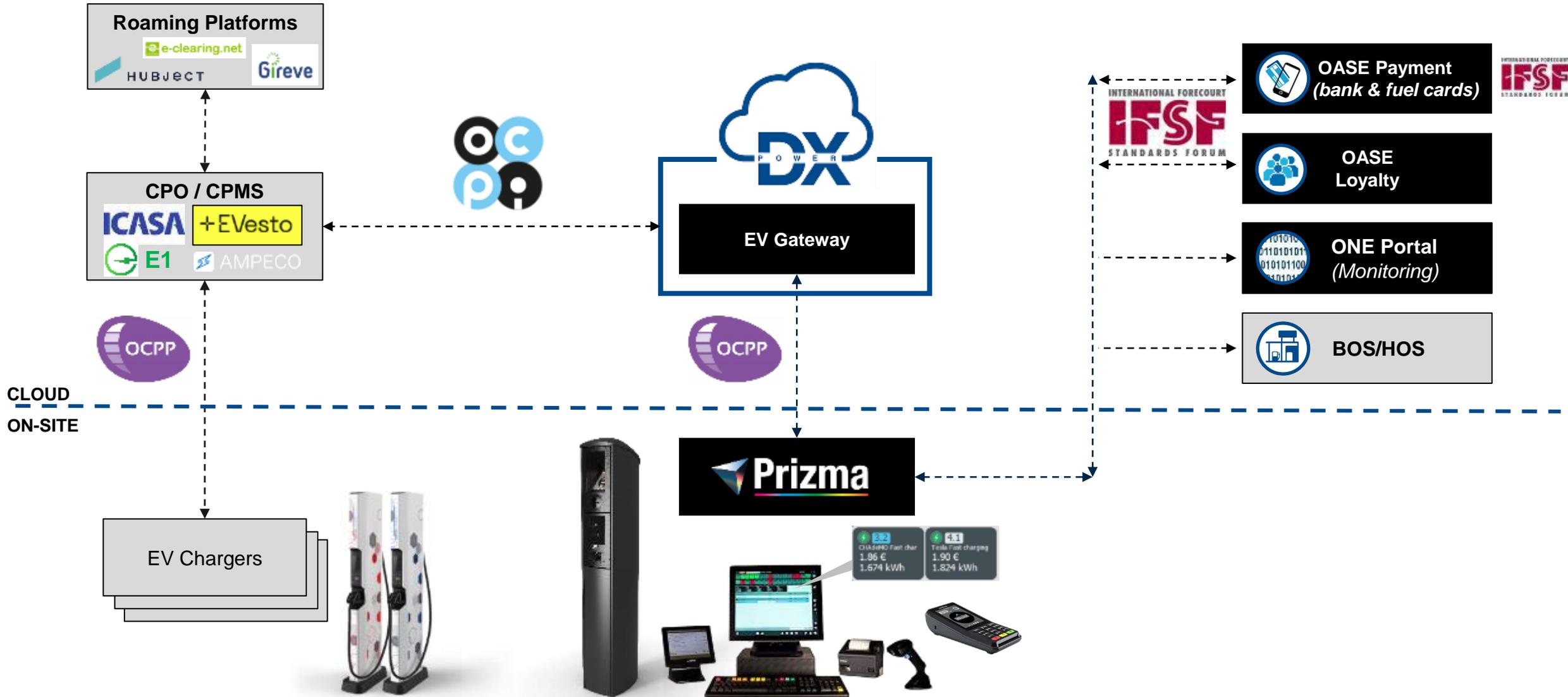


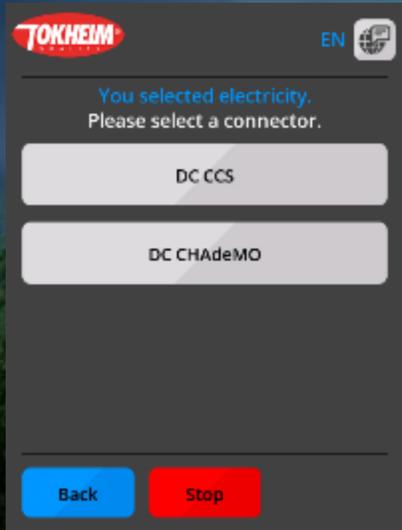
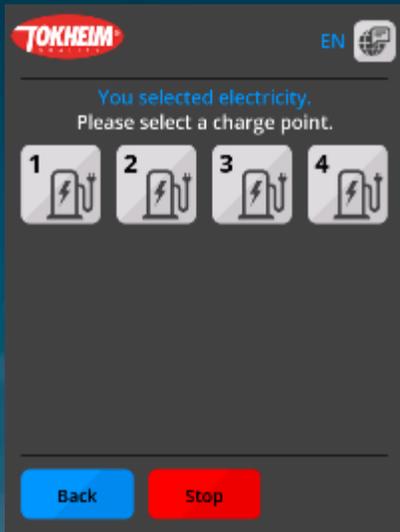
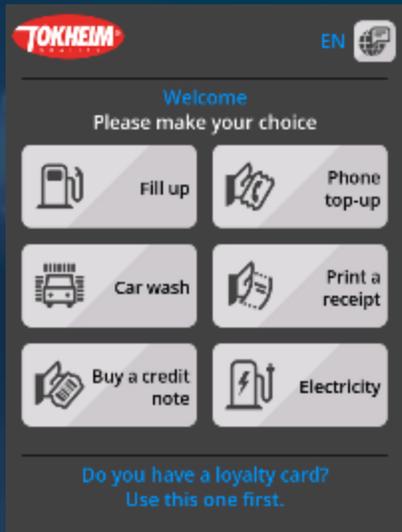
# **Integrated fuel retail and e-mobility through the use of industry standards**

**Peter Van Nauw**  
Dover Fueling Solutions



# Integrated fuel retail and e-mobility through the use of industry standards





Mixed mode

Transparent pricing

1:N (15 CP)



**TOKHEIM** GENERAL MANAGER 18:02:10 26-11-2020

1.1 1.2 2.1 2.2 3.1 3.2 4.1

3.2 CHAdeMO Fast char 1.86 € 1.674 kWh

4.1 Tesla Fast charging 1.90 € 1.824 kWh

3.2 CHAdeMO Fast char 1.86 € 1.674 kWh

4.1 Tesla Fast charging 1.90 € 1.824 kWh

[3] Energy charging € 1.86

|                    |           |   |         |       |
|--------------------|-----------|---|---------|-------|
| ↳ EV Charging      | 1.674 kWh | * | 0.230 € | 0.39  |
| ↳ Non-W&M discount | 20.00 %   | * | 0.39 €  | -0.08 |
| ↳ Start fee        | 1         | * | 1.50 €  | 1.50  |
| ↳ Parking fee      | 1.17 min  | * | 0.04 €  | 0.05  |

€ 1.86

Icons: Settings, Tokheim, Search, General Manager, Time, Date, Sun, User, Fuel, EV, Building, Receipt, Edit, Close, Shopping, Hand, Payment, Receipt, Calendar, Mail, Home, Credit Card, Wallet, Euro

CHARGER VISIBILITY

EV TRANSACTIONS

TRANSACTIONS DETAILS

CHARGER HANDLING

PAYMENT





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Thank you  
Any questions









# DUPLICATE RECEIPT

FÆRSLA HEIMILUÐ

Dagsetn. 25-08-2023  
13:46:13

-----  
Charge point 3  
Rafhleðsla  
3 - Rafmagn  
EV charging ISK 311  
VAT type 2  
Quantity 5,367 kWh  
Price ISK 58,0/kWh  
VAT type 2

SAMTALS ISK 311  
Afslattur ISK -118

=====

**SAMTALS ISK 193**

=====

ORKUKORT-LYKILL 0  
935260\*\*\*\*\*9624

STAN 000164

Merchant id.  
367576\_20106603

Tilvísun 323713369773

Heimildar nr. 661797

Approved







today for tomorrow





# Consumer experience

Data Quality, interoperability and reliability

**31%**

of consumers  
have an imperfect  
user experience

**45%**

of charge points  
out of order

**15%**

of charge points  
have incorrect  
GPS data

7% station not found

**9%**

of consumers  
could not start  
charging

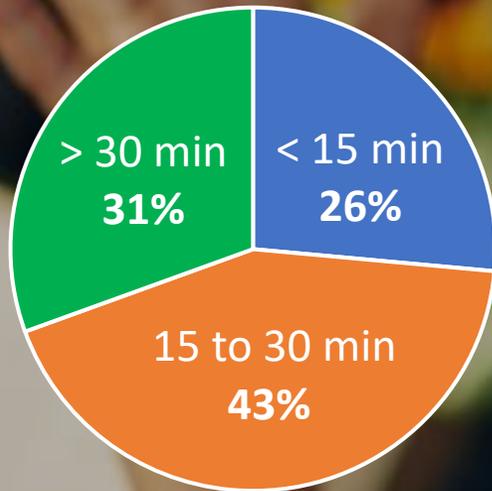
e.g., MSP card not accepted

Source: Intercharge Network Conference 2022 – Bosch field study in 4 countries

# Statistics EV charging

Source: DFS OASE Transaction Gateway

Average duration charge operation



| Country     | Average transaction amount |
|-------------|----------------------------|
| U.K         | 22 GBP                     |
| Iceland     | 1334 ISK (9€)              |
| Netherlands | 15 EUR                     |