Smart Charging Evolution
- The way to the Island

Jan Winkler
The Mobility House
Welcome to Porto Santo!

Utility

Aggregation platform

Smart Charging
20 unidirectional EVs (Renault Zoe, Kangoo)
40 charging stations

Vehicle to Grid
2 bidirectional EVs (Renault)

2nd Life Battery Storage
from Renault batteries

Create the first fossil free island
Decrease cost of electricity
Stabilize power grid with different assets
Increase renewable energy sources

Project Partners: The Mobility House (TMH), Groupe Renault, Empresa de Electricidade da Madeira S.A.
The evolution of smart EV charging.

- **Static load management**
- **Dynamic load management**
- **Local EMS integration**
- **Grid services**
- **Smart sourcing**

**Timeline**

- **Today (2020)**
- **Future (3-5 years)**

**Cumulative benefit**

**V2G Ecosystem**

**PORTO SANTO**

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ChargePilot – a product for locally controlled smart charging with open interfaces

Unique system design:

> Local control for maximum safety & reliability & fast response time

> No lock-in with hardware brand or technology, allowing full customer flexibility

ChargePoint AC
e.g. KEBA, Alfen, EBG,...

- Control of CPs
- Monitoring of charging logs
- Logging of status & charging information
- Local RFID Management
- ...

ChargePoint DC
e.g. BTC, IES, Heliox,...

- Consideration of local energy assets to improve self consumption of depot

OCPP 1.6/2.0
(OCA certified)

OCPP 1.6 proxy

- Exchange of billing relevant data and roaming information

Modbus (TCP & RTU)

Meter
e.g. ABB, Janitza, ...

- Measurement of siteload for dynamic load management

3rd Party CPOs/MSPs
e.g. h2b, Chargecloud, ...

OEM Backend
e.g. Mercedes MPRO, Renault, ...

- Exchange of vehicle information and status (e.g. SoC)
- Exchange of fleet schedules

PV
e.g. SMA,...

Energy Marketer
e.g. Next, ...

Storage/EMS
e.g. Eaton,...

Grid Operator
e.g. Tennet, Amprion, ...

OpenADR
IEC 60870-6-104
IEC 61850

- Integration of battery flexibility into grid and energy markets
- Provide possibility for grid operator to use EV as interruptable load

TMH Local Controller

TMH Cloud Solution

Rest API

TLS encrypted communication

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Interested in Smart Charging & V2G?
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