e-Mobility

Enel X's role

Our # **MISSION** is to enable and accelerate energy transition of private and public transportation towards electric mobility.

We look at different customer needs

End Users	Commercial & Industrial	Car Manufacturers	Utilities	Municipalities
				
Needs: No range anxiety & easy access to electric charging	Electric mobility as a way to attract new customers	Looking for a partner who provides turnkey solutions	Looking for a partner who understands grid issues and provides customized solutions	Enable electrification of private and public transportation

The answer: our Intelligent Charging Solutions

At home

JuiceBox DC
DC charging up to 40 kW

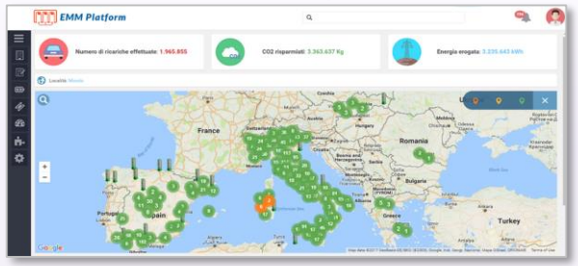
JuiceBox AC
AC charging up to 22 kW

Juice2Grid
Bidirectional DC up to 15 kW

At work

JuicePlug (US)
Retrofit at socket-level

EMM Platform



JuicePole
AC charging up to 22 kW
Potential 43kW version

JuiceBoard
Retrofit at PCB-level

JuiceLamp
AC charging up to 22 kW

Design under development

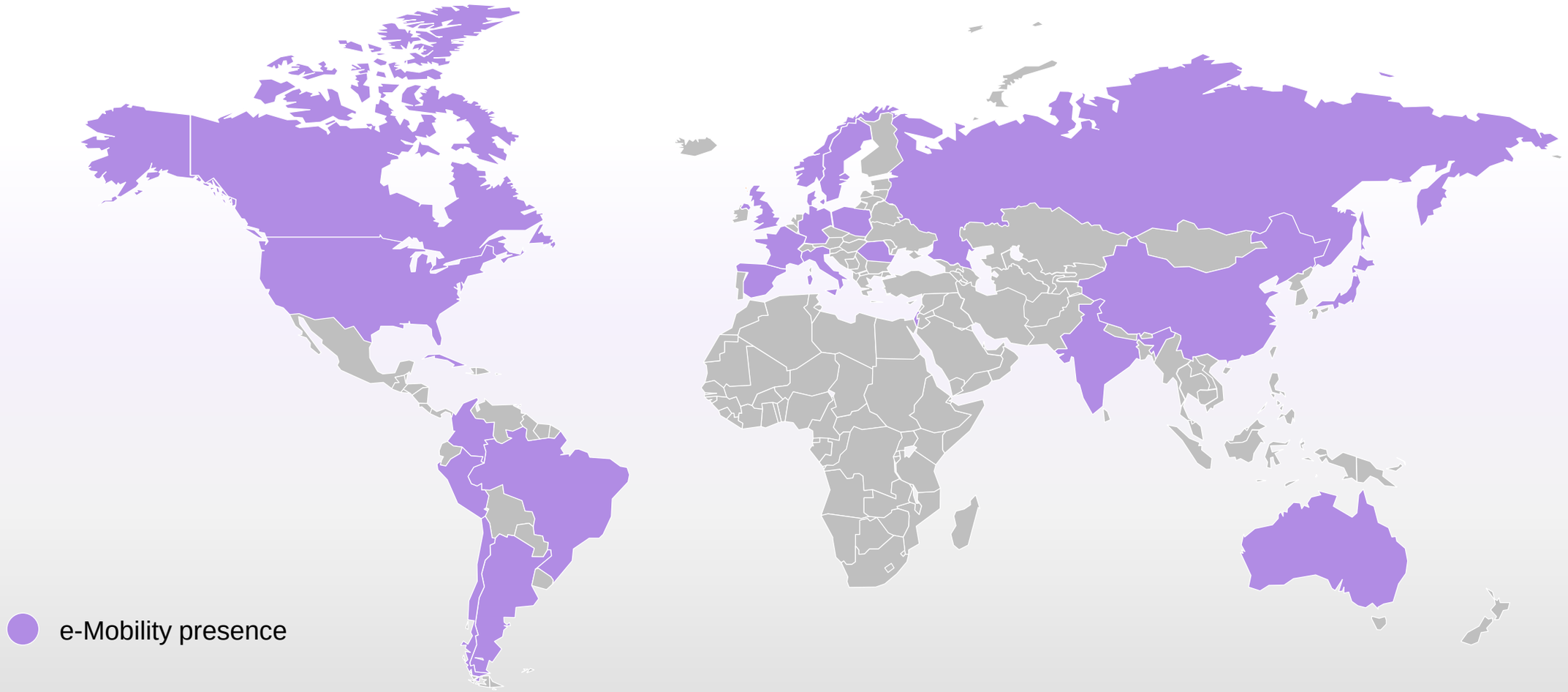
High Power Charger
DC charging from 150kW to 350kW

Fast Recharge Plus
AC charging up to 43 kW
DC charging up to 50kW

Off Grid

On the road

By 2021 we will be managing over 455.000 charging points…this means millions of data points



The challenge for you

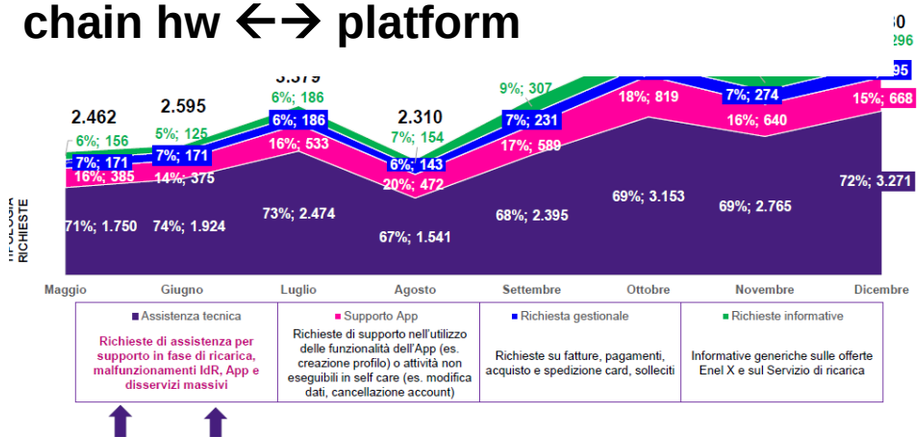
How can we ***maximize the value*** of the data acquired to ensure ***extra revenues*** schemes on top of the charging sessions?

How can we optimize ***charge usage*** of the charging stations?

How can we guide the customer, knowing his / her user habits to a hazzle free and enjoyable ***charging experience*** from the planning to the real driving experience.

From gold rush to uptime / 1

> 70 % CC incidents are linked to com chain hw ←→ platform



When backend is down, all charging points are inaccessibile

Connection

Without SIM / mobile
< 100/300 eur/unit (AC/DC) HW overhaul cost + installation on site

Disaster recovery

DC / subset of DC public charging able to remain up and running in case of backend down different from today logic: «all open» / free charging

From gold rush to uptime / 2

Power cost (based on max peak) may represent up to 50 % energy cost for HPC sites

EV peaking (eg thanksgiving) need to be adressed with temporary solutions

Site optimization tool

POC saturation & recurrent users patterns for site optimization tool

1) **within existing contracted power** availability: hw rightsizing among availables DC 50/ DC 15 / DC 120 with powersplit / capcharging

2) **power extension** planning: BC check based on recurrent ev's logs + registrations projection in 3y

3) **temporary mobile support**

From gold rush to uptime / 3

Not all HW failures are detected from remote

Site unavailability could be offshooted from missed charging logs

O&M optimization tool

1) **Scheduled** maintenance scheme on DC infrastructure based on: Calendar / kWh / sessions / asset type / failure rate / location …

2) **PREactive customer caring /** intervention based on:
missed charging log (reserved / open → 0 kWh) analsysis
   - **Mechanical failure** (eg: socket / screen / cable, plug – all not remote detected)
   - **Human interface** (eg:start/stop procedure optimization: timeout, rfid, messages)
   - **Environmental** (eg:ICEd, lot unaccessible for works / road closure)


Data Processing Engine
Realtime Data Storage
Control Server
enel x
Hi, welcome to Enel X Recharge.

Thank you!