The Netherlands: Living lab for Smart Charging

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Initiated by the Dutch Grid companies ElaadNL researches and tests the possibilities for Smart Charging on behalf of the Dutch grid operators.
3,000 public charge stations in 324 cities

8 different chargestation-vendors

80,000 kWh in 10,000 transactions (weekly)

Agreements with 13 EMSP’s in NL and 4 cross-border

Connected with European network (e-clearing.net)

Share static and dynamic geo-data with over 25 parties
ElaadNL
With a strong global network

- International collaboration
  - UK: adoption protocols
  - Germany: 15118 alignment met OCPP
  - Japan: adoption protocols
  - France: Renault; unlock SoC
  - California: implementation OCPP
  - Italy: adoption protocols
  - Poland: University Lotz
  - China: BYD: AC redelivery
  - Norway: adoption protocols
  - Sweden: Lund, chargestorm
  - Denmark: Clever, eon, cotevos
  - Ireland: ESB & OCA standardization
  - Spain: Tecnalia, protocols
  - Slovakia: adoption protocols
  - Austria: collaboration through e-clearing.net
Responsibilities and ambitions DSO’s

The energy landscape is changing

From

To
Many stakeholders many drivers

- Customers, OEM’s, Cities, DSO, TSO, Market etc.
- Improving airquality
- Facilitate sustainability
- Economic perspective
- Control Grid Costs
Balancing supply and demand
Smart Charging

Chargepoint

Building

Ring, District, City, Country

Uncoordinated charging

Local load balancing

Master/slave facilities

Negotiate charging on the basis of few signals

Negotiate charging on the basis of all signals

Co-ordinated charging

Vehicle 2 Grid

Storage and V2G by EV
• Step 1: make charging stations smart!
• Step 2: researching and testing Smart Charging
• Step 3: developing international standards
  • for Smart Charging

**OCPP** (Open Charge Point Protocol)
**OSCP** (Open Smart Charging Protocol)
**OCPI** (Open Charge Point Interface)
Why?

• Money, efficiency, tempo and quality
• Available for everyone: grow the market
• Open/IP free
• No vendor lock in
• Avoid chaos
Which interoperability/standards?

- Payment schemes
- Data exchange
- Sockets
- Behaviour
- Safety
- Customer approach
- Communication protocols
- Etc.
The good old days...when life was simple.
Complicated Landscape
Successes and challenges: Interoperability

- **Roadmap to interoperability:**
  - **Unified procedures**
  - **Harmonization** (reducing burdens for operating businesses)
  - **Standardization** (the process of developing and implementing technical standards)
  - **Homologation** (the granting of approval by an official authority)
• Smart Charging market standard
11 maart 2016: signature Paris
conclusions

• Ecosystem with many stakeholders
• Reality is faster than most predictions
• Key role for Cities

• Interoperability and open standards are key
Let’s join forces to make living off the wind and driving on the sun available for Europe and worldwide!