Paving the way into an electromobility future

Green eMotion
FP7 call TRANSPORT – 2010 TREN -1
43 partners
Project Start: March 2011

IEVC 2014 - Florence

Speaker: Giovanni COPPOLA - Enel
Will I be able to charge my eCar anywhere in Europe?

takes care that you will be e-mobile throughout Europe
Green eMotion – a 42 Mio € project with 42 partners

FP7 call TRANSPORT – 2010 TREN -1
Project Start: March 2011
Duration: 4 years
Funding: 24 Mio €

- **Industries:** Alstom(UK), Bosch(D), IBM(D), SAP(D), Siemens (D, Project Coordinator)
- **Utilities:** Danish Energy Association(DK), EDF(F), Endesa(ES), Enel(I), ESB(IR), Eurelectric(B), Iberdrola(ES), RWE(D), PPC(GR), Verbund(AU)
- **Electric Vehicle Manufacturers:** BMW(D), Daimler(D), Nissan(H), Renault(F)
- **Municipalities:** Barcelona(ES), Bornholm(DK), Copenhagen(DK), Cork(IR), Dublin(IR), Malaga(ES), Malmö(S), Rome(I)
- **Research Institutions and Universities:** Cartif(ES), Cidaut(ES), CTL(I), DLR(D), DTU(DK), ECN(NL), Imperial(UK), IREC(ES), RSE(I), TCD(IR), Tecnalia(ES), TNO(NL)
- **EV Technology Institutions:** DTI (DK), FKA(D), TÜV Nord(D)
Motivation for future mobility concept

Cities / Municipalities

- Reduce parked cars in the city due to limited parking space
- Reduction of congestion in traffic infrastructure
- Reduction of air pollution and noise
- Fulfillment of residents mobility demands

Strategies

- Motivate people to use public transport
- If people need to use a car it should be electric
- Implement eCar sharing in cities as transport option

Which charging infrastructure do we need to support the strategies?
Where will people charge their EV?

- EV driver will charge at home when possible
- Public charging is required
  - for drivers without home charging option
  - in cases of long distances

Average trip distance [km], UK all transport modes, NL only car (drivers)

Sources: National Transport Survey UK (NTS), Statline.nl Dutch statistical office
Start charging processes percentage

73.32% 26.68%

Average EV SOC when start charging from 63% to 65% IC95%(μ)

Average charge consumption (IC95%(μ))

Average charge duration (IC95%(μ))

Charge event characterization

Household
- 10.05% installed
- 34.37% uses
- 2.4 hours
- 4.3 kWh
- 3.2 hours
- 8.8 kWh

Office parking
- 25.27% installed
- 39.51% uses
- 4.3 hours
- 7.9 kWh

Public access
- 60.15% installed
- 26.12% uses
- 2.4 hours
Interoperability
The Rally to Brussels on Sept. 18th, 2014

Team Verbund: Vienna to Brussels
Team RSE: Milano to Brussels
Team TÜV Nord: Hannover to Brussels
Team ESB: Belfast to Brussels
Team EdF: Strasbourg to Brussels
Interoperability
Looking for a seamless experience

Search a compliant EVSE

Access to a compliant EVSE

Payment of the
Charging Session

Report of the
Charging Session

Charging EV

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007 – 2013) under grant agreement No. 265499.
Interoperability
IT interfaces within electric mobility framework

A **seamless** customer experience is built on **IT system harmonized** interfaces
Interoperability
IT interfaces within electric mobility framework

Alternative Fuels directive

Type 2 AC

Combo 2

DC CHAdeMO

POI e-mobility interface

select – your location
select – your connector
Interoperability
IT interfaces within electric mobility framework

EV Customer

B2C service

RFID Authorization interface
Remote Authorization interface

EV Service Provider

Market Place
B2B Platform

EVSE Operator

RFID
Remote

DSO

RENs Production

EV

B2B Platform

EVSE

LV/MV Electricity Grid

search
access
pay
Interoperability
The interoperability demonstration of Sept. 18th, 2014
European electromobility – the big picture
Green eMotion – a demonstration project in 11 + 2 demo regions

- Roaming
- Grid upstream infrastructure prototypes
- Inductive charging
- EV charging in different regions
- ROI/NI/UK/PiP charging event
- Search EVSE backend services

- Aggregated information available for GeM from CROME
- CROME – GeM marketplace

- Iberdrola minibus service
- Supply quality
- Marketplace and roaming
- Iberdrola smart grid

- Battery switch station
- Search EVSE

- Roaming via smartphone application
- Plug&Charge - PLC identification

- Marketplaceto marketplace communication
- Roaming
- Search EVSE

- Roaming
- Train & EV usage
- Public/private car sharing

- Roaming
- Park & Charge
- Load management

- Roaming
- Search EVSE
- Load management

- Load management for the AC charging infrastructure
- DC fast charging station with 2nd life batteries
- Roaming
- Search EVSE
- Smart grid management schemes new functionalities
- Grid impact on local high penetration area of EV

- AC – Charging
- Roaming
- Load management schemes

- Existing demonstration region
- Replication region
- Municipalities involved in Green eMotion
External Stakeholder Forum – build a consensus on a broad base

- Objectives of the Green eMotion Stakeholder Forum:
  - **discussions** of requirements and results
  - **common understanding** of an interoperable electromobility system

- More than **300 institutions and companies** as members!

- **8 meetings** held so far:
  Brussels, Dublin, Paris, Brussels, Ehningen, Brussels, Barcelona, Brussels

- **Next meeting**: February 25/26, 2015, in Brussels as 3rd EU Electromobility Stakeholder Forum (together with FREVEU and ZeEUS) (will be the final event for the Green eMotion project)