Vehicle to Grid – Kommunikation mit dem Fahrzeug im Projekt VLOTTE

Smart Grids Week Bregenz 2012
24. Mai 2012
Electric Mobility
Main issues

- High battery cost
- Limited Range
- Long Charging Times
- Minimize battery
- Maximize use
- Use convenient times
AutoLinQ for EV
Connecting the Electric Mobility ecosystem

[Diagram showing various components of an electric mobility ecosystem including power utility, services, OEM, Gateway and Service Delivery Platform, smartphone, PC, and driver.]
AutoLinQ for EV
Smart Charging “over the air”

Generate charge plan based on rules and user requirements

Execute charge plan or Charge now!

OEM = Original equipment manufacturer
AutoLinQ for EV
Pilot Project VLOTTE, Vorarlberg, Austria

- VLOTTE consists of more than 350 EV (as of January 2012)
- All cars are powered by renewable energy from additional built facilities.
- Since mid of 2011 twenty electric cars are equipped with the system.
- The solution is in operation since August 2011.
- Data from the EV and control of the EV via smartphone or PC.
- API for the connection to a smart grid management system existing and tested.
- All data (current and historical) available via data export.
- Already interesting insight gained. Statistical evaluation can commence.
Project VLOTTE

Average Energy consumption per trip is app. 17 kWh / 100 km

Project VLOTTE

Energy consumption increases in winter period

![Graph showing energy consumption over time]

- Energy consumption [kWh / 100km]
- Date of trip

01.09.11 - 02.05.12

Interior Electronics Solutions

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Project VLOTTE
Energy consumption per trip varies dramatically (1 EV)

Energy consumption in kWh vs. trip length in km

1 EV 9/2011-3/2012 (485)
Project VLOTTE
2 Trips – same EV, same route – but …

Red trip:
Duration: 48 min
Distance: 46 km
Consumption: 13 kWh
Recuperation: 0,2 kWh
Energy need: 12,8 kWh

Blue trip:
Duration: 40 min
Distance: 46 km
Consumption: 4,7 kWh
Recuperation: 1,4 kWh
Energy need: 3,3 kWh
Project VLOTTE
Range anxiety: 98% of all trips are less than 50 km

all EV 9/2011-4/2012  818 trips
Project VLOTTE
Range Anxiety: 95% of trips end with more than 30% State of Charge

SoC at trip end is more than [km]

Cumulative frequency of occurrence

95% of all EV 9/2011-4/2012 trips end with more than 30% State of Charge.
Thank you for your attention!

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