EV CHARGING QOS AND POWER SYSTEM ROBUSTNESS THROUGH ICT APPLICATIONS; NEMO’S APPROACH

Theodoros Theodoropoulos
Researcher
ICCS
CHALLENGES FOR NEMO (E-MOBILITY)?

- Limitation in Electric Vehicle range
- Lack of interoperability in electromobility services
- Diverse eRoaming platforms
- Impact to the Electric grid network
- Lack of common data exchange and commercial framework
Hyper-Network of tools, models and services, to enable the provision of seamless and interoperable electromobility services creating an open, distributed and widely accepted ecosystem for e-mobility.
OBJECTIVES

• Enhanced driver satisfaction: “Charge anywhere & anytime” across Europe via a single identification, authorisation & payment method

• Easy creation and delivery to a wide audience of innovative, interoperable electromobility services via an open cloud marketplace

✓ Improved attractiveness of electric vehicles
✓ Facilitation of EVs mass adoption
OBJECTIVES

- Integration of smart-grid applications and services, to support the EVs integration in the electricity grid, by optimisation of electricity supply compared to demand.
ARCHITECTURE

- New services will generate and exchange data according to the CIM
- Data translators will enable the translation of data to the NeMo CIM
ARCHITECTURE

NeMo Business Network

Shared distributed Database / Ledger:
1. Partner Management
2. Services Store
3. Contract Management

CPO #1

CPO #2

Charge Point Operator

CPO

ITSP

EMP

eRoaming Hub #1

3rd Party Service Provider

Electro Mobility Provider

Trustee Service Provider

OEM #2
NEMO NODE CLOSEUP

- Service lookup - Service creation - Service execution
GRID SERVICES

Navigation to CP based on user and grid power requirements
- Vehicles are routed to the appropriate charging point, according to vehicle and grid
  quality of service criteria

Global customer charging behavior
- Profiling of end user charging behavior in order to enable demand forecasting

Load management
- Ensure quality of service of charging operations according to user requirements and grid
  constraints

Load forecasting due to EV charging
- Anticipated load information to the DSO for energy generation planning and energy
  pricing

Local energy management
- Include local energy providers to the energy mix provided by charging operations
GRID SERVICES

• Load management
THANK YOU QUESTIONS?

Theodoros Theodoropoulos
Researcher
ICCS
t.theodoropoulos@iccs.gr