Improving the EV charging experience within cities and for longer trips: the eCharge4Drivers project

Name

Title
Organisation

eCharge4Drivers in a Nutshell

Call identifier: H2020-LC-GV-2018-2019-2020

Topic: GV-10-2017 "Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system"

EC funding: 14,424,526.39 €

Duration: June 2020 – May 2024

12 countries - 31 Partners – 10 demonstration areas

SCOPE:

eCharge4Drivers aims to **improve the Electric-Vehicle charging experience in urban areas** and on interurban corridors towards promoting e-mobility concept and making it more convenient for users to go green by **developing and designing user-centric and interoperable charging solutions**.

Different e-mobility maturity level
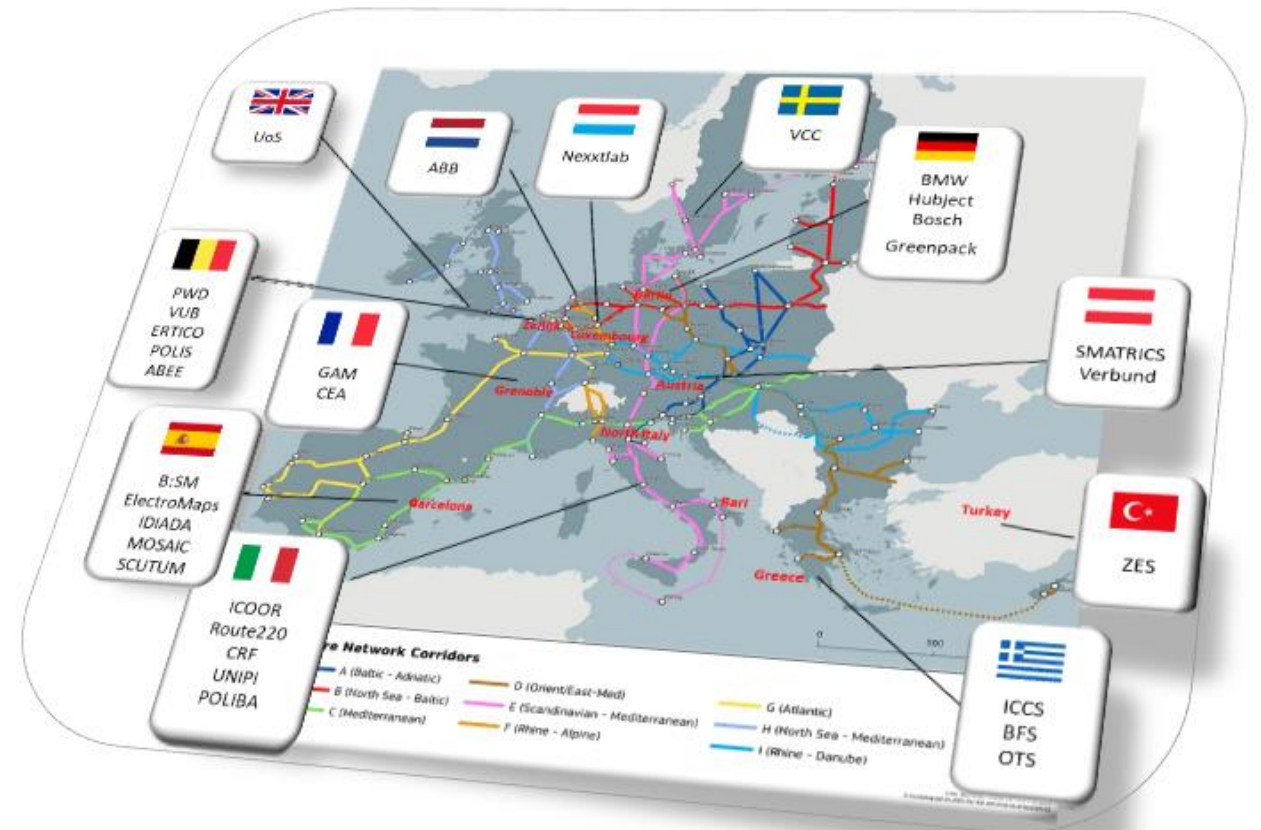
https://echarge4drivers.eu/

Strategic objectives

eCHARGE4DRIVERS

O-1: Understand the user needs so that the project charging solutions and services substantially **improve the user charging experience**

O-2: Develop and demonstrate **user-friendly and cost-efficient charging stations** for passenger vehicles and LEVs

O-3: Design and **demonstrate advanced user-centric charging services (smart charging/booking/routing)** serving diverse objectives and unlocking several business opportunities

O-4: Enable and demonstrate **interoperability of end-to-end communication** and provision of **enhanced information to the EV users**, before, during and after a charging session

O-5: Propose mechanisms to **accelerate the deployment** of charging infrastructure and other charging services in a sustainable and user-centric way (CP location planning tools, new tariff/.incentives schemes)
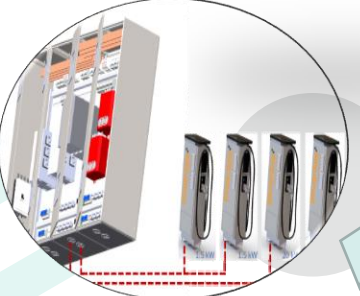
eC4D demonstration topics

eCHARGE 4DRIVERS

eC4D focus areas

Technologies

Services

Decision tools

User-friendly & modular CS with enhanced user interfaces
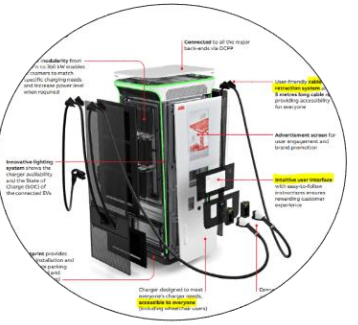
Multi-outlet DC CS for (L)EVs supporting V2G functionality

Battery sharing concept for L1e vehicles

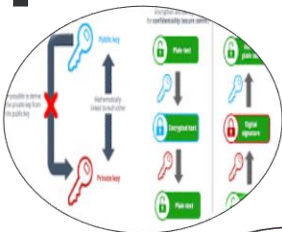V2G EV prototypes & EV/EVSE emulators for towards ISO15118 PnC

Advanced charging authentication - ISO15118PnC

Enhanced Booking Service & routing service

Smart charging services suite (peak demand shaving, EV/RES synergy/ microgrid concept, etc.)

EV demand prediction model & Charging location planning tool

Incentives schemes and tariff structures towards emobility sustainability (EU best practices and generic tariffication formula)

EVs and parking operations: services, tariffs, and enforcement in Grenoble

- **Grenoble-Alpes Métropole (GAM)**
- Located in the Alps and surrounded by 3 mountains ranges
- Local urban authority covering Grenoble's greater urban area:
  - 49 Municipalities
  - 450.000 inhabitants

Charging points on lamp posts

- Objectives:
  - Take the advantage of **electrical device not in use during the day to permit EV charging**
  - **Optimize the occupation of public space**

- 2 possible options:
  - Installation on **public space**, with the charging points accessible to common users > most likely
  - Installation on a **parking space company**, with the charging points accessible to employees and EV's company

A charging point on lamp post in la-Roche-Sur-Yon

Charging points on lamp posts

- Technical specificities:
    - 3,7 kVA > **low power**, slow charging > for **residential use**

- Main difficulties:
    - The wiring of the local network to **allow the installation of one or more charging points at 3 kW**
    - The **available power of the public lighting sections**, because with the switch to LED the contracts are of low power
    - Electricity supply contracts which can be in **"night" mode** (therefore no daytime supply)
    - The **concomitance of the parking spaces with the lamp posts masts** (< 50cm so that people avoid passing between the car and the mast and tripping over the cable)

Charging points on lamp posts

- Organisation:
  - The **city (or company)** will provide with the lamp posts
  - The **company** selected through a tender will provide with the chargers
  - Charging points on lamp posts will be integrated to the supervision of the **CPO**

Other experiences

- Timeframe:
  - Contract to be signed with the company (Sept. 2022)
  - Installation 4th quarter 2022

Zone badge

Bandeau LED

Prise T2

Détection ouverture / fermeture porte

Prise EF

New tariff schemes

- Objectives:
  - **Balancing takings and OPEX** as quickly as possible
  - Prioritize **complement charging**
  - **Increase the availability of charging stations by promoting vehicles rotation**

- Pricing is based on:
  - kWh consumption
  - Space occupation time, which depends on the pressure on this space (consistency with parking policies), with 2 differentiated zones

New tariff schemes

- New tariff schemes:
  - Park and ride facilities: 0,25 €/kWh
  - On-street, for subscribers:
    - Subscription 6€/month; 0,25€/kWh + 1€/30 min (free at night)
  - On-street, for non-subscribers:
    - 0,45€/kWh + 1€/30 min
  - Hypothesis to balance takings and OPEX: doubling of the number of users;
    - if the number of users is multiplied by 1,5, the deficit is estimated at 32 k€;
    - if the number of users is multipled by 3, the benefit is estimated at 85 k€.
- Timeframe:
  - New tariff schemes applied since 1st April 2022

New tariff schemes

Accelerated charging 22 kW – On-street – Most frequent case
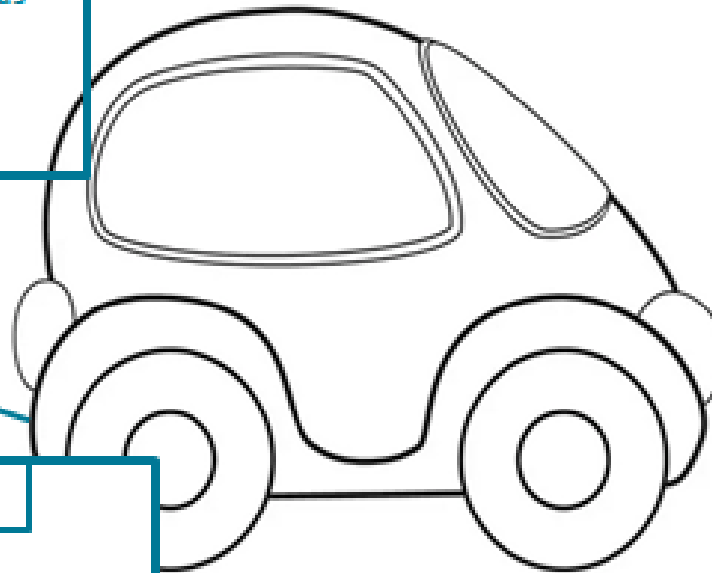
1h26

11€ for subscribers downtown
8 € for subscribers in peripheral areas

€ 17 € for non subscribers

1 use case with a Renault Zoé 50 kWh (model 2020):

- Battery from 20% to 80% : 31,2 kWh charging

Slow charging 7 kW – On-street

4h15

17 € for subscribers downtown
13 € for subscribers in peripheral areas

€ 23,4 € for non subscribers

At home

8h50

€ 4,86 €

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