MOLECULES
Mobility based on eLEctric Connected vehicles in Urban and interurban smart, cLean, EnvironmentS

MOLECULES is a demonstration oriented project, with three large scale pilots in Barcelona (ES), Berlin (DE) and Grand Paris (FR) aiming to use ICT services to help achieve a consistent, integrated uptake of Smart Connected Electromobility (SCE) in the overall framework of an integrated, environmentally friendly, sustainable multimodal mobility system.

At a Glance

Project:
MOLECULES: Mobility based on eLEctric Connected vehicles in Urban and interurban smart, cLean, EnvironmentS

Programme:
CIP – ICT PSP (Competitiveness & Innovation Programme – ICT Policy Support Programme)

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Start date: 1st of January 2012
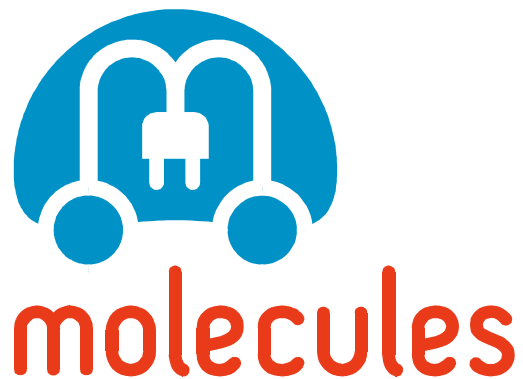
End date: 31st December 2014

Total cost: €4.280 k

Project Website
www.molecules-project.eu

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http://europa.eu/information_society

CHALLENGE and OBJECTIVES

The need to address environmental threats, global warming, increases in fuel costs as a result of supply constraints and, more recently, the worldwide financial crisis are posing huge challenges to society.

Electric Vehicles (EV) is an important part of the response to these challenges, but in order to become a successfully deployed option there is a need of coordination between the recharging infrastructure, the EV and the overall mobility schemas of a city or interurban road network.

Key questions are:

- How can we integrate EV smoothly and consistently in the overall mobility system?
- How can we optimize the energy used/emissions generated per passenger transported?
- How can we make operational new business models which will be required for the successful deployment of EVs?
- How can ICT services contribute to the long term sustainable success of EVs?

MOLECULES addresses these challenges by

- Enhancing EV user experience through the evolution and adaptation of seven categories of ICT services (personal trip planning, EV sharing/pooling, recharging advisor, carbon footprint advisor, billing support, incentives and network strategies), integrating them on an open architecture enabling SCE.
- Enabling interoperability of SCE with multiple transport and grid infrastructures.
- Supporting and contributing to standards on electromobility, ITS and grid.
- Executing three large scale pilots in flagship European sites.
- Measuring thoroughly the project impact in terms of - among others - emissions reduction, considering the source of the electric energy used in the pilots.
- Preparing a roadmap to facilitate large scale deployment of SCE.
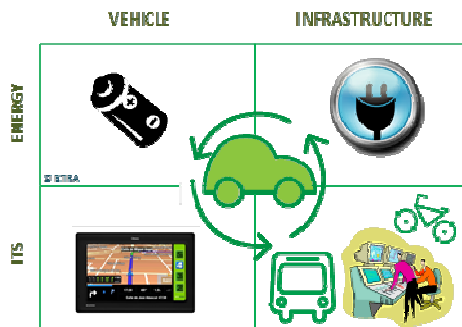
Integrated approach in MOLECULES

IMPLEMENATION and PILOTS

Setting the basis for uptake and deployment of SCE through a number of large scale pilots requires the evolution and integration of a number of diverse and innovative systems, ICT services and mobility offers in order to assess effectiveness, user acceptance and operational feasibility. The user's mobility experience must be enhanced whilst at the same time Greenhouse Gas emissions GHG are reduced.

MOLECULES will adopt an implementation approach which specifies a number of ICT services categories which should set a general, common standard of what should be understood across the three sites by each certain type of ICT service in the context of SCE, including e.g. stakeholders involved, input/output data, etc. This will set a common 'high level language' which will facilitate interaction among services and the cooperation across sites, both in terms of 'legacy' ICT services and newly deployed ones.

The project proposes a user-oriented strategy where the common beneficiary of most of the services is the citizen. Considering this approach, the four main elements involved in electromobility would be (i) the users,

(ii) the EV, (iii) the infrastructure (transport and energy) and (iv) the authorities and operators.

MOLECULES will integrate car sharing schemes within the traditional transport solution to enhance the users experience with electric vehicles and to foster multi-modal mobility options.

In Barcelona, MOLECULES will integrate three different experiences: the sharing e-bikes schemes, the deployment of electrical fleets for urban maintenance of public services, and the offer of e-bikes and joint public mobility services to city visitors.

Grand Paris pilot will demonstrate that it is possible to integrate and complete the existing network transportation of an extended metropolitan area adding some environmental value with local car pooling, car sharing and intermodal experiences and especially in Marne la Vallée the cluster of the sustainable city of Le Grand Paris

Pilot Sites in MOLECULES

IMPACT

The pilot sites in MOLECULES will strongly contribute to the EU objectives of improved energy efficiency, emissions reduction, and comfort and sustainability of transport.

- Improve seamless, cost-efficient accessibility to mobility.
- Reduce GHG emissions and increase the share of renewable energies - expect to reduce GHG emissions by up to 73000 Tons within the project duration.
- Improve Europeans citizens' quality of life by offering a safer, healthier, more accessible, more convenient and more environmentally friendly ICT supported electromobility system.
- Foster economic growth by decreasing dependency from oil and offering savings in personal mobility.

ICTPSP