Green eMotion

Development of an European Framework for Electromobility

FP7 call TRANSPORT - 2010 TREN -1

43 partners

Project Start: March 2011

I Jornada BioEconomic

Sitges, April 23th 2012

Speaker:
Miguel Cruz (IREC)

Green eMotion

IREC
Institut de Recerca en Energia de Catalunya
Catalonia Institute for Energy Research

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European Commission

COOPERATION

AIM OF THE PRESENTATION

- To explain the main objectives and of Green eMotion project.
- To show what are project's expected results and how can be used for municipalities and private companies.
- To explain how to collaborate in the project through the External Stakeholder Forum.
- To list European funding opportunities in the transport topic.

PART I: WHAT'S IREC?

Catalonia Institute for Energy Research

(Institut de Recerca en Energia de Catalunya)

Green eMotion

IREC

Institut de Recerca en Energia de Catalunya
Catalonia Institute for Energy Research

European Commission

COOPERATION

IREC'S ORIENTATION

The Institute's orientation takes a dual approach:

- **Market orientation**, focusing on technology development, new products and new technical solutions for energy sector companies active in the same fields as IREC's established lines of action.
- **Long-term research** into different aspects of the established lines of action. It will not initially aimed at the market, but at generating knowledge amongst groups in the Institute itself, with a long-term commercial projection in mind.

The Institute's orientation will consist of a **balance** between these two approaches.

IREC's TECHNOLOGY & RESEARCH AREAS

The Institute's **focus of technological** research:

Electrical Engineering	Advanced Materials for Energy	Bioenergy and Biofuels	Offshore Wind Energy	Thermal Efficiency in Building	Lighting
Area	Area	Area	Area	Group	Group

Energy Efficiency

LOCATIONS

The **Barcelona Research Center** handles:

- Electrical Engineering
- Advanced Materials for Energy
- Electricity and Power Grids
- Thermal Efficiency in Building
- Lighting

The **Tarragona Research Center** deals with:

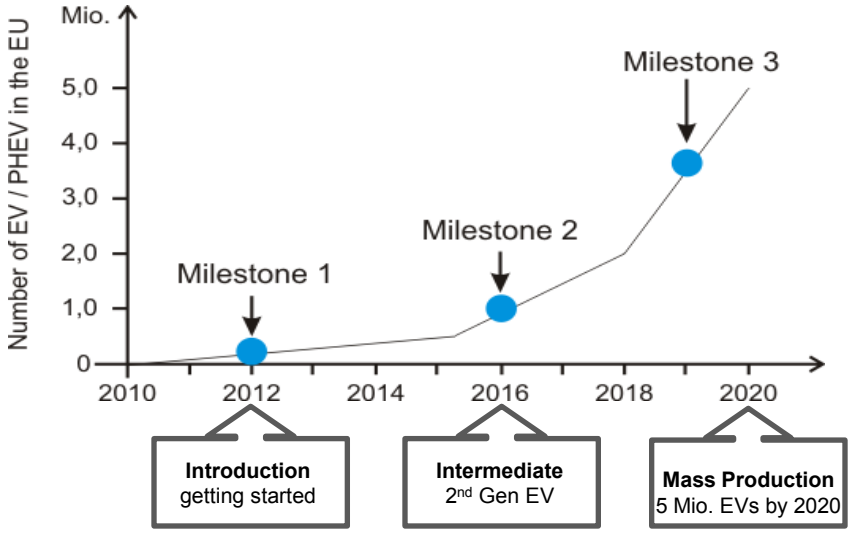
- Bioenergy
- Offshore Wind Power

PART II: The Green eMotion Project

The Green eMotion Project

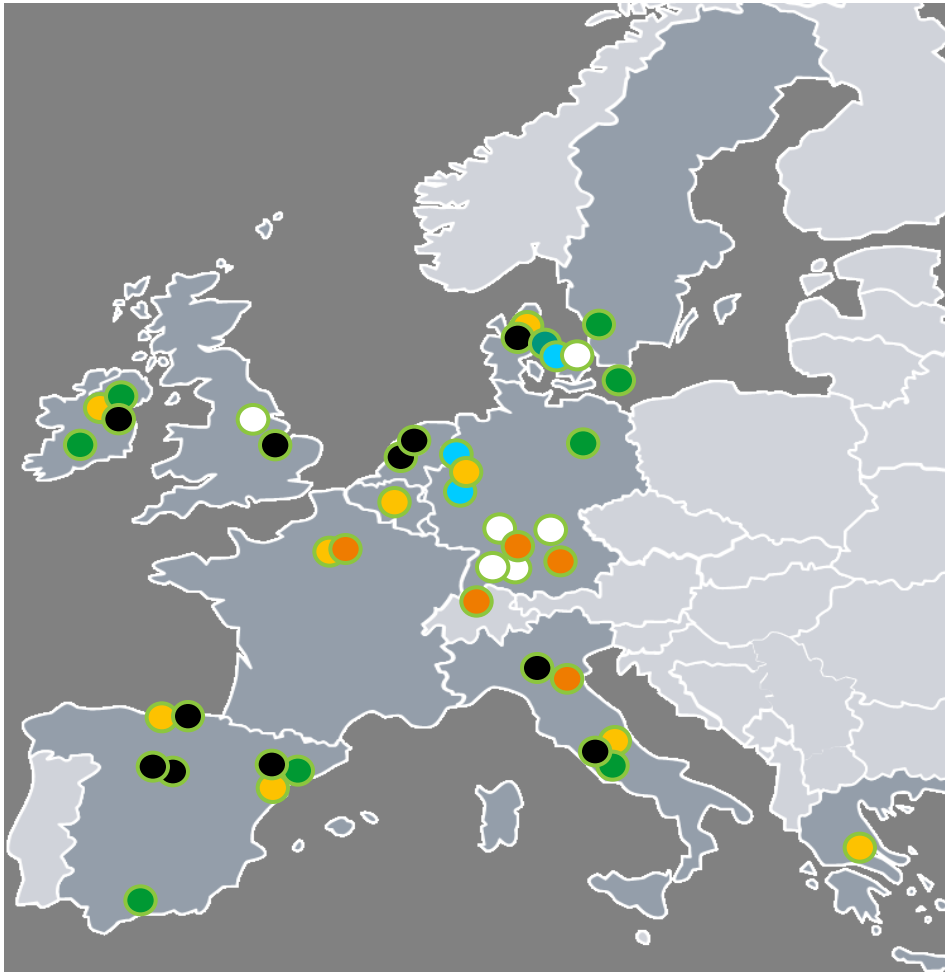
Motivation for the Green eMotion Project

- Number of eCars is increasing heavily in Europe over the next decade (see draft of EGCI Roadmap for EV in Europe)
- Quite a big number of electromobility demonstration projects funded by regional, national or European programs are running



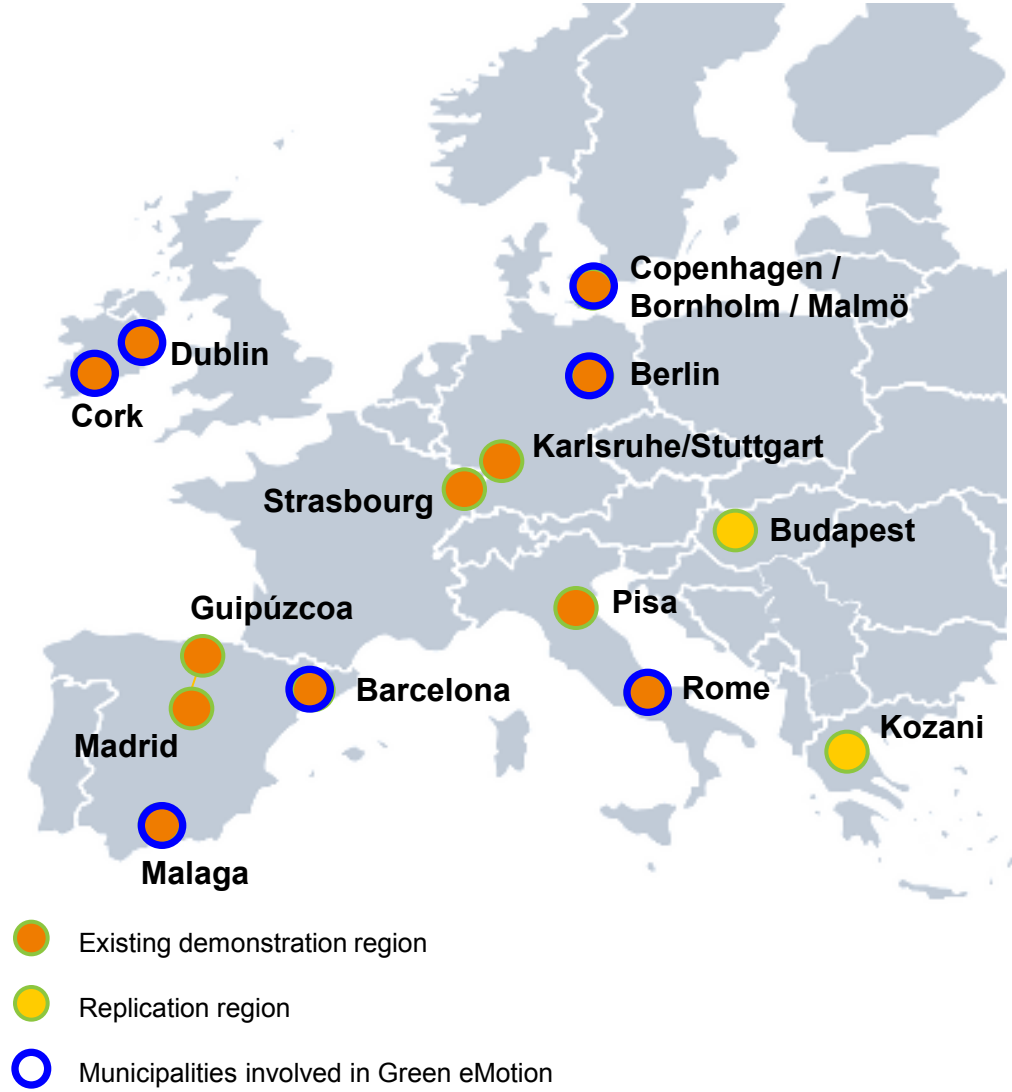
⇨ Two major requirements:
- Coordination of results from demonstration projects to define best in class solutions
- Standardisation of technologies has to be in place 2015 at the latest.

Project Consortium with 43 Partners



- **Industries:**
  Alstom, Better Place, Bosch, IBM, SAP, Siemens
- **Utilities:**
  Danish Energy Association, EDF, Endesa, Enel, ESB, Eurelectric, Iberdrola, RWE, PPC
- **Electric Vehicle Manufacturers:**
  BMW, Daimler, Micro-Vett, Nissan, Renault
- **Municipalities:**
  Barcelona, Berlin, Bornholm, Copenhagen, Cork, Dublin, Malaga, Malmö, Rome
- **Research Institutions and Universities:**
  Cartif, Cidaut, CTL, DTU, ECN, Imperial, IREC, RSE, TCD, Tecnalia, TNO
- **EV Technology Institutions:**
  DTI, FKA, TÜV Nord

Green eMotion – Demonstration Regions

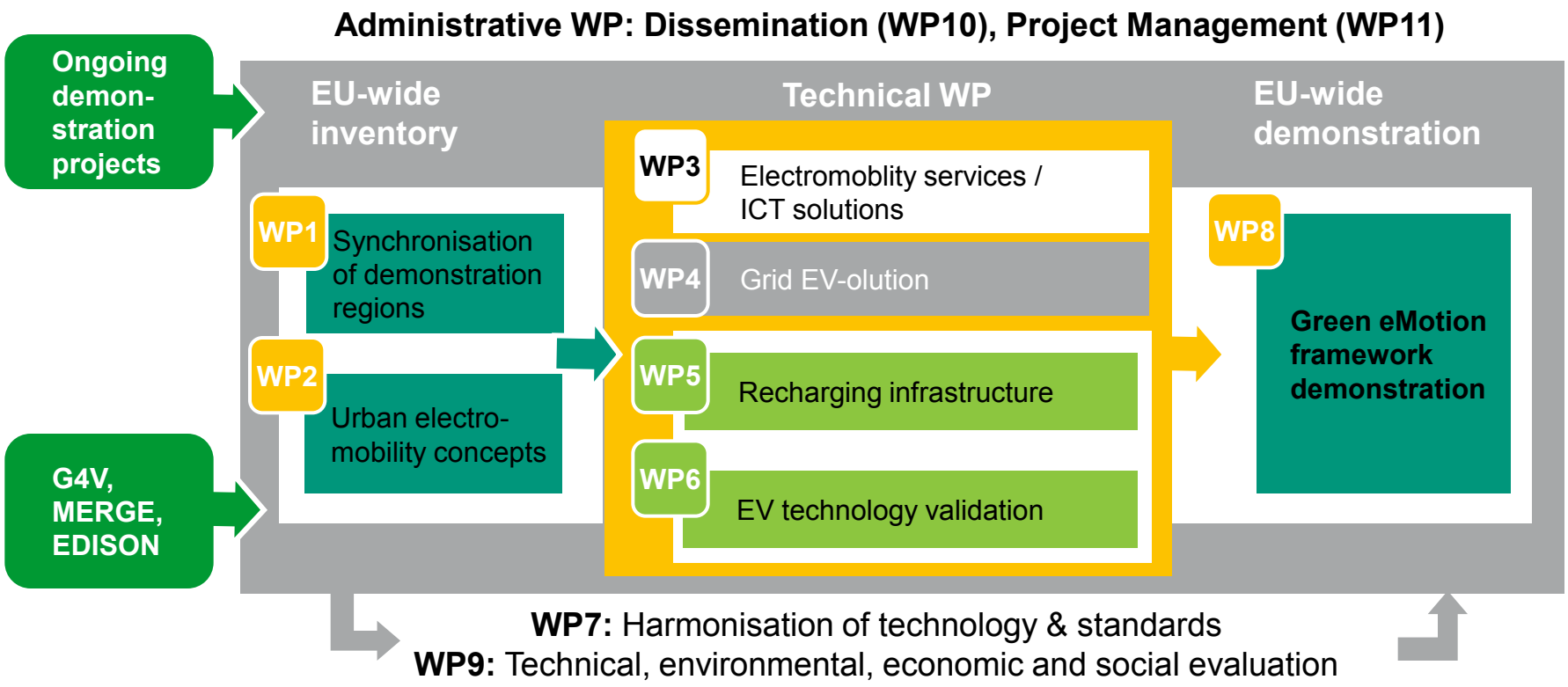


In the Green eMotion demo regions roughly 2,000 EVs are driving right now and for their electricity supply more than 2.500 charging points are installed.

This will increase to around 70.000 EVs and more than 80.000 charging posts in 2015.

In total more than 380 Mio € are spend in funded projects within these demo regions (+ private investments by GeM partners)

Work structure



Subject: Integrated European demonstration on electro-mobility – Vehicles, infrastructure, grid, IT applications, user acceptance

Green eMotion develops a Market Place

Green eMotion develops and demonstrates a virtual marketplace for electromobilty to enable Europe wide electromobility and to allow for new added value transportation services to increase EV-user convenience.

Before	Green eMotion	Afterwards
▪ Local solutions ▪ Free charging or flat rate for registered users ▪ Some upcoming local roaming solutions	▪ Business analysis ▪ System architecture (04/12) ▪ Development (wip) ▪ Implementation (04/13) ▪ Demonstration (from 04/13)	▪ European wide roaming ▪ Interoperable system ▪ New business models with value added services ▪ Increased user acceptance

Green eMotion prepares standards

Green eMotion contributes to the improvement and development of new and existing standards for electromobility, using the existing standardisation bodies for implementation of standards.

Before	Green eMotion	Afterwards
▪ Local solutions ▪ Different or missing standards e.g. plugs, communication protocols, unique identifier, payment	▪ Analysis of existing standards and needs ▪ Development of proposals (wip) ▪ Harmonization with stakeholders and standardisation committees (05/12, 04/14) ▪ Common methodology and field tests (07/12) ▪ Guidelines for the selection of standards (02/15)	▪ De-facto standards for Europe accepted by a broad base of companies (partners and stakeholders) ▪ Open architecture for a complete European electromobility system allowing for competition in the market ▪ Interoperable system ▪ Increased user acceptance

Green eMotion defines infrastructure needs

Green eMotion delivers a set of requirements regarding networks and charging infrastructure for the implementation of successful electromobility systems.

Before	Green eMotion	Afterwards
▪ Local pilot projects ▪ Many independent approaches leading to versatile, not compatible solutions ▪ Small product series with high costs ▪ No common knowledge base e.g. technology, charging network, grid interface	▪ Data collection and evaluation (wip) ▪ Development for a planning toolkit (10/13) ▪ Guidelines for infrastructure deployment (04/14) ▪ Demonstration of different types of charging solutions (10/13 – 04/14) ▪ Implementation of charging management solutions for optimized integration of EVs in local grids (10/13)	▪ Recommendation on optimal charging infrastructure regarding type, number, location and user acceptance ▪ Recommendation on charging infrastructure with minimized grid enhancement costs

Green eMotion evaluates the performance of EV technology

Green eMotion validates the performance of EV technology in terms of durability, costs and safety aspects under real world driving conditions in different climatic zones.

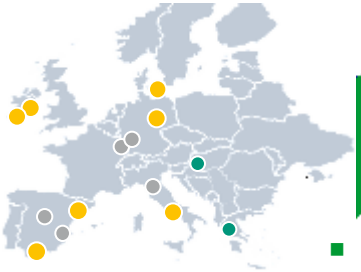
Before	Green eMotion	Afterwards
▪ Most EVs are converted combustion cars ▪ Only small number of EVs on the roads ▪ Small product series with high costs ▪ Limited experience with durability of EVs	▪ Performance validation (grid to road efficiency, battery performance, climate aspects, safety aspects, maintenance) (01/15) ▪ Technical analysis in the demo regions ▪ Evaluation of environmental impact based on EV life-cycle analysis (from “cradle to grave“) (10/14)	▪ Report on real-life performance of vehicles compared to marketing facts and OEM figures ▪ Safety and maintenance training (handbook and web-based)

External Stakeholder Forum

'The Mission of the Green e-Motion Stakeholder Forum is to accelerate growth in the European market for electrically chargeable vehicles through the realization of complete infrastructure that delivers a seamless, integrated experience for end users. The Forum will achieve this by enhancing communication and sharing vision, experience and information between the many stakeholders in industry, national & regional authorities, the EU and wider public.'

- So far 71 companies have applied for cooperation
- More than 50 additional companies have asked to be in the information loop
- Three meetings held: March 16 in Brussels, June 20 in Dublin, November 22 in Paris
- Next meeting: May 10/11, 2012 in Brussels (host Eurelectric)

The Concept of Green eMotion



Green eMotion

EU-wide market roll out

- Connection of national/regional demo projects
- Market place
- Interoperability and standards

National / regional projects

Proof technology

Test of operation and billing

First business models

Initial local consumer awareness

EU project Green eMotion

Proof of interoperability

Proof of protocols and interfaces

Marketplace and advanced services

Consumer awareness and acceptance

Mass market (start)

Standardised solutions for vehicles infrastructure, network and IT applications

Preconditions and user acceptance

PART III: EUROPEAN FUNDING OPPORTUNITIES

TRANSPORT (II)

Call: FP7-SST-2013-RTD-1

GC.SST.2013-1. Efficient, safe, convenient solutions for grid and road integration of the electric vehicle

Advanced solutions for charging electric vehicles (EV) which are fully integrated in the grid and road infrastructure within urban environments and at the same time account for the state of the art battery technologies may pave another way towards unlimited range of the fully electric vehicle in the future. Focus on increasing the driving range and battery lifetime and reducing the time charging . Interoperability is key for implementing charging systems and communication protocols.

GC.SST.2013-2. Next generation electric motors

The energy efficiency of Electric Vehicles can be improved by next generation of electric motors providing higher efficiency. Improved materials or substitutes could deliver higher and tailored output while reducing weight and volume. The scarcity and the recyclability of such materials should also be addressed

GC.SST.2013-3. Future light electric vehicles

The objective is to close the gap between bikes/mopeds and cars by developing light, affordable, safe, ergonomic and energy efficient electric vehicles meeting customer expectations in all weather conditions.

SST.2013.3-2. Implementing innovative and green urban transport solutions in Europe and beyond

The active take up and transfer of experience between European cities and cities across the world is expected to accelerate the deployment of sustainable urban transport solutions.

TRANSPORT (I)

Call: FP7-TRANSPORT-2013-MOVE-1

GC.SST.2013-4. Demonstration of electric buses as urban public transport

A large demonstration project will facilitate the market take up of electric buses in Europe. The fleets of urban buses will include the main several types of electrification technologies dealing or not with different scenarios on interaction with the electricity grid. The proposal time frame should be designed to take on board latest development in EU or national programs and latest available industrial technologies for all vehicle categories considered. Existing local or regional demo projects and new projects could be coordinated in this demonstration project.

Deadlines

To be published

Infodays

The Transport Research Infodays 2012 - 18 and 19 July 2012, Brussels:
The aim of the two-day event is to inform potential participants about FP7 and the new Transport Calls for Proposals under the 'Co-operation' Programme. Details will also be given on the main legal and procedural conditions and we will respond to your questions. Participants will also have the chance to network with potential project partners.

Registration: http://ec.europa.eu/research/transport/events/infodays/index_en.htm

Brokerage Event trans-national about next PPP calls (including Green Cars) – 12th June, Lyon:
The aim of the event is to present an overview of the content of the NMP-PPP calls 2013 to be published on July 2012. Besides, it will help potential participants to find partners and to exchange ideas for proposals. For that reason, it has been organized round tables, face to face meetings and contacts with NCPs.

Registration: http://b2match.eu/nmp-ppp-lyon2012

Cost: free

Schedule:
22 may 2012: deadline for registration
5 june 2012: deadline for submission of presentation for the round table sessions
22 mai - 5 june 2012: time frame for online selection of face to face meetings
12 june 2012: final face to face meetings agenda

Thank you
for your attention.

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