



Green eMotion –
Development of a European framework for electromobility



Green eMotion – joint forces for joint progress



Green eMotion – overall goals

- Demonstrating an integrated European approach to deploy electromobility in the EU, including vehicles, infrastructure, grid, electric vehicles (EV) IT solutions and user acceptance
- Developing and demonstrating a unique and user-friendly framework for green electromobility including:
 - Demonstration of interoperability by integrating various demonstration regions
 - Provide and proof a marketplace for electric vehicle services
 - Develop a baseline for standardization of network and charging infrastructure, vehicle technology and ICT solutions
 - Enable mass deployment of electromobility

Project background

Within the Green Cars Initiative launched in the context of the European Recovery Plan, the European Union supports research and development of road transport solutions which have the potential to achieve a breakthrough in the use of renewable and non-polluting energy sources. With dwindling fossil resources, electromobility and EV become ever more important, especially with respect to climate change. To this end, the project Green eMotion was selected to enable a mass deployment of electromobility in Europe.





Multidisciplinary research

42 partners from industry, the energy sector, electric vehicles manufacturers, municipalities as well as universities and research institutions have joined forces in the Green eMotion project. The aim is to develop and to demonstrate a commonly accepted and user-friendly framework consisting of interoperable and scalable technical solutions in connection with a sustainable business platform. Smart Grid developments, innovative ICT solutions, different types of EVs as well as urban mobility concepts will be taken into account for the implementation of this framework. The four year project will start in March 2011. It has a total budget of 42 Mio. € and will be funded by the European Commission with 24 Mio. €.

A European effort

Green eMotion will connect ongoing regional and national electromobility initiatives leveraging on the results and comparing the different technology approaches to ensure the best solutions prevail for the European market. A virtual marketplace will be created to enable the different actors to interact and to allow for new high-value transportation services as well as EV-user convenience in billing (EU Clearing House).

In addition, the Green eMotion project will demonstrate the integration of electromobility into electrical networks and contribute to the improvement and development of new and existing standards for electromobility interfaces, as the acceptance of electromobility requires international harmonization and depends to a large extent on:

- the ability to recharge batteries safely, anytime and anywhere
- an interface that makes recharging as easy as pumping fuel, e.g. with rapid AC and DC charging technologies, inductive and battery swapping infrastructures
- a telecommunications infrastructure that enables billing and recharging anywhere in Europe

or for short: standards for interoperability in Europe. To prove the interoperability of the framework, Green eMotion will demonstrate the elaborate technical solutions in some of the participating demonstration regions.

Best practice prevails

Green eMotion will facilitate the understanding of all stakeholders about the parameters which influence the achievement of best possible results for society, environment as well as economy and thus ensure transfer of best practices. As a result, policy makers, urban planners and electric utilities will receive a reference model for a sustainable rollout of electromobility in Europe.

The Green eMotion work packages

Within the Green eMotion project, the research and development tasks have been assigned to eleven work packages (WP). This is a short overview of the WP tasks and the assigned responsibilities.

Work package and responsibility

WP 1 Synchronisation of demonstration regions

Since municipalities play an important role to support and stimulate the introduction of EVs, the objective of WP 1 is to set up, implement and synchronize demonstration activities in the twelve demonstration regions of Green eMotion. In addition, WP 1 aims at ensuring a great variety of fleets, vehicle types and concepts as well as implementing mechanisms for data sharing and best practice evaluation among all regions, while some extra demonstration features will be implemented in each region to enable further tests and a wider spectrum of activities.

WP 2 Urban electromobility concepts, policies and regulations

The introduction of electromobility is as complex as it is challenging. It relies on a strong, long-term vision and the dedication of municipalities and local electricity providers. WP 2 will assess the different concepts for a rollout from a municipality planning and policy perspective. The key features which are necessary for a successful mass roll out of electric cars in Europe will be determined.

WP 3 Electromobility services / ICT solutions

ICT is seen as the key enabler for electromobility, offering a multitude of basic and advanced services to the driver. The integration of these services will allow the usability for the end user without regional limitations (e.g. with roaming or recharging location services) and will enable the realization of economies of scale for advanced service offerings like fleet management.

WP 4 Grid EV-olution

The objective of WP 4 is to use the numerous ongoing demonstration field trials to define best-practice solutions for recharging infrastructure from a grid operator's perspective. Provision of adequate grid capacity and appropriate grid operation tools in order to welcome EV's and make them beneficial for power system operation are key questions to be investigated and demonstrated.

WP 5 Recharging Infrastructures

The aim of WP 5 is providing advanced, interoperable and manageable recharging infrastructures and services to EVs. This is going to be demonstrated through the delivery of such infrastructures for DC fast recharging, battery swapping and inductive recharging and also the delivery of charging management system and smart network re-enforcement to different demonstration regions.

WP 6 EV technology validation

The objective of WP 6 is to validate the performance of EV technology in terms of durability, costs and safety aspects under realistic driving conditions in different climatic zones.

WP 7 Harmonisation of technology and standards

The harmonization of standards is an essential issue for the mass rollout of EV and PHEV (plug-in hybrid electric vehicle) across the EU. Based on the requirements of the other WPs and the experiences made in the demonstration regions, WP 7 will support the standardization efforts for the three layers: vehicle, infrastructure and communication.

WP 8 Green eMotion framework demonstration

An essential key issue of WP 8 is the demonstration of the enhanced interoperable and upgradeable electromobility solutions developed within Green eMotion. The objective therefore is to introduce and test the electromobility framework and to provide feedback for its improvement as well as to establish requirements on pan-EU interoperable and evolutionary (upgradeable) recharging infrastructures.

WP 9 Technical, environmental, economic and social evaluation

In order to assess the viability of mass rollout of EV and PHEV across the EU, their system-wide impact on European electricity infrastructures needs to be thoroughly understood from a multi-criteria perspective involving technical, economic, environmental and social aspects.

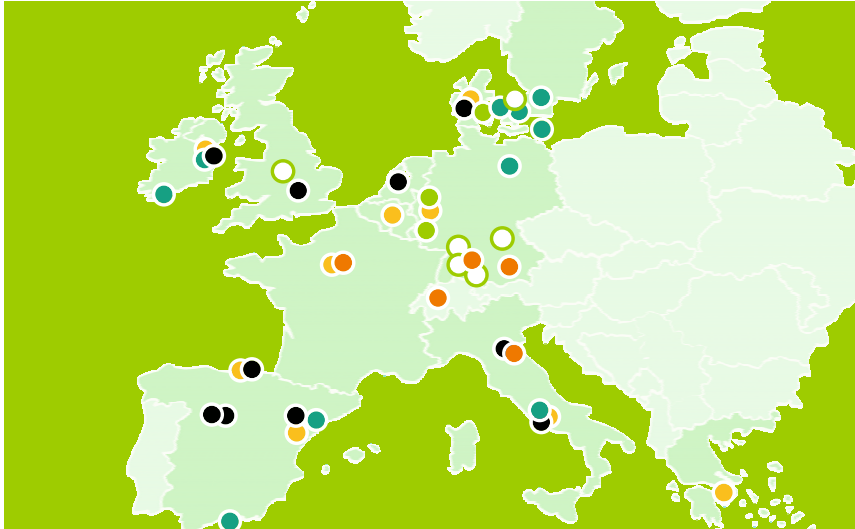
WP 10 Dissemination

The objective of WP 10 is to disseminate and exploit the knowledge and results gained within the Green eMotion project. This includes an External Stakeholder Board to leverage the experience of companies and demo regions not part of the consortium.

WP 11 Project Management

The main objective is an efficient and smooth project execution, ensuring that the project objectives are fulfilled and that project deliverables are delivered on time and in line with the budget.

Partners of Green eMotion



- Industries:**
Alstom, Better Place, Bosch, IBM, SAP, Siemens
- Utilities:**
Danish Energy Association, EDF, Endesa, Enel, ESB, Eurelectric, Iberdrola, RWE, PPC
- EV manufacturers:**
BMW, Daimler, Micro-Vett, Nissan, Renault
- Municipalities:**
Barcelona, Berlin, Bornholm, Copenhagen, Cork, Dublin (represented by the energy agency Codema), Malaga, Malmo, Rome
- Universities and research institutions:**
Cartif, Cidaut, CTL, DTU, ECN, Imperial, IREC, RSE, TCD, Technalia
- EV technology institutions:**
DTI, fka, TÜV NORD

The Green eMotion Partners

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