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Partners

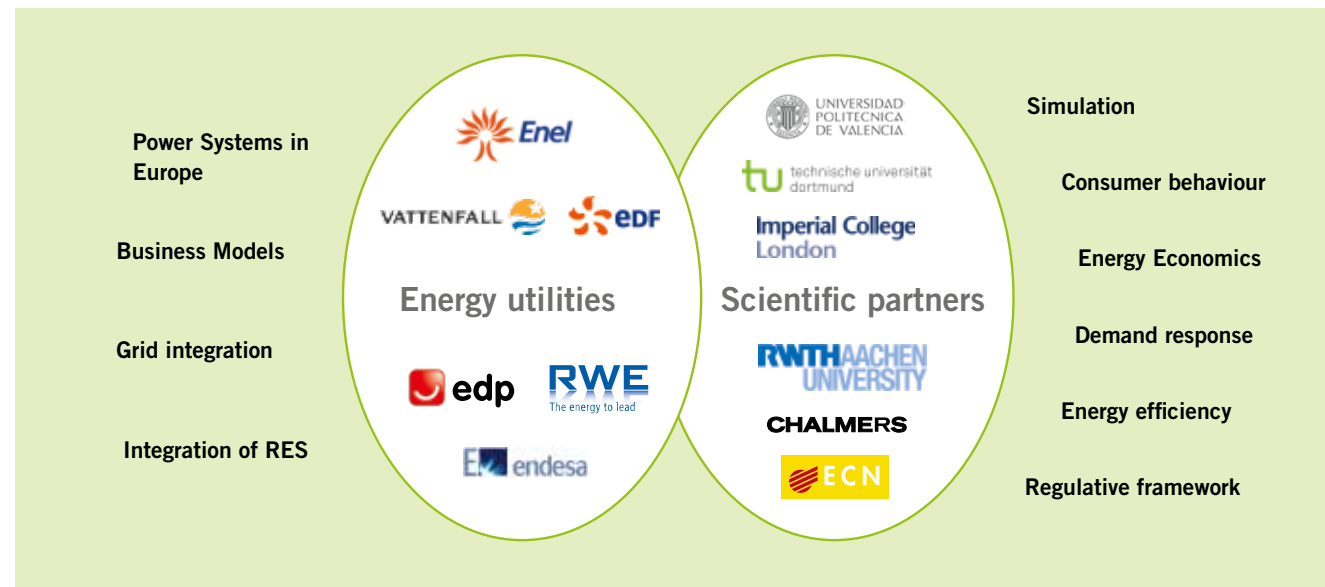
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09/2010; pictures: RWTH Aachen, G4V

Project Summary

Electric and plug-in hybrid vehicles (EV, PHEV) have the potential to contribute significantly to solving contemporary and future environmental and economic challenges of mobility. Various projects in different EU member states are currently addressing the subject in an isolated manner. The G4V consortium consisting of major

European electric utilities and distinguished academic institutions are now adopting a holistic European approach to analyse the impact of a mass introduction in detail in order to optimise the grid infrastructure and make use of the inherent opportunities this represents for the operation of smart grids and energy efficiency. The project will be conducted within 18 months. The final project results can be expected by mid of 2011.



The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement No. 241295.



Grid-for-Vehicles

Analysis of the impact and possibilities of a mass introduction of electric and plug-in hybrid vehicles on the electricity networks in Europe



About G4V

Very soon electric vehicles (EV) and especially plug-in hybrid vehicles (PHEV) will be gradually introduced to the EU market. Although electricity is available everywhere in Europe, the impact of a large scale introduction of EV and PHEV needs to be investigated in detail in order to optimise the infrastructure and make use of the inherent opportunities this represents for the operation of smart grids and energy efficiency.

The objective of G4V is to develop an analytical method to evaluate the impact of a large scale introduction of EV and PHEV on the grid infrastructure and a visionary “road map” for the year 2020 and beyond, taking into account all stakeholders and generating fast and openly available results.

G4V Vision

Electricity grids of the future will need to support customers at every point of interest. Independently of the location, time and power request, the customers will be served according to their requirements (e.g. minimum mileage requests, tariffs, location etc.). Accordingly, the electricity grids have to become sufficiently smart to tackle the conflict of the grid owner between huge investment into conventional assets (cables, transformers etc.) and

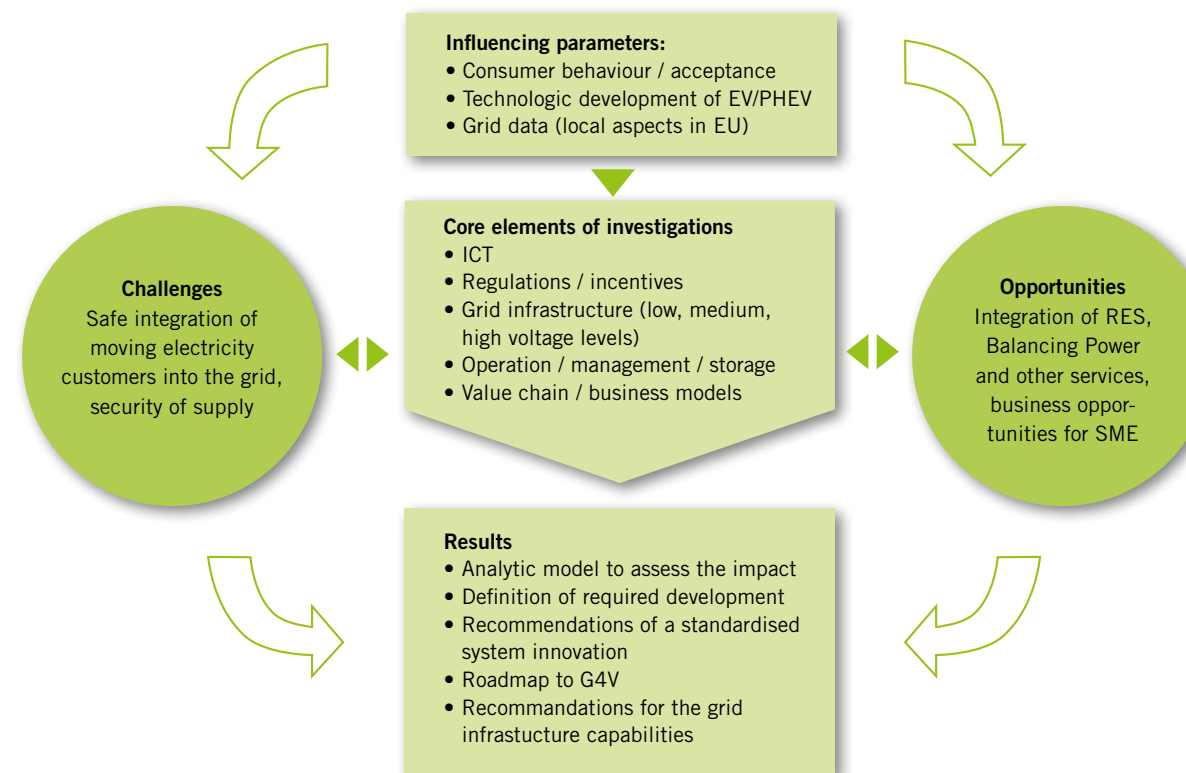
artificial intelligence for innovative grid operations to support millions of mobile customers (EVs and PHEVs). Furthermore the smart electricity grid with support of the intelligent communication of the car, will ensure

- the optimal usage of the renewable energy sources
- new services on the medium and low voltage level like Demand Response, Demand Side Management, Congestion Management and other ancillary services
- the quality of power supply and the avoidance of power failures due to non-optimal charging procedures
- a transparent and fair billing service on a “deal to deal” basis (small single transactions)

G4V Mission

G4V endeavours to provide a set of recommendations to support the evolution of the European electricity grids into an intelligent power system of the future which can efficiently integrate and serve a mass market of EVs and PHEVs in Europe by offering a variety of services and products to meet the requirements of a wide range of involved stakeholders.

Objectives and key elements of G4V



- Development of an analytical method to assess the impact of the mass introduction of EV and PHEV on the electricity grids
- Elaboration of recommendations for technological upgrading of the grid infrastructure and related ICT system solutions for grid management
- Elaboration of recommendations for policy makers to foster electric mobility (in terms of regulations and incentives)

- Identification and seizing of business opportunities for different stakeholders groups
- Elaboration of standardisation proposals => Joint European Approach
- Definition of future required RTD activities and projects