

- Increased take-up of transformative European ICT in new mobility services.
- Energy efficiency gains in personal mobility demonstrated when using new mobility services.

### Funding Schemes

STREP

#### Indicative budget distribution

EUR 15 million

#### Call:

FP7-SMARTCITIES-2013

### **Objective GC-ICT-2013.6.7 Electro-mobility**

The European Green Car Initiative (EGCI) is part of the European Economic Recovery Plan launched in November 2008 to respond to the global economic crisis. This Public-Private-Partnership (PPP) aims at demand-side measures to support the development of new and sustainable forms of road transport. The ICT contribution to this initiative aims at improving the cost- and energy-efficiency of the fully electric vehicle and its value chain through the application of advanced ICT. Objective 6.7 under ICT and relevant objectives under NMP, Environment, Energy and Transport are co-ordinated and jointly support the EGCI PPP.

This objective addresses fully electric vehicles (FEV), meaning electrically-propelled vehicles that provide significant driving range on purely battery-based power. It includes vehicles having an on-board electrical generator as range extenders. The objective also covers small light-weight passenger and duty vehicles. Projects supported under this objective should advance the research, development and integration of major building blocks for the FEV, and for its infrastructure integration.

#### Target outcomes:

##### **a) Advanced System Architecture for FEV**

New or expanded functionality of existing hard and software architectures for electronics leading to radical cost reduction, reduced complexity, increased reliability and flexibility and higher energy efficiency.

Advanced concepts for the integration of multiple functionalities into smart subsystems for energy storage, traction, and power control including e.g. bi-directional energy transfer (managed/controlled charging), energy recovery and improved road handling. Work shall address the re-design of the electric and electronic architecture; assessment of the implication for safety, security, reliability and robustness of the electric power train operation including EMC and the development of related international standards; the usage of low power consuming cooperative systems for cost efficient, real-time and safe operation of the vehicle.

Also included are technical solutions facilitating recycling and reuse of components; standardised, cost-efficient and reproducible testing concepts for vehicles and subsystems; ICT solutions for cost efficient, flexible production of small volume,

customised (sub-) systems and vehicles driven by the different requirements of different customers.

### **b) Comprehensive Energy Management**

ICT for optimising the energy system inside the FEV and the connectivity of the FEV using Comprehensive Energy Management Systems including efficient vehicle-based solutions for grid and road integration taking into account aspects of autonomous driving and integration in cooperative systems as appropriate.

Increased synergies of electric traction, autonomous driving and cooperative road-vehicle systems for energy-, cost- and time-efficiency as well as safe operation of the vehicle including autonomous positioning or guiding are targeted. Work shall address alternative, innovative ICT-based solutions for optimised recharging interfaces and methods (inductive; continuous; fast; en route) and include vehicle-based energy harvesting and the management of combinations of different energy sources and storage as well as the management and optimisation of energy storage ageing, charge monitoring and certification of energy content. Projects in this field are expected to establish cooperation and to coordinate with relevant projects under NMP, Environment, Energy and Transport to jointly support the EGCI PPP.

Also included are the assessment of related safety and health concerns regarding the use of electric vehicles; work towards common user interfaces including privacy and data security standards for flexible subsystems and mobile devices (smart phones, tablets etc.) and the contribution to standards e.g. for dynamic and bi-directional energy exchange between the vehicles and the smart grid.

### **c) Coordination and support actions**

Business models for the deployment of FEV in public, personal, and freight transport; pilot educational and training programmes and curricula; stimulation of the international dimension for European FEV and the global presence of SMEs; and contribution to the setting of standards are envisaged. Proposals should predominantly address SME activities.

#### Expected impacts:

- Improved energy efficiency and extended driving range of the FEV
- Increased performance and reduced costs of the electronic components and the overall FEV produced in Europe.
- Better integration of the FEV in the smart grids and cooperative infrastructure
- Significant improvement of FEVs' safety and comfort
- Strengthened global competitiveness of the European automobile, ICT and battery sectors; significant market penetration of key components of FEVs.

#### Funding schemes

a), b) IP, STREP: It is expected that at least one IP is selected per target outcome. Individual proposals may address both target outcomes.

c) CSA

#### Indicative budget distribution

IP, STREP: EUR 39 million

CSA: EUR 1 million

Call:

FP7-ICT-2013-GC