

Group of topics (GT) European Green Car Initiative

European Commission
Research & Innovation
FP7 - Cooperation
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GC.SST.2012.1-1. Innovative advanced lightweight materials for the next generation of environmentally-friendly electric vehicles

CP-IP - Call : FP7-2012-GC-MATERIALS

- **Contents and scope:**

- ▶ Reducing the structural weight.
- ▶ Standardisation issues should be considered.
- ▶ Exploiting new materials characteristics in association with the innovative structural layouts.
- ▶ Addressing related production process challenges.
- ▶ Assessing the performance of the behaviour of the advanced materials and the respective components and systems.
- ▶ Life-cycle analysis of the advanced materials.
- ▶ Economic analysis that demonstrate the real advantages of the new materials over conventional ones.
- ▶ Either large integration project or smaller technology oriented one (4-10M€) possible clustering with GC SST 2012.1-4

- **Expected impact:**

- ▶ A further 20% reduction to former project SLC (-30%) is to be demonstrated.
- ▶ Overall reduction in time-to-market and development costs while increasing product flexibility.
- ▶ Economic viability and technological feasibility of the advanced materials.

GC.SST.2012.1-2. Smart infrastructures and innovative services for electric vehicles in the urban grid and road environment

Level 1 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope:**

- ▶ Innovative solutions for recharging stationary EV minimising risks deriving from vandalism.
- ▶ Innovative location based Demand Management systems.
- ▶ Data security standards and crypto measures to ensure privacy protection.
- ▶ Intelligent coordinated systems (micro-grids) that balance the simultaneous demand.

- **Expected impact:**

- ▶ Demonstrate the enhanced attractiveness of electric mobility.
- ▶ Economics of the needed investments.

GC.SST.2012.1-3. European strategy for rare materials and their possible substitution

Level 2 CSA-SA- Call : FP7-SST-2012-RTD-1

- **Contents and scope:**

- ▶ Prediction of the long term needs of the European electric vehicle industry for strategic materials.
- ▶ Access to alternative supply.
- ▶ Alternative materials and technologies.
- ▶ Options to replace rare earth materials.
- ▶ Recycling and reuse options.
- ▶ Economic, social and environmental risks of shortages.
- ▶ Political situation and development of solutions at a global scale.

- **Expected impact :**

- ▶ Materials roadmap and recommendations for strategic plans to solve the specific long-term materials issues for the Electric Vehicles sector.

GC.SST.2012.1-4. Modelling and testing for improved safety of alternatively-powered vehicles

Level 2 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Solutions for improving the crashworthiness and performance of future generation alternatively-powered vehicles.
- ▶ Evaluation criteria with regard to injury prevention of occupants of electrical and light-weight vehicles.
- ▶ Analyse the weight saving potentials.
- ▶ Verify technological feasibility and economic viability of the solutions proposed.
- ▶ Possible clustering with GC SST 2012.1-4

- **Expected impact :**

- ▶ Improved performance in terms of combined injury prevention, safety in asymmetric crashes.
- ▶ Low environmental impact of next generation alternatively-powered vehicles, at an acceptable cost.

GC.SST.2012.1-5. Integration and optimisation of range extenders on Electric Vehicles

Level 2 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Optimisation of the ICE used as the range extender and of its after treatment system.
- ▶ Impact on optimal battery capacity.
- ▶ Advanced control strategies.
- ▶ Modularisation.
- ▶ Performance, safety, recyclability and cost.
- ▶ Characterisation, standardisation and synergies with other applications.

- **Expected impact :**

- ▶ Overall performance, particularly in terms of the expected CO₂ emissions reduction of the range-extended EV.
- ▶ Safety, recyclability and life-cycle sustainability.
- ▶ Helping European automotive industry to maintain world-class status.

GC.SST.2012.1-6. Advanced energy simulation and testing for Fully Electric Vehicles (FEV)

Level 2 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Numerical simulation, virtual prototyping and physical testing to :
 - ◆ Investigate solutions for improving the efficiency and performance of future generation EV and their constituent components and sub-systems.
 - ◆ Assess energy efficiency and related increase of autonomy.
 - ◆ Verify the technological feasibility and economic viability of the advanced solutions proposed.

- **Expected impact :**

- ▶ Demonstrate that the advanced modelling and testing tools can be used to ensure improved energy efficiency and performances of the next generation EV and HEV.
- ▶ Reduction of testing time for life cycle testing up to 50%.
- ▶ Real world testing of batteries on the test bench instead of field testing.
- ▶ Reduced development time.
- ▶ Increased reliability and durability as well as reduced validation time.

GC.SST.2012.2-1. Extreme low rolling resistance tyres

Level 1 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope :**
 - ▶ Design of new thread pattern for reduced rolling resistance.
 - ▶ Modification of chemical composition of the tyres.
 - ▶ Smart solutions for tyre pressure, temperature and condition monitoring/adaptation systems.
- **Expected impact :**
 - ▶ Demonstrate the maximum potential for low rolling resistance tyres.

GC.SST.2012.2-2. Complete vehicle energy management

Level 2 CP-FP- Call : FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Optimised power management and distribution.
- ▶ Optimised control of electrified auxiliaries and synergies for cooling performance.
- ▶ Advanced vehicle aerodynamics. Reduced friction between moving parts in all vehicle sub-systems.
- ▶ Energy recovering/scavenging/harvesting.
- ▶ Driver Support (eco-driving/driver-coaching).
- ▶ Energy efficient work environment for the driver.

- **Expected impact :**

- ▶ Demonstrate the potential for improved energy efficiency and the economic viability of advanced complete vehicle energy management concepts.

GC.SST.2012.3-1. Towards sustainable interconnected logistics - development of standardised and modular solutions for freight transport vehicles, loading units and transshipment equipment

Level 1 CP-FP- Call: FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Specify, demonstrate and recommend a modularised set of load unit sizes and functionalities.
- ▶ Solutions should follow the “well-to-wheel” approach looking at all elements of the logistics chain;
- ▶ Research will evaluate the impact of a new standardised iso-modular units approach for logistics;

- **Expected impact :**

- ▶ A multiscale standard set of logistic units.
- ▶ Facilitate the integration of today’s independent supply chains.
- ▶ Enable a completely new interconnected logistics organisation to be achieved.

GC.SST.2012.3-1. Improve capturing and sharing of transport data in support of innovative freight transport schemes

Level 2 CP-FP- Call: FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Innovative data gathering methodology.
- ▶ Opportunities for improvements in interfacing between data collection and company transport IT systems.
- ▶ Cross-fertilisation of best practice in freight data collection between countries.
- ▶ Correction of current statistical anomalies and filling in data gaps.

- **Expected impact :**

- ▶ Accurate and timely information system.
- ▶ Better knowledge about the seamless freight transport system to help benchmark market size, structure and trends.

GC.SST.2012.3-3. Platform for continuous intermodal freight transport strategic research and innovation

Level 2 CSA-CA - Call: FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Raising the profile and understanding of new intermodal and freight logistics technologies and business processes.
- ▶ Identifying policies, regulatory measures, financial mechanisms and socio-economic aspects that are required in support of their market penetration.
- ▶ Encouraging greater involvement in and acceptance of innovations in the public as well as private sector.

- **Expected impact :**

- ▶ Assessment and consensus building amongst, and between, industry and authorities on intermodal logistics market developments.
- ▶ Identification of standardisation, harmonisation and innovation requirements.
- ▶ Accelerated exploitation of research results and innovations in the domain of intermodal and freight logistics.

GC.SST.2012.3-4. Green hubs enabling co-modal network design

Level 2 CP-FP- Call: FP7-SST-2012-RTD-1

- **Contents and scope :**

- ▶ Integration of terminal networks within the supply chain.
- ▶ Conditions and requirements for inland terminals to participate in seaport hinterland terminal networks.
- ▶ Definition of critical Key Performance Indicators (KPI).
- ▶ Definition of innovative value added services at intermodal terminals.
- ▶ Analysis of the most effective forms of governance;
- ▶ methodology to assess the economic and environmental impact.

- **Expected impact :**

- ▶ Increased productivity of the European industry.
- ▶ Reduced congestion.
- ▶ Enhanced environmental performance of integrated network.
- ▶ Quality standards and increased performance of the freight system.

Thank you for your attention