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FP7

Sustainable Surface Transport (SST)

Call FP7-SST-2007-RTD-1

Content



EU



TRANSPORT RESEARCH



- ✓ Call specification
- Topics
- Funding schemes





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Call Specifications

Call FP7-SST-2010-RTD-1

- Expected date of publication: **30 July 2009**
- Expected deadline: **14 January 2010**
- Total indicative budget: **108 M€**
- Funding schemes:
 - è **CP: Collaborative Projects**
 - è **CSA: Coordination Support Action**





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TOPICS Called Overview

| The indicative budget for the "European Green Cars" PPP initiative in 2010 is 108 M€

è Transport Theme

EUR 68 million

è NMP Theme

EUR 10 million

è ICT Theme

EUR 20 million

è Environment Theme

EUR 5 million

è Energy Theme

EUR 5 million



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Expected impact



- è From an environmental and energy point of view there is an urgent need to find alternatives to fossil fuels in order to secure future energy supply, to guarantee the availability of appropriate material recycling technologies, and to.
- è Rapid development of technologies supporting the massive emergence of more efficient and sustainable road transport solutions
- è Reduce greenhouse gas emissions and other potential environmental impacts related to the automotive industry life-cycle
- è Ensure jobs, economic activity and competitive advantage to automotive industries in the global market



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DG RTD

The Joint Call on Batteries

NMP, Energy, Environment and Transport Themes

- | **TOPIC – GC.NMP.2010-1, GC.ENERGY.2010.10.2-2,
GC.ENV.2010.3.1.3-3, GC.SST.2010.7-9**

Materials, technologies and processes for sustainable automotive electrochemical storage applications

- è Objective: establishing a world level European automotive storage industry, within a responsible, sustainable and environmental-friendly approach
- è Coverage:
 - u innovative lithium-based technologies improving safety and energy density
 - u completely different technologies, architectures and chemistries, such as open cells for higher energy densities
 - u electrochemical capacitors
 - u recycling, recovering and re-use of materials for Li batteries
 - u comprehension, modelling and management of degradation to extend life
 - u environmental sustainability assessed via life cycle assessment studies.
 - u cost, recyclability and safety issues, as well as proof of concept (product and/or process) to be covered. The effect of bidirectional flow at charge stations, as well as the potential for fast charging should be taken in due account.
- è Funding schemes: CP



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SST 2010 Call

Transport Theme

I **TOPIC – GC.SST.2010.7-1** **Electrical machines**

- è Objective: development of electric machines that are at the same time cheap and highly efficient (on a wide torque/speed range) with high power to weight and volume ratios, reliable and robust, and optimised for mass-production. Particular attention should therefore be paid to the availability of some raw materials, in particular those needed for the magnetic components, as well as to the integration with the required power electronic components.
- è Coverage:
 - u Exploring innovative topologies and concepts (including consideration of intrinsic fault tolerance or mitigation) for the various types of applications (from in-wheel to stand-alone or engine-integrated ones).
 - u Researching high performance conductive, magnetic and insulating materials.
 - u Defining simplified, high efficiency cooling concepts.
 - u Developing advanced magnetic modelling tools.
 - u Defining automated manufacturing concepts that, given the gradual introduction of these devices, are flexible enough to be capable of supporting efficient manufacturing at the different rates needed in the early and full scale phases of the electrification process.
- è Funding schemes: CP



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Transport Theme

| **TOPIC – GC.SST.2010.7-2**

Integrated electric auxiliaries and on-board systems

- è Objective: developing reliable and energy efficient electric auxiliaries to match current comfort, safety and driveability customer expectations.
- è Coverage:
 - u electrified components and subsystems (climate control, lighting, power steering, infotainment, braking systems, pumps, after-treatment, etc) optimised in terms of efficiency, size, weight and cost (design for manufacturing) In some cases, such as steering and braking, due consideration of regulations and safety, needs to taken.
 - u Developing energy harvesting concepts which could compensate other auxiliaries' energy consumptions.
 - u Studying other energy control devices, such as actively controlled glasses to minimize cooling/heating requirements.
 - u The development of specific auxiliaries and heat recovery systems for heavy duty vehicles (in particular buses) is also acceptable for applications where these differ significantly from light duty vehicle ones and where they represent a significant share of the vehicle's global energy requirements and therefore would provide a significant power saving potential. Synergies with other transport modes such as light rail would be preferable.
- è Funding schemes: CP



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Transport Theme

I **TOPIC – GC.SST.2010.7-3**

Optimised thermal engine development and integration

- è Objective: highly efficient, compact, clean and low cost engines for advanced plug-in hybrids and electric vehicles with range extenders, aiming at significant improvements over future Euro 6 standards for noxious emissions.
- è Coverage:
 - u Highly innovative engines, based on alternative architectures or cycles, particularly adapted for this application.
 - u Extremely downsized automotive engines with the associated gearbox if necessary.
 - u Existing engines from other applications potentially well adapted to the range extender role.
- è Funding schemes: CP



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Transport Theme

I **TOPIC – GC.SST.2010.7-4** **Smart storage integration**

- è Objective: physical on-board integration of smart battery packs for pure electric and plug-in vehicles, for both fixed and removable solutions, providing adequate level of electrical and fire safety in normal and abuse conditions.
- è Coverage:
 - u Developing innovative concepts for the physical integration in the vehicle structure.
 - u Smartly integrating the battery pack in the various on-board systems (electric, cooling, monitoring).
 - u Considering the implications of both the above points in the case of removable packs and assess the benefits and disadvantages, and therefore the feasibility of the quick-change concept (if possible also in view of its environmental, cost, logistic and life cycle impacts)
- è Funding schemes: CP



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Transport Theme

| **TOPIC – GC.SST.2010.7-5**

Advanced electric vehicle concepts

- è Objective: holistic development of innovative vehicle concepts and architectures to achieve optimised performance with as little as possible cost, weight, comfort and performance penalties compared to today's vehicles while optimizing environmental performance, particularly for urban vehicles.
- è Coverage:
 - u Innovative concepts for light weight and crashworthy architectures.
 - u Optimised aerodynamic bodies for the new packaging constraints.
 - u Ergonomic on board passenger space and for assembly/maintenance/repair accessibility.
 - u Modular vehicle architectures that benefit from the absence of many mechanical constraints in the current vehicles both in the construction and use phases.
 - u EMI/EMC aspects of the new electric vehicle to ensure the successful integration of novel drive systems into complete vehicles.
- è Funding schemes: CP



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Transport Theme

I **TOPIC – GC.SST.2010.7-6**

Implementing Public-Private Partnership in the 'European Green Cars Initiative'

- è Objective: support the realisation of a Public Private Partnership (PPP) , by developing, in particular, research priorities within FP7 and a roadmap of R&D activities for Europe
- è Coverage:
 - u coordination with public authorities both at the level of the implementation of FP7 and national schemes.
 - u coordination of efforts at the level of the different European Technology Platforms linked to the "European Green Cars Initiative" (ERTRAC, EPoSS and Smart Grid)
 - u coordination of research supported by MS/AS
- è Funding schemes: CSA





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Transport Theme

I **TOPIC – GC.SST.2010.7-7**

Raising awareness of potential job opportunities related to the electrification of road transport

- è Objective: inform and stimulate the interest of young people for the job creation opportunities and future prospects deriving from the emergence of electrification as an important research and development trend in the automotive sector.
- è Coverage:
 - u Encourage young people to seek for high skilled jobs in sectors related to road transport electrification with special focus on science, research and innovation.
 - u Evaluate and demonstrate the potential of research outputs, outcomes and impacts to create and maintain jobs giving special consideration to opportunities for young people and gender balance.
 - u Extensive and broad communication and stimulation campaigns targeting young people of different ages (from high school to university). These could be: travelling workshops, competitions, animations and broad media actions directed to a young target, etc
 - u coordination of research supported by MS/AS
- è Funding schemes: CSA



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- | **Thank you for your attention!**
- | **Questions?**



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Transport Theme

| **TOPIC – GC.SST.2010.7-8**

Green Cars - Integrated EU demonstration project on electromobility

- è **Objective:** stimulate the development of an electric vehicle market in the EU through a large demonstration project, including vehicles (from powered two-wheelers to buses with different types of electrical power trains, including plug-in-hybrid to full battery electric technologies), infrastructure and standards. It should also provide input for the smart grid development, integrating a whole new category of electricity users.
- è **Coverage:**
 - u Demonstration of the use of electricity as energy vector for road transport in a wide range of real-life operating conditions, including climatic and geographical conditions.
 - u Demonstration of all aspects of fixed infrastructure including different vehicle-to-grid interactions scenarios, and maintenance facilities.
 - u Development of standards; comprehensive safety assessment of vehicles and infrastructure; Technology validation for performance, durability and costs, under real-world driving conditions and including full energy and environmental impact.
 - u Assessment of impact on the electricity grids of a broad roll-out of electric vehicles, using modelling based on the real-life results of the project.
 - u Assessment of the impact on energy and environment, including a Well-to-Wheels analysis.
 - u Communication, dissemination of information, and education.

è **Funding schemes: CP**



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ICT Theme

| **TOPIC – GC.ICT.2010.10-3** **ICT for the Fully Electric Vehicle**

è **Objective:** Highly energy-efficient ICT components and solutions for Fully Electric Vehicles, including adaptive and distributed control solutions, as well as new architectures, infrastructure interfaces (with both the road and the power grid) and overall system optimization.

è **Coverage:**

- u New solutions for overall efficiency gains in the electric vehicle:
 - smart ICT solutions and models for electrical and thermal management, including battery control and charger management
 - development of energy efficient and lightweight electrified auxiliaries (e.g. air conditioning, steering, lighting, brakes)
 - closed-loop control and cooperative interaction of distributed subsystems
 - | Safe and robust sub-systems: communication, sensors, actuators, distributed controls, power electronics, as well as adaptive components and associated real-time monitoring and control for active safety and comfort.
 - | Advanced fail-safe systems and electrical architectures, new concepts for vehicle-to-road infrastructure integration based on cooperative system concepts and new generation Advanced Driver Assistance System (ADAS) and active safety systems for FEVs including methods and systems for safety assessment and evaluation.

è **Funding schemes:** STREP



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ICT Theme

| **TOPIC – GC.ICT.2010.10-3**

European Fully Electric Vehicle Coordination Action

è **Objective:** Coordination of FEVs research activities to identify and continuously review the needs in terms of research, components, systems integration and standardisation.

è **Coverage:**

è This includes editing and regularly updating a European FEV roadmap, the organisation of expert hearings and networking events, and coordination with FEV-related activities at the national and global levels.

è Additional coordination activities can include assessment of energy efficiency and life cycle impact, infrastructure and regulations enabling and leveraging the technologies for FEVs and their convergence with regenerative energy sources, as well as road and passenger safety. .

è **Funding schemes:** CSA



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