TOWARDS WORK PROGRAMME 2013
Sub-theme 7.2 – Sustainable Surface Transport
The European Green Car Initiative

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GoT Nº3: European Green Cars Initiative

Indicative budget: Call FP7-SST-2013-RTD-1: **€ 38.95 Mio**

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Feasibility analysis and technological development of on-road charging for long term electric vehicle range extension

Content and scope:

Analysis of
- the feasibility of the possible technological options and their testing and comparison
- Impact on the vehicle in terms of architecture and capacity of the on-board energy storage systems
- driving while in charging mode
- Development and technological demonstration of one selected option
- Impacts of the selected option related to:
  - Economics including business cases for introduction
  - The distribution network and electricity generation.
  - Assessment of pavement construction and maintenance, should be part of demo
  - Environment, including a life cycle assessment.
  - Safety (including EMC) and health impacts.

Assessment of the needed ICT solutions

Measures enabling the staged deployment, harmonisation and standardisation

Expected impact:

A global feasibility and demonstration
Evidence on system benefits
Steps for bridging technological gaps and solutions for grid and infrastructure.
Next generation electric motors

Content and scope:

Weight reduction and power density increase.

Increased efficiency, including smart packaging of power electronics and integrated thermal management.

Optimised design and processes for manufacturing and dismantling.

Novel or substantially improved materials for permanent magnets with low rare earths content, or innovative magnet-free designs.

Expected impact:

Increased energy efficiency over a wide range of EV operating conditions.

Reducing cost towards mass use in next generation electric vehicles.
Future light urban electric vehicles

Content and scope:

By using either off-the-shelf technologies and components or some which have been covered in previous calls (no specific components development) to address:

- Optimised weight through innovative materials and system integration.
- Safe and integrated chassis and body shell design to achieve similar occupant safety level than in normal passenger cars despite worse conditions; high compatibility design.
- Extremely low energy consumption with purely electrical braking and advanced stability systems, considering the possible failure modes and any regulatory
- Assembly line capable designs based on low energy consuming processes.
- New business approaches, based on reasonably low budgets and leading to novel supply chains

Expected impact:

Vehicle prototypes to demonstrate:

- 40-80 Wh/km energy consumption in real urban driving according to the given weight bracket.
- At least 150 km electric range in real urban driving including use of comfort accessories.
- Compelling acceleration (0 to 100 km/h in 10 s).
- Best in class protection for occupants and pedestrians in EURONCAP crash tests, with highly compatible design
Configurable and adaptable truck

➢ Content and scope:

  Optimised trucks design for the given transport mission.
  Configurable truck (tractor and trailer) and load carrier concepts.
  Energy tailored driveline, with a modular approach for rightsizing.
  Distributed driveline including high level of hybridisation.
  Consideration of the infrastructure (pavement and bridge) needs and methods to overcome any negative consequences of different distributions of axle loading or overall weights and dimensions.
  The project should include the development of a demonstrator of complete vehicle

➢ Expected impact:

  Viable concepts for both improved load efficiency both from an energy (estimated to 25% less energy/t.km) and infrastructure service usage
High efficiency energy conversion for future heavy duty transport

- **Content and scope:**
  
  Innovative power converters (with a level of demonstration, and therefore funding, coherent with the level of maturity of the concept) such as:
  
  - engine downsizing concepts, e.g. dynamic cylinder deactivation;
  - refined combined cycle systems, with e.g. heat, steam or fuel cell systems;
  - drive train concepts reducing the transient environment for the engine, e.g. by dynamic energy storage offering optimisation potential of the engine; etc.

  Should be combined with highly efficient integrated after-treatment solutions and total driveline control architectures to deliver an optimal combination with truck energy usage and energy recovery systems on-board.

- **Expected impact:**

  Demonstration of new innovative energy conversion concepts which reach a system efficiency well above 50% at acceptable costs with the capability of achieving Euro VI emission levels in real life by PEMS measurements with a 1.2 multiplier
Technical and operational connectivity in intermodal freight transport

- **Content and scope:**

  Next generation of environmental friendly, safe and efficient “Automated Guided Vehicles” for the transport of goods within or between ports/terminals

  New transhipment technologies, new management and software tools, including information systems to improve visibility and access to data in order to promote the generation and use of multimodal routes for goods transport.

  Low-cost innovative connectivity solutions based on existing, freely available components, which may include upload and download facilities, document sharing facilities with access authorisation mechanisms, electronic document readers, a basic data model that is in line with existing international standards, and dashboard functionality.

- **Expected impact:**

  Efficient, safe low environment impact port and terminal operations and transport.

  Contribution to the open up of e-freight developments to a wider community

  Easy to use and affordable software solutions and connectivity solutions

  Assessment of the benefit for international trade of a general roll out of this type of connectivity solution.
Thank you for your attention

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