



Horizon 2020

Challenge *Smart, Green and Integrated Transport*

Work Programme 2014-2015

Call Green Vehicles

Information Day
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GV.1-2014.

Next generation of competitive lithium ion batteries to meet customer expectations

- *Specific challenge:*
 - Made in Europe Li ion batteries that are competitive and deliver better performance electrified vehicles (complementary to topic pursuing longer terms solutions in the Advanced Materials 2014 Work Programme)
- *Scope (1 or more issues):*
 - Optimisation of cost, safety, resistance to high-power charging, durability, recyclability, hybridisation with other types of storage, scale-up
 - Better knowledge on the ageing mechanism and its modelling to support test procedures and the development of standards (open for international cooperation)
- *Expected Impact:*
 - Facilitate the launch of production in Europe by demonstrating industrial scale prototypes showing cell-level energy densities at least 20%, and costs by 20% better than the best cell chemistries on the market
- *Type of Action: Research and Innovation Actions*

GV.2-2014.

Optimised and systematic energy management in electric vehicles

- *Specific challenge:*
 - Optimize energy efficiency of powertrain and auxiliaries in all driving and climate conditions by improving the integration of components and sub-systems without sacrificing comfort.
- *Scope (1 or more issues):*
 - Comprehensive thermal management system (including thermal insulation, innovative heating and cooling approaches)
 - Battery life duration enhancement as a side effect of thermal management
 - Electronic control of energy and power flows, energy efficiency of electrified accessories, energy harvesting functions and automated and eco-driving strategies.
- *Expected Impact:*
 - Reduction of at least 50% of energy used for passenger comfort and at least 30% for component cooling in extreme conditions
 - Increased range and improved market acceptance of EVs
- *Type of Action: Research and Innovation Actions*

GV.3-2014.

Future natural gas powertrains and components for cars and vans

- *Specific challenge:*
 - Reach the CO₂ and pollutant emissions targets for cars and light commercial vehicles using advanced engine and after-treatment concepts for natural gas while demonstrating extended driving range with no space penalty
- *Scope:*
 - Any combination of combustion process optimisation, variable compression, control systems, dual fuel operation, optimised fuel injection, adaptive systems and sensors to cope with different qualities and blends, after-treatment systems and overall powertrain optimisation
 - Advanced fuel tanks and other NG-specific ancillaries.
- *Expected Impact:*
 - One demonstrator vehicle per platform to prove real driving emissions at least below upcoming Euro 6 limits, reduction of at least 20% in CO₂ emission levels and 600km range with no useful volume reduction
- *Type of Action: Innovation Actions*

GV.4-2014.

Hybrid light and heavy duty vehicles

- *Specific challenge:*
 - Recover a leading position in hybrid technology in view of positive effect on the reduction of CO2 emissions and improved air quality
- *Scope (1 or more issues):*
 - Hybrid components (storage system, motors/generators, power electronics, auxiliaries etc.)
 - System engineering, simulation and technology integration in light and/or heavy duty vehicles
 - For light duty, preference for concepts with significant zero emission range
- *Expected Impact:*
 - One demonstrator vehicle per platform to prove real driving emissions at least below Euro 6/VI limits, reduction of at least 20% in CO2 emission levels with respect to best in class, 20% reduction of additional weight and volume while keeping cost premium within 10% of basis model
- *Type of Action: Innovation Actions*

GV.5-2014.

Electric two-wheelers and new light vehicle concepts

- *Specific challenge:*
 - Tackle air quality, GHG emissions, noise, congestion, competitiveness issues by developing new and more efficient mobility concepts based on electrified powertrains for L category vehicles up to light quadricycles and radically new vehicle concepts
- *Scope (1 or more issues):*
 - Energy efficiency improvements for mopeds, quads and while reducing costs, developing integrated modular battery packs, electric and plug-in hybrid power trains, system integration and vehicle architecture.
 - Development and proof of concept of new ultra-light vehicles for passengers taking into account integration with infrastructure and any necessary changes to homologation requirements and regulations.
- *Expected Impact:*
 - Demonstrators will prove benefits in noise, energy efficiency and congestion reduction (as well as real driving emissions below Euro 5 level in case of hybrids).
- *Type of Action: Research and Innovation Actions*

GV.7-2014.

Future natural gas powertrains and components for heavy duty vehicles

- *Specific challenge:*
 - Advanced non-hybrid powertrain concepts for either dual- or single-fuel natural gas operation to comply with air quality and upcoming CO2 targets.
- *Scope:*
 - Any combination of combustion process optimisation, variable compression ratios, engine control, dual fuel operation, optimised injection systems, adaptive systems and sensors to take into account different fuel qualities, new generation after-treatment (in particular for NOx and methane slip in transients and at low temperatures) and overall powertrain optimisation
 - Advanced fuel tanks (in particular for liquid storage) and any other innovative concepts and components for the different vehicle categories.
- *Expected Impact:*
 - Demo vehicle(s) achieving at least 10% lower CO2-equivalent emissions using the same fuel of the base engine. 800 km range with no weight, volume and cost penalty in comparison to best in class vehicles
- *Type of Action: Innovation Actions*



THANK YOU FOR YOUR ATTENTION



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