



The EU Framework Programme for Research and Innovation

HORIZON 2020

**Smart, green and
integrated Transport**

***Work Programme
2016-2017***

**Maurizio MAGGIORE
European Commission DG RTD H2
Bruxelles 16/10/2015**



Resource efficiency vs. climate change and oil dependency

Transport accounts for 32% of all energy consumption

- **Boost alternative fuels and infrastructure**

Curb noxious emissions, improve air quality

24% of CO₂, 20% of GHG come from transport

400 000 premature deaths in EU, 1/5 due to transport

- **Achieve the 2030 energy-climate targets: GHG -40%, 27% renewables, 27% energy savings**

Network capacity and modal shift vs saturation and congestion

Congestion costs: 1 to 2 % of GDP

- **30% of road freight > 300 km moving to rail/water by 2030**

Smart solutions for safety and security

26000 road fatalities/year

- **Vision zero: ½ road fatalities by 2020 (vs 2010), towards none by 2050**

Fierce international competition

Expanding markets but shrinking market shares

- **Innovate to preserve market-shares and jobs**

2016-2017 WP: continuity...

- Competitiveness + sustainability
- Systemic approach + modal specificities
- Research + Innovation = greater impact

...and novelties

- New Call: Automation in Road Transport
- New area: safety
- An inducement prize for the cleanest engine
- Better embedding of user needs, SSH, gender...
- International cooperation in many selected topics

Objectives

- **Boost competitiveness and growth**
- **Clean transport, de-carbonise society**
- Promote energy efficiency, use of non conventional energies (electricity, CNG, LNG, renewables), alternative fuels
- Reduce pollution, noise, impacts on health
- Improve engines, power-trains, vehicle architecture, manufacturing processes





Green Vehicles [1/2]

Total EU contribution: EUR 206,5 Mio

Topic	Title	Action type	Stages	Budget (EUR Mio)
				2016
GV-02	Technologies for low emission light duty powertrain	RIA	1	65
GV-03	System and cost optimised hybridisation of road vehicles	IA	1	
GV-11	Stimulating European research and development for the implementation of future road transport technologies	CSA	1	3,5
GV-12	ERA-NET Co-fund on electromobility	ERA-NET	1	10
NMBP-08	Affordable weight reduction of high-volume vehicles and components	RIA	1	16

CSA = Coordination and Support Action

RIA = Research and Innovation Action

IA = Innovation Action

ERA-NET = ERA-NET Cofund Action

Challenge

- Increasingly stringent emission standards, but real driving emissions not sufficiently reduced

Scope

- Addressing optimal combination of innovative engine and after-treatment technologies
- Future combustion engines for electrified powertrains
- Support for improved regulation of nanoparticles below 23 nm

Expected impact

- Reduce CO₂ and polluting emissions in real driving conditions

***Estimated EC contrib. per proposal: EUR 5-10 Mio
International Cooperation (Japan, US) encouraged***

Challenge

- Reducing cost and complexity of pure hybrid, plug-in hybrid and range extended electric vehicles

Scope

- Identify potential for cost reduction by technical simplification of powertrain for light-duty and / or heavy-duty vehicles

Expected impact

- Cost reduction allowing for higher market penetration of hybrid vehicles

Estimated EC contrib. per proposal: EUR 7-10 Mio

Challenge

- Assist ERTRAC, EGVI, Commission and MSs in defining research needs and priorities for sustainable road transport in Europe

Scope

- Comprehensive approach ranging from components to system integration, enabling technologies and other transport modes

Expected impact

- Bring together leading European stakeholders; help bring about a European Research Area in Transport

***Estimated EC contrib. per proposal: EUR 2-3,5 Mio
Int. cooperation (China, Brazil) encouraged***



Challenge

- Promote the integration of new EV technologies in the existing transport system (mainly in urban areas)

Scope

- Aim at innovation and deployment needs for 2020

Expected impact

- Impacts on: electro-mobility, European industrial technology base, climate action

Estimated EC contrib.: EUR 10 Mio (top up)

International cooperation encouraged

Aim: national and regional programmes pooling resources for a joint call for proposals. Inclusion of other joint activities encouraged

Challenge

- Identify solutions for the significant **weight reduction of vehicles**, and in particular electrified cars, which are cost-effective and viable with respect to the intended production volumes

Scope

- A **holistic, integrated and cost-driven approach** should be pursued in order to optimize the use of **lightweight materials solutions in all vehicle structures, subsystems and components** (with the exception of concepts for stand-alone powertrains), considering the entire value chain from a life-cycle perspective: **materials, tools, design, manufacturing process, assembly and end-of-life.**

Expected impact

- **10 % reduction in energy consumption of vehicle** due to weight reduction (with corresponding impact in terms of CO₂ emissions)
- **Cost-effective weight savings** depending on intended production volumes, e.g.:
 - For 50000 units per annum: at least 6 €/kg-saved;
 - For 100000+ units per annum: at least 3 €/kg-saved;
- **At least 6% improvement in LCA environmental impact** ("from cradle to grave") in terms of GWP (Global Warming Potential).

Implementation starts at TRL 4 and targets TRL 6

Estimated EC contrib. per proposal: EUR 5-8 Mio



Green Vehicles [2/2]

Total EU contribution: EUR 206,5 Mio

Topic	Title	Action type	Stages	Budget (EUR Mio)
				2017
GV-01	Optimisation of heavy duty vehicles for alternative fuels use	IA	1	128
GV-04	Next generation electric drivetrains for fully electric vehicles, focussing on high efficiency and low cost	RIA	1	
GV-05	Electric vehicle user-centric design for optimised energy efficiency	RIA	1	
GV-06	Physical integration of hybrid and electric vehicles batteries at pack level aiming at increased energy density and efficiency	IA	1	
GV-07	Multi-level modelling and testing of electric vehicles and their components	RIA	1	
GV-08	Electrified urban commercial vehicles integration with fast charging infrastructure	IA	1	
GV-09	Aerodynamic and flexible trucks	IA	1	
GV-10	Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system	IA	1	

IA = Innovation Action; RIA = Research and Innovation Action

Horizon prize for the cleanest engine

Challenge

- Helping the development of technologies to reduce emissions of pollutants in real driving conditions

Scope

- Two prizes addressing (A) the existing fleet (retrofittable technology) and (B) future vehicles

Expected impact

- Reduce noxious emissions

Indicative budget: EUR 1,5 (A) + 3,5 (B) Mio

Target audience: individuals, SMEs, research centres, universities, suppliers of components, car manufacturers

Measures to promote close-to-market innovation :

- **SME instrument**

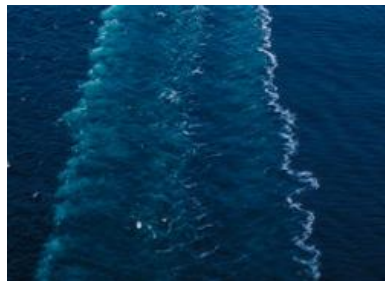
Small business innovation research for transport and smart cities mobility

- **Fast track to innovation (FTI)**

Pilot action to:

- Reduce time from idea to market
- Stimulate the participation of first-time applicants to EU research funding
- Increase private sector investment in R&I

Thank you for your attention



Find out more:

www.ec.europa.eu/research/horizon2020

www.ec.europa.eu/research/participants/portal/page/home

www.ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/11.%20SC4_2016-2017_pre-publication.pdf