Information Day - Green Vehicles session
State of play of the implementation of the Multi-annual Roadmap

Jean-Luc di PAOLA-GALLONI
16th October 2015 - Brussels
The EGVI PPP Multiannual Roadmap is the document of reference for the EGVI cPPP:

- Context, rationale and objectives
- Research and innovation strategy
- Expected impacts
- Governance model

Preparation based on consultation process launched in 2012, involving stakeholders from ERTRAC, EPoSS and SmartGrids

Cross-sector approach based on Roadmaps and Strategic Research Agendas of the three European Technology Platforms
Context behind the EGVI PPP

- Automotive and Smart Systems industries key sectors for Europe:
  - Automotive industry: 12 million direct jobs and over €500 billion/year in turnover
  - Smart Systems industry: 1 million direct jobs and €10 billion/year in turnover

- Vehicle market facing pressing situation:
  - lasting crisis situation in Europe shifts markets and profit generation to outside Europe
  - jobs under pressure from lower labour costs regions, political pressure and industrial policy outside Europe
General Objectives of the EGVI PPP

- Research, development and demonstration of technologies to enable more energy efficient vehicles using alternative powertrains, strengthening the future competitiveness of the automotive industry, following CARS 2020 Strategy.

- Help to reach the ambitious targets set by the EU transport, energy and climate protection policies:
  - the 20/20/20 targets on renewable energy use,
  - the CO₂ emissions regulation,
  - the Euro emissions standards for road vehicle, contributing to air quality improvement

- Match the transport needs within the EU with highly efficient and more flexible mobility products/services, by providing EU citizens with best-in-class technology, and matching with the Grand Societal Challenges, e.g. decarbonisation, safety, etc

- Support the policy goals of the EU Transport White Paper thanks to accelerated research, development and demonstration of technologies that allow the efficient use of clean energies in road vehicles
Research and Innovation Strategy

- Multi-annual implementation plan based on relevant research and innovation roadmaps and strategic agendas developed by the ETPs - ERTRAC, EPoSS and SmartGrids.

- Guiding objectives and milestones defined in the following documents:

  - ERTRAC-EPoSS-SmartGrids joint roadmap Electrification of Road Transport
  - ERTRAC roadmap European Technology and Production Concept for Electric Vehicles
  - ERTRAC roadmap Hybridisation of Road Transport
  - ERTRAC roadmap Light-duty Powertrains and Fuels
  - ERTRAC roadmap Sustainable Freight System for Europe / Heavy Duty Truck
  - ERTRAC roadmap European Bus System of the Future
  - EPoSS Strategic Research Agenda chapter Automotive
  - ERTRAC Strategic Research Agenda
Implementation scheme

ERTRAC / EPoSS / Smart Grids
SRA and Long-Term Roadmaps

Private side

Consultations

Monitoring

Select Topics

Collaborative Projects

PPP Tasks

Multi-annual Roadmap

Assessment

Joint Funding

Recommendations

Call

Prioritisation

Proposal

European Commission
Work Programmes and Calls for proposals

Public side
Scope of the EGVI PPP

- Covers all types of road transport vehicles:
  - passenger cars
  - trucks
  - buses
  - L-category vehicles
  - new vehicle concepts

- Defined goal and focus: energy efficiency of vehicles using alternative powertrains
Focus of the EGVI PPP

Examples of topics contributing to the goal of the PPP:

- Electrification and hybridisation of powertrains
- Powertrain adaptation to renewable fuels
- Functionality improvement of the vehicle
- Reduction of the vehicle complexity and weight
- Management of the thermal and other energy flows of the vehicle

- Any technological development supporting these objectives at the relevant product layers of the value chain - from modules to systems and vehicles
Example of technology content

**Resources**
- Alternative / lightweight materials
- Alternative fuels and energies
- Advanced materials, Equipment, Nano- / Microtechnologies

**Integration**
- Advancement and adaption of resources for green vehicles

**Modules**
- Processing, integrating advanced (lightweight) materials & technologies
- Electrification & hybridization; Components for sensing & control;
- Energy Storage, functional integration; design for manufacturing
- Power electronics
- Drivetrain for alternative / renewable fuels;
- Reliability and robustness
- Advanced ICE and ICE in context of electrification & hybridization
- PT systems design, optimization, modularization and integration
- PT integration, E/E architecture, thermal management, weight reduction
- Simulation, prototyping, testing, recycling
- Safety & security of data
- Novel vehicle concepts; tailored trucks

**Systems**

**Vehicles**

**Integration**
- Interfaces and interaction to infrastructure outside vehicles, e.g. smart grid integration, IST for energy efficiency

**Infrastructure**
- Grid and road infrastructures
- Data networks
- Intermodal hubs
Expected Impacts of the PPP

- **Improvement of the energy transport system efficiency** by 50% from 2010 to 2030, including:
  - +80% energy efficiency of urban vehicles
  - +40% energy efficiency of long distance freight transport

- **Deployment of alternative powertrains** like electric and plug-in hybrid technologies, according to milestones in 2016 and 2020 and matching respective performance parameters (cf. Electrification roadmap):
  - 5 million electric & hybrid vehicles in the EU by 2020 (0.5 million by 2016)
  - Battery life-time and energy density doubled, at 30% lower cost, in 2020 compared to 2009 Li-Ion technology
Seven EGVI call topics funded in 2014:

- GV.1-2014. Next generation of competitive Li-ion batteries to meet customer expectations
- GV.2-2014. Optimised and systematic energy management in electric vehicles
- GV.3-2014. Future natural gas powertrains and components for cars and vans
- GV.4-2014. Hybrid light and heavy-duty vehicles
- GV.5-2014. Electric two-wheelers and new ultra-light vehicle concepts
- GV.7-2014. Future alternative fuel powertrains and components for heavy-duty vehicles
- NMP17-2014. Post lithium-ion batteries for electric automotive applications

- Total EU funding for the 2014 EGVI Call: €129 M
# Outcomes of 2014 calls

<table>
<thead>
<tr>
<th>Call Reference</th>
<th>Submitted proposal</th>
<th>Evaluation results</th>
<th>Success rate%</th>
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<tbody>
<tr>
<td></td>
<td>Submitted proposals</td>
<td>Eligible proposals</td>
<td>% of retained</td>
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<tr>
<td>H2020-GV-2014</td>
<td>77</td>
<td>76</td>
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<td>H2020-NMP-GV-2014</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>99</strong></td>
<td><strong>98</strong></td>
<td><strong>98.99%</strong></td>
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# Outcomes of 2014 calls

<table>
<thead>
<tr>
<th>Call Reference</th>
<th>Publication date</th>
<th>Evaluation period</th>
<th>Nr of GAs signed</th>
<th>Indicative budget [max funding] (M€)</th>
<th>EU contribution</th>
<th>Private /cPPP contribution</th>
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</thead>
<tbody>
<tr>
<td>H2020-GV-2014</td>
<td>11&lt;sup&gt;th&lt;/sup&gt; December 2013</td>
<td>Sept - Oct 2014</td>
<td>15</td>
<td>€ 129</td>
<td>€ 133.6</td>
<td>€ 23.7</td>
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<td>H2020-NMP-GV-2014</td>
<td>11&lt;sup&gt;th&lt;/sup&gt; December 2013</td>
<td>Nov - Dec 2015</td>
<td>2</td>
<td>€ 16</td>
<td>€ 14.9</td>
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<td><strong>Total</strong></td>
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<td>17</td>
<td>€ 145</td>
<td>€ 148.5</td>
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Second EGVI Call - topics 2015

Two EGVI call topics in 2015:

- GV.6-2015. Powertrain control for heavy-duty vehicles with optimised emissions

- GV.8-2015. Electric vehicles’ enhanced performance and integration into the transport system and the grid

- Deadline for submission was 15th October.

- Total EU funding for the 2015 EGVI Call: €30 Mn
<table>
<thead>
<tr>
<th>#</th>
<th>Topic title</th>
<th>Year</th>
<th>Type of action</th>
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<tbody>
<tr>
<td>GV-01-2017</td>
<td>Optimisation of heavy duty vehicles for alternative fuels use</td>
<td>2017</td>
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<td>GV-02-2016</td>
<td>Technologies for low emission light duty powertrains</td>
<td>2016</td>
<td>RIA</td>
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<tr>
<td>GV-03-2016</td>
<td>System and cost optimised hybridisation of road vehicles</td>
<td>2016</td>
<td>IA</td>
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<td>GV-04-2017</td>
<td>Technologies for low emission light duty powertrains</td>
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<td>GV-05-2017</td>
<td>Electric vehicle user-centric design for optimised energy efficiency</td>
<td>2017</td>
<td>RIA</td>
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<td>GV-06-2017</td>
<td>Physical integration of hybrid and electric vehicle batteries at pack level aiming at increased energy density and efficiency</td>
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## EGVI calls 2016/2017

<table>
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<th>Type of action</th>
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<tr>
<td>GV-07-2017</td>
<td>Multi-level modelling and testing of electric vehicles and their components</td>
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<td>GV-08-2017</td>
<td>Electrified urban commercial vehicles integration with fast charging infrastructure</td>
<td>2017</td>
<td>IA</td>
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<td>GV-09-2017</td>
<td>Aerodynamic and flexible trucks</td>
<td>2017</td>
<td>IA</td>
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<td>GV-10-2017</td>
<td>Demonstration (pilots) for integration in transport system of electrified L-category vehicles</td>
<td>2017</td>
<td>IA</td>
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<td>GV-11-2016</td>
<td>Stimulating European research and development for the implementation of future road transport technologies</td>
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<td>CSA</td>
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<td>GV-12-2016</td>
<td>ERA-NET Co-fund on electromobility</td>
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<td>ERA-NET Cofund</td>
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<td>NMP-08</td>
<td>Affordable weight reduction of high-volume vehicles and components taking into account the entire life-cycle</td>
<td>2016</td>
<td>RIA</td>
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Thank you for your attention!

More information? www.egvi.eu

Contact: info@egvi.eu