European Green Cars Initiative PPP
Multiannual Roadmap

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EU Green Cars Initiative

• PPP in the European Economic Recovery Plan (Factories of the Future, Efficient Buildings, Green Cars)
• Total Budget: 5 bn EUR = 4 bn EUR Loans + 1 bn EUR RTD
• PPP of industry, member states and EC (50% funding)
• Horizontal activity (DGs RTD, INFSO, MOVE, ENV, ENTER)
• Implementation through FP 7 (2010-2013)
• Major focus on electrification (ca. 2/3 of budget)

• Climate protection
  (50% CO₂ cut comp to ICE WTW - power plant, grid, motor efficiency, even higher with electricity from renewable sources)
• Energy security (Diversification of primary energy sources)
• Zero local emissions
• Safety and Traffic Fluidity
• Global competitiveness of the automotive industry
EU Green Cars Initiative

• Three Pillars
  • Electrification / Fully Electric Vehicle
  • Long Distance Trucks
  • Logistics and Comodality

• Implemented by the ETPs

• Ad-Hoc Industrial Advisory Board established

• Supported by two Coordination Actions:
  
  Implementation of a PPP on Road Transport Electrification
  
  Information and Communication Technologies for the Fully Electric Vehicle
Multiannual Roadmaps are an integral part of the collaboration of the Industry and the EC in the Green Cars PPP (Feedback Loop of PPP Operation).
Focus: Electrification

• Energy Storage Systems
  (cost, performance, lifetime, safety)

• Drive Train Technologies
  (energy recovery, range extenders)

• System Integration
  (energy efficient interplay of components)

• Grid Integration
  (charging, metering, renewables, V2G)

• Safety
  (crashworthiness, HV, emergency)

• Transport System Integration
  (road infrastructures, intermodal use)
Focus: Electrification

European Industry Roadmap
Electrification of Road Transport
Draft Version 2.8
12 July 2009

Abstract
Seeing the great potential of electrified mobility for climate and resource protection and turning it into opportunities for Europe’s automotive and energy industries requires joint and coordinated actions of all involved public and private parties. Cheap, safe and well-performing means of energy storage still pose a challenge as do many other key technologies of the electric vehicle like drive trains, vehicle systems, grid interfaces, safety solutions and the integration into the transport systems. Fundamental R&D will be needed and to be complemented by measures for scaling-up of manufacturing and preparation of markets as well as by an appropriate regulatory framework. The indications of the document at hand are based on a consensus of major companies and organisations from the European Technology Platforms ERTRAC (European Road Transport Research Advisory Council), EPoSS (European Technology Platform on Smart Systems Integration), and SmartGrids. Starting from a quantitative assessment of the impact electrified mobility may have, a definition of milestones for the next ten years is given, and suggestions are made for actions to be taken in a targeted, well-timed and hierarchical manner. This report is meant to stimulate the debate about the multi-annual implementation of the European Green Car Initiative.

Contents
1. Introduction
2. Basics and Challenges of the Electric Vehicle
3. General Expectations
4. Timing for Development and Implementation
5. Milestones
6. Roadmap
7. Recommendations

Drafted by
ERTRAC/EPoSS/SmartGrids
Task Force Electrification

Milestones

Drive Train Technologies
- Develop low-cost/weight motors & electronics
- Develop highly integrated motors & controls
- Optimise combustion engines for range extenders
- Develop highly integrated range extender systems

Vehicle System Integration
- Optimise systems efficiency with existing components
- Find new solutions for heating, venting, cooling
- Design electrical architecture & interconnects
- Create new concepts for space usage
- Explore light-weight materials, eco-design, recycling

Technology Roadmaps
### Focus: Electrification

#### EGCI Work Programme

<table>
<thead>
<tr>
<th>Industry Priorities</th>
<th>Energy storage systems</th>
<th>Drive train technologies</th>
<th>Vehicle system integration</th>
<th>Grid integration</th>
<th>Safety systems</th>
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<tbody>
<tr>
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#### Recommendations for Implementation in Calls
Focus: Long Distance Truck

- **Vehicle Efficiency**
  (safe & intelligent truck, matching to operation; aerodynamics; rolling resistance; energy management; materials)

- **Driveline Efficiency**
  (powertrain concepts & system integration, advanced combustion & aftertreatment; waste heat recovery; powertrain control; multi-fuel capabilities, hybridization)

- **Driver Efficiency**
  (driver support systems)
Focus: Logistics & Co-Modality

- **City Logistics**
  (consumer demands, distribution systems)

- **Green Hubs and Green Corridors**
  (key performance indicators, new business world, network integration)

- **Supply Chain Management**
  (interoperability between modes, IT applications, e-Freight)

Roadmaps
Where are we?

• All Roadmaps published and under continuous review
• Recommendations for Call Content

• 1. Call 2010; 100 Mio Euro total funding; projects have started
• 2. Call 2011; 110 Mio Euro total funding; evaluation finished
• 3. Call 2012; To be published in summer 2011; Deadline: Dec 2011
• More than 50 Projects are running
• Joint EC/EPoSS/ERTRAC Workshops: Batteries and EV Architecture
What is next? Review Milestones and Discuss Content of 4. Call

www.green-cars-initiative.eu