HI-CEPS (1/3)

HI-CEPS – Highly Integrated Combustion Electric Propulsion System

1. Project Statistics

Project full title: Highly Integrated Combustion Electric Propulsion System
Coordinator: Vittorio Ravello – Centro Ricerche Fiat – PRT Division

Consortium: 24 partners from 11 European Countries (10 EC Member States + Switzerland)

Project partners and clustering:

- **OEMs** (4): CRF (IT), PSA (FR), Renault (FR) and Ford (DE)
- **Suppliers** (5): GFT (SE), Saft (FR), Magna Steyr (AT), Selin Sistemi (IT) and Ecocat (FI)
- **Research institutes** (3): TNO (NL), IFP (FR) and APTL (EL)
- **Engineering and development companies** (6): AVL (AT), EICAS (IT), FEV (DE), Ricardo (UK), Bertrandt (FR) and Eneftech (CH)
- **Universities** (6): LAT (EL), LET-ENSMA (FR), RWTH-Aachen (DE), Universities of L'Aquila (IT), Maribor (SI) and Vienna (AT)

Proposal submitted under the call FP6-2005-Transport (ref. FP6-031373)

Project starting date and duration: 1st of September 2006 / 4 years
Total Eligible Costs **19.324.816,00 €**
EC Funding: **9.875.898,00 €**

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3.1 Main Objectives

Research and development of optimised advanced hybrid vehicle concepts, for mass producible vehicles available on the European market from the beginning of the next decade, based on **innovative and cost competitive highly integrated advanced thermal-electric hybrid powertrain architectures** (patented series-parallel hybrid configurations) and adopting:

- **low cost** and **standardised common** hybrid powertrain electric devices (derived from Hy-SYS IP and other European and national projects)
- innovative vehicle and powertrain **auxiliaries** (electric after-treatment, vehicle heating, cooling and air conditioning) to enable the complete **electric** and **thermal** energy flows optimisation
- **dedicated internal combustion engines for full hybrid applications** and adjustable for future fuels

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6. Main Expected Final Results

- hybrid powertrains assessment and validation comprehensive of the devices and their related control/management strategies for the different operating modes
- best solutions and operating strategies identification for thermal and ICE auxiliaries to guarantee:
  - effective integration in the hybrid powertrain architectures
  - complete thermal and energy flow optimisation
  - efficient recovery of wasted energy
  - optimal vehicle thermal comfort both for extremely low and high ambient temperature conditions
  - ICE lower overall emissions and life increase
  - simplification of exhaust gas treatment devices and constant emission levels during the vehicle and related powertrain lifetime

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