

■ Motivation and Objectives

Natural gas (NG) vehicles were introduced on the market more than 10 years ago. Nevertheless, today's market share of compressed natural gas (CNG) vehicles is relatively small but rapidly increasing. Advantages of NG engines are:

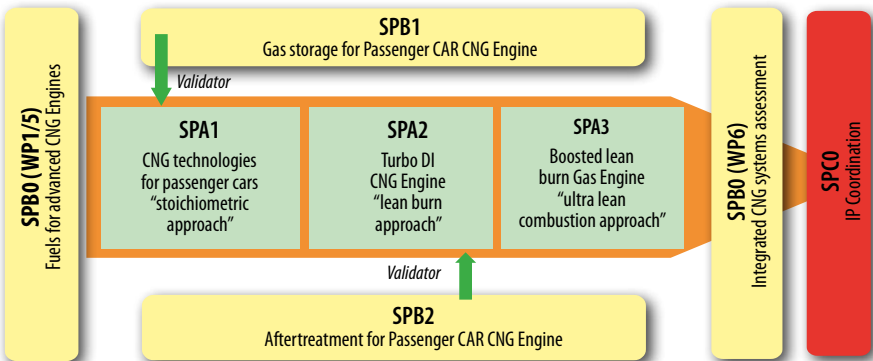
- Security of energy supply at relatively low costs,
- Clean fuel with reduced greenhouse impact and high octane number.

Today's gas engines have the heavy drawback of being developed as multi-fuel engines out of conventional gasoline fuelled combustion engines.

Main objective is to deploy a custom designed engine integrated with a specific aftertreatment system applied to a light duty vehicle, able to achieve a 10% higher fuel conversion efficiency than that of a corresponding 2006 diesel vehicle and complying with an emission level lower than Euro 6. Additional features are:

- Advanced storage system (vehicle range) and vehicle architectures,
- Multi-grade fuel tolerance and fuel flexibility.

■ Project Plan, Milestones and Deliverables



■ Technical Approach

To achieve the InGas targets, three main combustion technologies will be developed and compared via the following sub-projects (SP):

- SPA1: "CNG technologies for passenger cars" with stoichiometric approach,
- SPA2: "Turbo DI CNG engine" with a lean burn approach,
- SPA3: "Boosted lean burn gas engine" with an ultra-lean combustion approach.

■ Achievements

The main results achieved are:

- SPA1: Demo vehicle with stoichiometric TC CNG engine with Multiair system,
- SPA2: Direct injection system mounted on multi-cylinder engine,
- SPA3: Boosting device for CNG lean burn engine & EATS for CNG lean burn engine,
- SPB0: Investigation of the fuel composition influence on engine operation,
- SPB1: Innovative CNG tanks type 3 & advanced rear storage module,
- SPB2: Promising new catalytic formulations for CH₄ conversion.

Budget	21.66 M€	Funding	12.28 M€
Duration	42 months	Start	October 2008
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Coordinator	Massimo Ferrera, CRF	Contact	stefania.zandiri@fptpowertrain.crf.it
Partners	CRF, Daimler, Opel, AVL, FEV, E.ON, SAPT, GDF SUEZ, IFP, CNR-IM, TU-GRAZ, ECOCAT, Continental Automotive GmbH, Siemens, PoliTo, Chalmers, Haldor, Topsøe A/S, RWTH, MEMS, CVUT-JBRK, XPERION, VENTREX, BAM, WRUT, Delphi, USTUTT, POLIMI, ICSC-PAS, KATCON		
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