

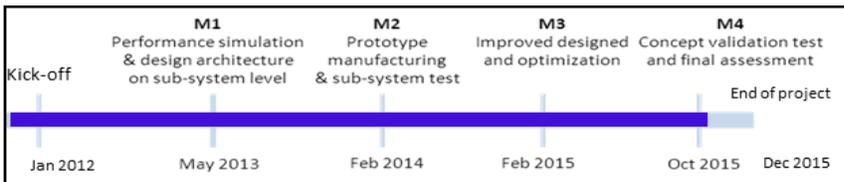
CORE

CO₂ Reduction for long distance transport

MOTIVATION AND OBJECTIVES

Main objective for CORE is to demonstrate a substantial reduction of CO₂ emissions through improved powertrain efficiency with technologies having the potential to be implemented in production around 2020. The target is 15% improved fuel efficiency compared to a EURO V engine and at the same time fulfilling EURO VI emission legislation.

PROJECT PLAN, MILESTONES AND DELIVERABLES



TECHNICAL APPROACH

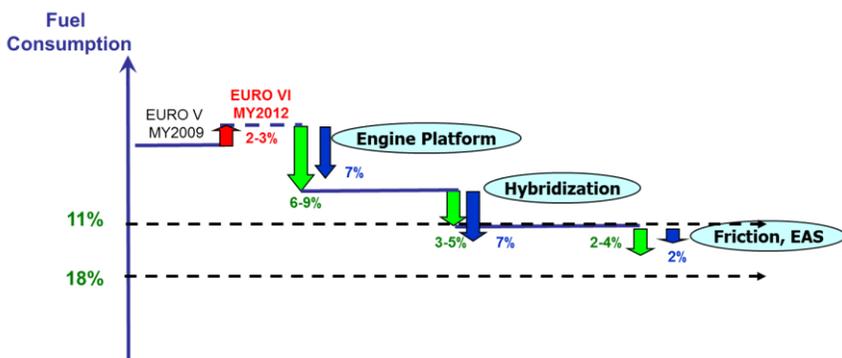
The CORE target should be obtained by work in different sub-projects; three of which focus on different engine and powertrain technologies. Major areas for these are: optimizing the existing Diesel engine: combustion, air management, aftertreatment and controls, decreasing rated engine speed ("down-speeding"), optimizing the powertrain layout (hybrid electric components) and using alternative fuels, namely Liquefied Natural Gas (LNG), combined with variable valve actuation.

These three sub-projects are supported by two projects where friction reduction and improvement of low temperature performance of NO_x aftertreatment technologies are studied. Accomplished results are adapted on the three engine and powertrain arrangement. Finally in the last sub-project, to ensure knowledge and technology transfer, all results will be assessed by vehicle simulations for final achievement of the fuel economy target.

ACHIEVEMENTS

Current status of achieved results shows that the target will be met in at least one of the investigated engine system concept, MD engine (8liter) + hybridisation + new SCR + new piston rings (lower friction). The blue arrows and figures present the best obtained result in each area.

In process, a 2nd loop of optimisation tests of the different engine system and integration of EATS. Based on these experimental results the vehicle simulations are in progress and with further more utilising combination of sub-technologies



The blue arrows show the current achieved results, up to 16% reduced CO₂ for the best concept combination. There are potentials to improve these figures in the final optimisation for different concepts.

ORGANISATIONAL INFORMATION

Budget	17 M€	Funding	9 M€
Duration	48 months	Start	January 2012
DG / Unit	Research / H4 - SST	Contract n°	SCS1-GA-2012-284909
Coordinator	Johan Engström, Volvo	Contact	johan.je.engstrom@volvo.com
Main Partners:	16 partners among them Daimler, CRF, Volvo, Ricardo, IAV		
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