

## CORE

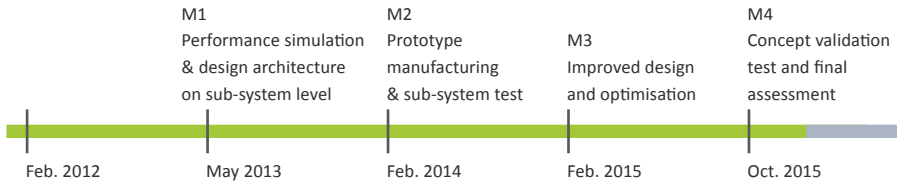
### CO<sub>2</sub> Reduction for long-distance transport

# CO<sub>2</sub>RE

#### MOTIVATION AND OBJECTIVES

Main objective for CORE is to demonstrate a substantial reduction of CO<sub>2</sub> emissions through improved powertrain efficiency with technologies having the potential to be implemented in production around 2020. The target is a 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

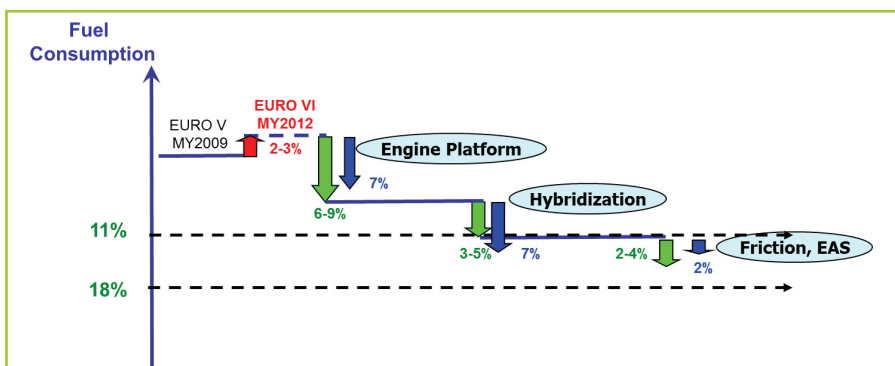
The CORE target should be obtained by work in different sub-projects; three of which focus on different engine and powertrain technologies. Major areas for these are: optimising the existing Diesel engine: combustion, air management, aftertreatment and controls, decreasing rated engine speed (“down-speeding”), optimising 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<sub>x</sub> aftertreatment technologies are studied. Accomplished results are adapted on the three engine and powertrain arrangements. 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 concepts, MD engine (8liter) + hybridisation + new Selective Catalytic Reduction (SCR) + new piston rings (lower friction). The blue arrows and figures present the best obtained result in each area.

In process, a 2<sup>nd</sup> loop of optimisation tests of the different engine systems and integration of Exhaust After-Treatment System (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 CO<sub>2</sub> for the best concept combination. There are potentials to improve these figures in the final optimisation of the different concepts.

<b>Budget</b>	17 M€	<b>Funding</b>	9 M€
<b>Duration</b>	48 months	<b>Start</b>	January 2012
<b>DG</b>	Research & Innovation	<b>Contract n°</b>	SCS1-GA-2012-284909
<b>Coordinator</b>	Johan Engström, Volvo	<b>Contact</b>	johan.je.engstrom@volvo.com
<b>Partners</b>	16 partners amongst them Daimler, CRF, Volvo, Ricardo, IAV		
<b>Website</b>	www.co2re.eu		

