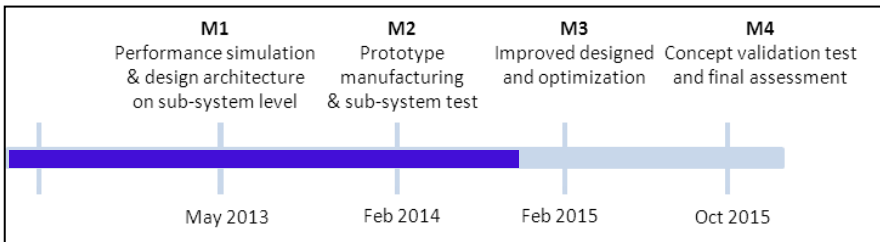


Motivation and Objectives

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. It is envisioned to achieve 6 to 9% in the sub-projects (see fig. below) with different engine, powertrain and fuel approaches. The hybridization of the powertrain will contribute with an estimated 3 to 5% fuel economy improvement dependent on the vehicle test cycle through usage of recuperation of deceleration events. Additional 2 to 4% of fuel economy improvement is attributed to optimized friction of the combustion engine and energy efficient exhaust gas aftertreatment systems and operation.

Project Plan, Milestones and Deliverables



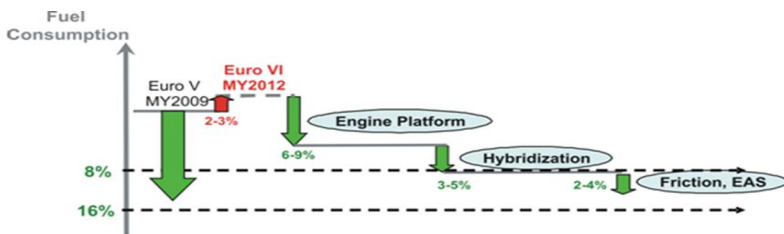
Technical Approach and Achievements

Current status of achieved results shows a good potential towards the targets of improved fuel efficiency. Performed engine simulation and first engine tests indicate fuel improvements close to the target for the engine platform. Current status is in the range of 3-6% reduced fuel consumption. Major contribution to obtain this improvement is derived from new matched high efficient turbosystem in combination with variable valves at down speed application of the engine. These new hardware improve gas exchanges work and combustion efficiency.

In the work with reducing friction new design of pistons rings has been tested. Current engine test show a reduced friction that improved fuel consumption $\geq 1\%$.

For the aftertreatment system, low temperature performance of the SCR system has been improved by novel coating and, for the particulate filter, lower backpressure is obtained by new design. Tests are in progress to in order to utilize the improved EATS on engine concept level.

Further presently work, optimisation of engine performance and a 2nd step in reducing friction with updated piston ring design. This work is believed to reach respectively targets. Nevertheless, challenging work remains in order to fully reach the targets in all steps, and to prove these figures in duty cycle operation on engine concept level.



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 | | |
| Website: | http://co2re.eu | | |