



# REWARD

REal World Advanced Technologies for Diesel Engines

EUROPEAN COMMISSION

Horizon 2020

H2020-MG-2014-2015

GA No. 636380



<b>Deliverable No.</b>	REWARD D6.2	
<b>Deliverable Title</b>	Defined proposals for EGR layout and components	
<b>Deliverable Type</b>	REPORT	
<b>Dissemination level</b>	Confidential – member only (CO)	
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<b>Status</b>	<b>Final</b>	2016-07-21
<b>Checked by</b>	Tobias STALFORS (VCC) WP6 Leader	2016-06-17
<b>Submitted to Executive Board</b>	Tobias STALFORS (VCC) WP6 Leader Submitted to meeting EB12	2016-07-01
<b>Approved by Executive Board (EB)</b>	Approved and accepted by all members of Executive Board at meeting EB12	2016-07-21

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**Acknowledgement:**

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

**Project partners:**

- 1 - AVL - AVL List GmbH - AT
- 2 - REN - Renault SAS - FR
- 3 - VCC - Volvo Car Corporation - SE
- 4 - CRF - CRF SCpA - IT
- 5 - CNRIM - Istituto Motori – Consiglio Nazionale delle Ricerche (CNR) - IT
- 6 - JM - Johnson Matthey Plc - UK
- 7 - RIC - Ricardo Plc - UK
- 8 - SCF - Schaeffler AG - DE
- 9 - LMM - Le Moteur Moderne - FR
- 10 - DELPHI - Delphi Automotive Systems Luxembourg S.A. - LU
- 11 - UNR - Uniresearch BV - NL
- 12 - IFPEN - IFP Energies Nouvelles - FR
- 13 - VIF - Virtual Vehicle Research Center - AT
- 14 - CTH - Chalmers Tekniska Högskola - SE
- 15 - CTU - Czech Technical University - CZ
- 16 - UPVLC - Universitat Politècnica de València – Motores Termicos - ES

**Disclaimer:**

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 636380.*



## **Publishable Executive Summary**

Within work package 6 a new combustion concept is developed which focuses on an extremely high specific power output and the reduction of both the emissions and fuel consumption. The new concept features a quiescent combustion with optimized charging, EGR and aftertreatment concept. The base engine for this development is an engine, which is currently in production at VCC and which has already undergone developments for an increase of power and torque output. This base engine is equipped with a high pressure and a low pressure EGR system which is analyzed and compared with alternative concepts. It is assumed that due to the stringent NOx target high EGR rates will be applied. The analysis concludes that the currently applied cooled low pressure EGR system complemented by an uncooled high pressure EGR path is a viable solution with respect to both the achievable EGR rates and the deterioration of the gas exchange at the high EGR-rates.