



# REWARD

REal World Advanced Technologies for Diesel Engines

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**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 Valencia – Motores Termicos - ES

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## Publishable Executive summary

Multi-cylinder engine fuel consumption and emissions have been extrapolated based on single cylinder engine test. Heat release has been calibrated based on measured data for a few test points using 1D simulations. After that next non-tested points have been simulated with the calibrated combustion law. Engine parameters were also optimized at the same time. Results of 1D simulations were used in software developed for simulation engine-vehicle-road interaction and vehicle road performance.

Deliverable D4.6 describes the extrapolation of engine results obtained by a single-cylinder engine testing to a multi-cylinder engine results gained by 1D simulations. Two different layouts of engine intake ports and exhaust camshaft profile were tested and extrapolated using 1D simulations in next step. Results of two- and three-cylinder engines are presented. Road performance of defined cars driving the two-cylinder engine (Renault Clio) and the three-cylinder unit (Renault Scénic short) on a defined track (WLTC) are presented also.