



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 - Centro Ricerche Fiat 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 Technologies GmbH & Co. KG - 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

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Executive summary

The objective of the project REWARD (Real World Advanced Technologies foR Diesel Engines) is the development of highly efficient, clean and cost effective Diesel powertrains up to a Technology Readiness Level (TRL) of 7.

Many of the technologies developed in the framework of the REWARD project will be integrated in two demonstration vehicles.

One demonstration vehicle will be driven by a 1.6 L engine with a power rating of 60 kW/L. This demonstration car will serve as a reference for B/C class vehicles.

The second demonstrator vehicle refers to D/E class passenger cars and will be driven by a 2.0 L engine with a power density of 100 kW/L.

The project targets with these two demonstration vehicles are to go appreciably below the Euro 6 emission limits as well as to reduce the fuel consumption by 5 % compared to model year 2013 (MY13) best in class vehicles under real driving conditions.

The baseline vehicles, to which the demonstration vehicles - set up in the REWARD project - are compared, are defined as:

- WP 5: Renault Kadjar Energy dci 130 1.6 l, MY2015, Euro 6
- WP 6: Volvo XC90 2.0 L, MY2015, Euro 6b

The target of the REWARD project is not only to reach very severe emission values but also to go below a cost limit. This cost limit was originally defined in the grant agreement as a sale price premium of 800 €/1000 €/1500€/2000 €/2500 €/2500 € for class A to E vehicles and LCV. However, all scientific papers publicly available do not consider sale prices but costs for the vehicle manufacturer. Therefore, for a better comparison, the additional costs for the improvements of the REWARD project are calculated as manufacturing costs.

These additional costs are calculated as 781 € for the demonstration vehicle of WP 5. The extra costs for the demo vehicle of WP 6 are calculated as 803 €. It must be mentioned that comparing manufacturing costs to sales prices with proper (synthetic) factors is not very constructive as this is very uncertain. For valuation of the costs, they are compared to prior emission reduction costs.

The additional manufacturing costs for both vehicles agree very well to the historic data for the costs of emission reduction technologies.