

# LONG RUN

## D5.4 – SCE development (thermal efficiency) incl. simulations

Innovation Action

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## Publishable summary

Future powertrain solutions need to comply with strict emissions and CO<sub>2</sub> regulations. Depending on the use case, electrification of commercial vehicles is one route but will rely on a high developed infrastructure including a stable grid and sufficient fast charging points. Regions with low infrastructure or insufficient supply of green electricity might demand for alternative solutions. Heavy-duty internal combustion engines (HD ICE) will remain under such conditions still providing a reliable technology. With view to the upcoming CO<sub>2</sub> regulations the HD ICE still has potential left to enhance the efficiency using advanced engine technology. However, the higher fuel price for advanced biofuels and in a later step for carbon neutral eFuels will require HD ICE powertrains to be as efficient as possible in all markets worldwide. Key for the efficiency increase is the enhanced compression ratio under consideration of high cylinder peak firing pressure up to 300 bar in combination with the use of latest nozzle and an optimized injector technology. This deliverable describes the latest engine test results on a HD single cylinder engine towards a brake thermal efficiency of 50 %.

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### Project partners:

#	Partner	Partner Full Name
1	FEV	FEV EUROPE GMBH
2	DAF	DAF TRUCKS NV
3	FPT	FPT INDUSTRIAL SPA
4	FORD	FORD OTOMOTIV SANAYI ANONIM SIRKETI
5	IRIZAR	IRIZAR S COOP
6	IVECO	IVECO S.p.A.
7	VOLVO	VOLVO TECHNOLOGY AB
8	VDL	VDL ENABLING TRANSPORT SOLUTIONS BV
9	ABEE	AVESTA BATTERY & ENERGY ENGINEERING
10	AVL	AVL LIST GMBH
11	EATON	EATON ELEKTROTECHNIKA SRO
12	GARR	GARRETT MOTION CZECH REPUBLIC SRO
13	IDIADA	IDIADA AUTOMOTIVE TECHNOLOGY SA
14	IFP	IFP Enegies Nouvelles
15	AVL	AVL MTC MOTORTTESTCENTER AB
16	NESTE	NESTE OYJ
17	PRIMA	PRIMAFRIO SL
18	SHELL	SHELL GLOBAL SOLUTIONS (DEUTSCHLAND) GMBH
19	SIE	SIEMENS INDUSTRY SOFTWARE SAS
20	TECHNA	FUNDACION TECHNIALIA RESEARCH & INNOVATION
21	TOTAL	TOTAL MARKETING SERVICES
22	UMIC	UMICORE AG & CO KG
23	UNR	UNIRESEARCH BH
24	JRC	JRC -JOINT RESEARCH CENTRE – EUROPEAN COMMISSION
25	CHALM	CHALMERS TEKNISKA HOEGSKOLA AB
26	RWTH	RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN
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