

# LONG RUN

## D5.6 – Simulation total BTE efficiency improvement and tail-pipe emissions

Innovation Action

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## Publishable summary

In order to achieve carbon-neutral transportation and meet stringent emissions standards, future powertrain options must be carefully considered. One possible option for commercial vehicles is electrification, but this would require a highly developed infrastructure, including a stable power grid and an adequate number of fast-charging stations. However, areas with limited infrastructure or a shortage of green energy sources may need to explore alternative solutions. Moreover, the internal combustion engine (ICE) will remain the preferred method of propulsion since there is no complete substitute that can cover its entire range of uses, especially in heavy-duty long haulage and non-road applications. To meet the challenges of sustainable climate goals, heavy duty combustion engine thermal efficiency improvement methods have been actively investigated. Several measures like increased compression ratio, increased peak firing pressure, thermally insulated combustion chamber, optimized air path technology etc., have been investigated discretely. A combination of single cylinder engine experiments and 1D engine models have been used to understand these effects. Finally, the influence of the consolidation of various technologies on the brake thermal efficiency of the given heavy duty engine is reported.

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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
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21	TOTAL	TOTAL MARKETING SERVICES
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