

# LONG RUN

## D2.8 – Assessment of future alternative liquid fuels for an optimised CI combustion

Innovation Action

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## Publishable summary

Tightened emission legislations and sustainable governance are increasing the demand towards renewable fuels today. Main challenges are the compatibility with conventional combustion engines and additional potential efforts in engine software calibration and hardware changes. Also, availability, transportability and handling of the alternative fuels have to be taken into account, as they play a main role regarding affordability and acceptance on a large scale. This assessment of future alternative liquid fuels for an optimized compression ignition (CI) combustion gives an overview of different alternative fuels, their physical and chemical properties as well as their features.

In this work, an investigation of the liquid fuels represented by: (1) Hydrotreated Vegetable Oil, (2) methanol, (3) 1-octanol, (4) DME and (5) OME<sub>3-5</sub> were performed. All these alternative fuels show a high CO<sub>2</sub> reduction potential due to their production out of biomass or renewable energy sources. They also show further advantages in terms of emission. Different Cetane numbers or higher oxygen contents reduce the formation of soot and improve the combustion quality which lowers HC and CO emissions. These properties have a high impact with regards to future emission legislations. In addition, investigations show an improvement of the indicated efficiency of the engine for all alternative fuels.

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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
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20	TECHNA	FUNDACION TECHNIALIA RESEARCH & INNOVATION
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