Low Energy And Near to zero emissions Ships

Demo Case

The potential of methanol as alternative fuel

Criteria for alternative fuels: scalable, storable, sustainable

- Biodegradable
- Liquid and easy to handle
- Ample storage options
- Viable renewable energy density
- Great engine performance

Test engine

Volvo Penta SNC T6
6 in-line cylinders
195 kW @ 2300 rpm

A high-speed diesel engine used for smaller vessels, has been converted with a methanol-retrofit solution to dual-fuel operation in which the engine runs on both methanol and diesel.

Tests on retrofitted engine in Q3 2018

- Speeds between 1000 and 2000 rpm
- 28 load points

Results on dual-fuel methanol/diesel

- Brake thermal efficiency: a maximum relative increase of 1.2%
- Methanol energy fraction: obtained maximum 70%
- Emissions: NO and soot emissions of respectively 60% and 77%

Results and exploitation

Data from the life cycle analyses on life cycle total cost, fuel cost, emissions.

Measurement results on the engine efficiency, emissions and power output in dual fuel operation; retrofit solution for small engines.

Based on the optimal control strategy better "real life" sailing efficiencies and emissions are estimated.

Business plan on dual-fuel engines gives a market overview and insight in the financials and current obstacles.

Follow-up project with 2 industrial partners on the feasibility of a vessel conversion, a next step in bringing the technology to the market.

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