

Machinery for high-speed LNG-ferries



Partners:



Evaluation of efficiency and emissions of LNG-powered high-speed ferries

In this project Mols-Linien and DTU Mechanical Engineering co-operate on studying the machinery for future gas-powered, high-speed ferries.



The machinery system will be a combined cycle configuration consisting of the aeroderivative gas turbine LM2500 by GE, and a secondary Rankine cycle operated with a suitable organic fluid. The machinery system will be optimised according to the power requirements for the vessel in question.

For the final proposal detailed calculations will be made of the total efficiencies, and compared with a combined cycle configuration where the secondary Rankine cycle is operated by steam.

The preliminary results suggest that thermal efficiency of 45 % is achievable with a combined cycle consisting of the given gas turbine and a selected Organic Rankine Cycle. For the given power requirements, the gas turbine alone operates with a thermal efficiency of 34 % giving that the combined cycle represents an increase of thermal efficiency of 32%.

Fact Box

CO₂ NO_x SO_x

Newbuilding

Retrofit

The expected reduction in CO₂ is approx. 48% and NO_x is approx. 55%

Design

Test

Onboard

