

HyMethShip

Hydrogen-Methanol Ship propulsion system using on-board pre-combustion carbon capture
768945

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Programme:

H2020 Transport

Topic:

MG-2.1-2017

Call for proposals:

H2020-MG-2017-Two-Stages

Duration:

01/07/2018 to 30/06/2021

Funding scheme:

IA

Total cost:

€9,288,310

EU contribution:

€8,438,110

Coordinator:

LEC GMBH

Project website:

<http://www.hymethship.com>

The HyMethShip project is developing the first internal combustion engine for marine propulsion system capable of CO₂ emission reduction of more than 95%. The project will achieve this goal by using renewable methanol as the energy carrier and implementing pre-combustion carbon capture. The system will be demonstrated onshore at full scale. The HyMethShip system innovatively combines a membrane reactor, a CO₂ capture system, a storage system for CO₂ and methanol, as well as a hydrogen-fuelled combustion engine into one system. The proposed solution reforms methanol to hydrogen, which is then burned in a reciprocating engine that has been upgraded to burn multiple fuel types and is specifically optimised for hydrogen use. The new concept allows for a closed CO₂ loop ship propulsion system while maintaining the reliability of well-established marine engine technology. The HyMethShip project will undertake risk and safety evaluations, as well as life cycle costing (LCC) and life cycle assessment (LCA) to ultimately optimise economic and environmental performance for different ship types and operating scenarios.

