

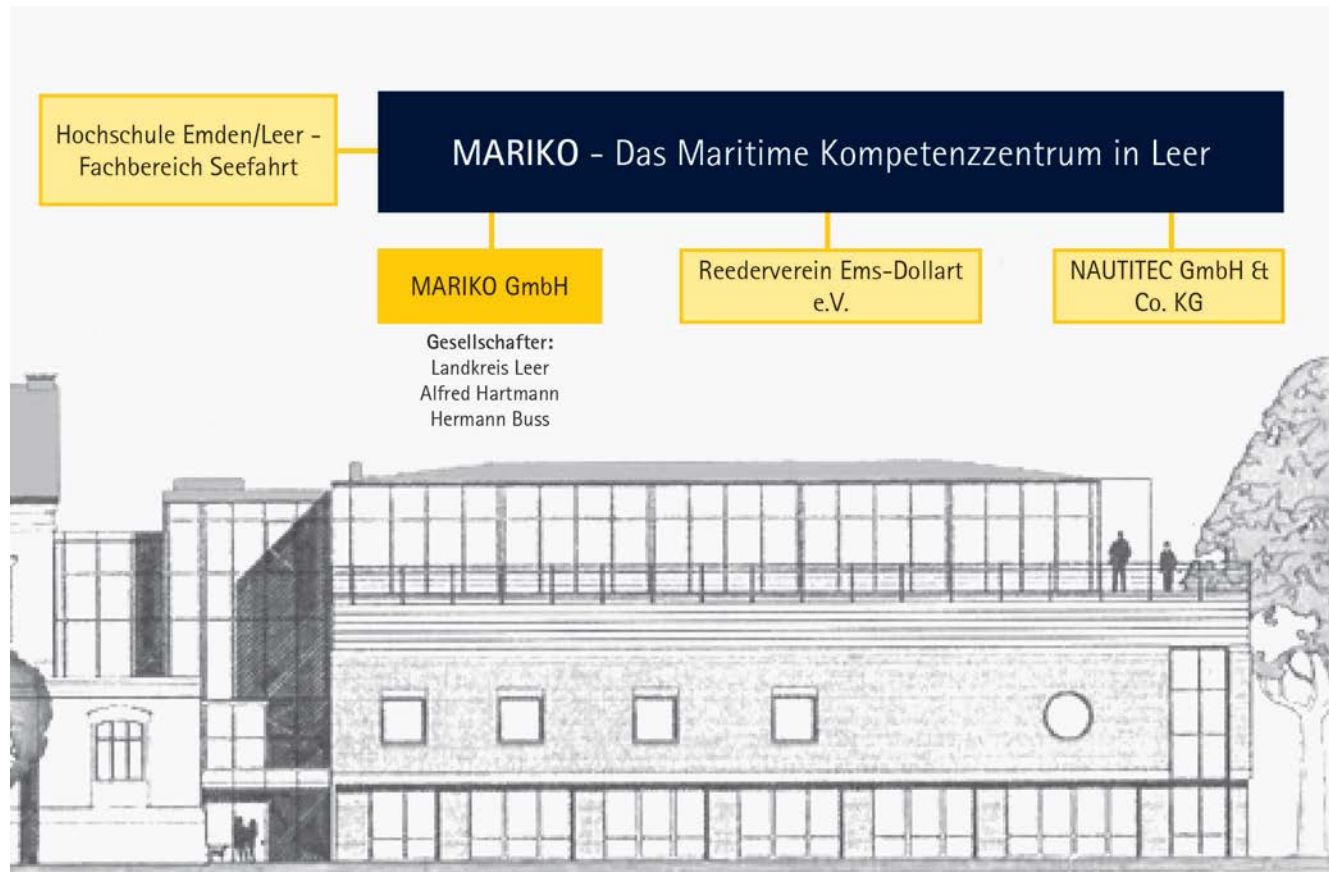
MariGreen

Maritime Innovations in Green Technologies



LNG market uptake

External Structure



Internal Structure

MARIKO GmbH

Maritime Training

Projekte &
Netzwerke

Maritimer Strategierat
Weser-Ems

GreenShipping

MariGreen
(INTERREG)

LNG-Initiative
Nordwest

Kompetenzzentrum GreenShipping
Niedersachsen

D-ZIB, Deutsches Zentrum
für Innovative Binnenschifffahrt

MariGreen
Maritime Innovations in Green Technologies

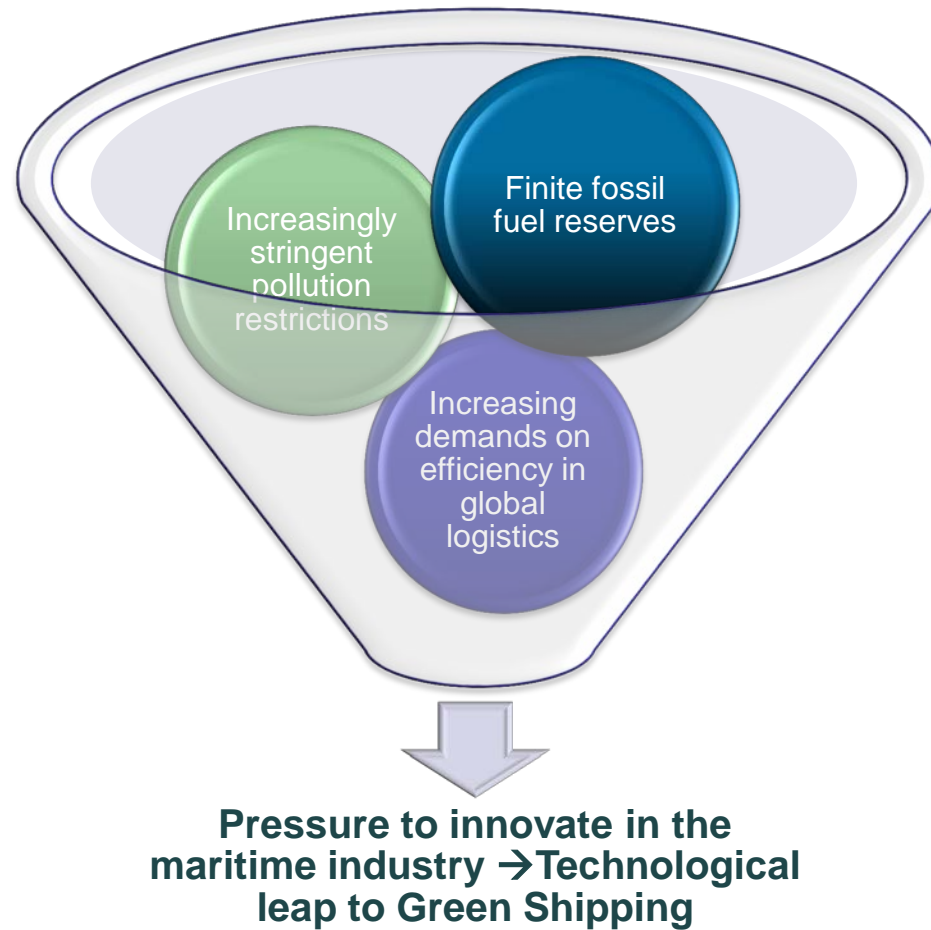
LNG
Initiative Nordwest

GreenShipping Niedersachsen

D-ZIB | Deutsches Zentrum
für innovative
Binnenschifffahrt
BBP | European Inland Barging Innovation Platform

Wissensvernetzung und Know-How Transfer

Focus: Green Shipping



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Maritime Innovations in
Green Technologies



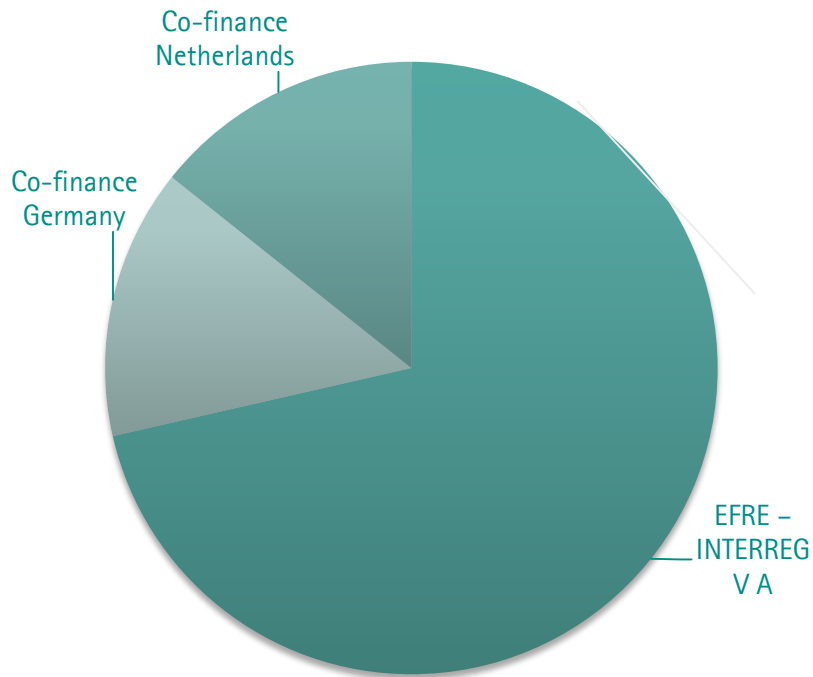


Project Partners

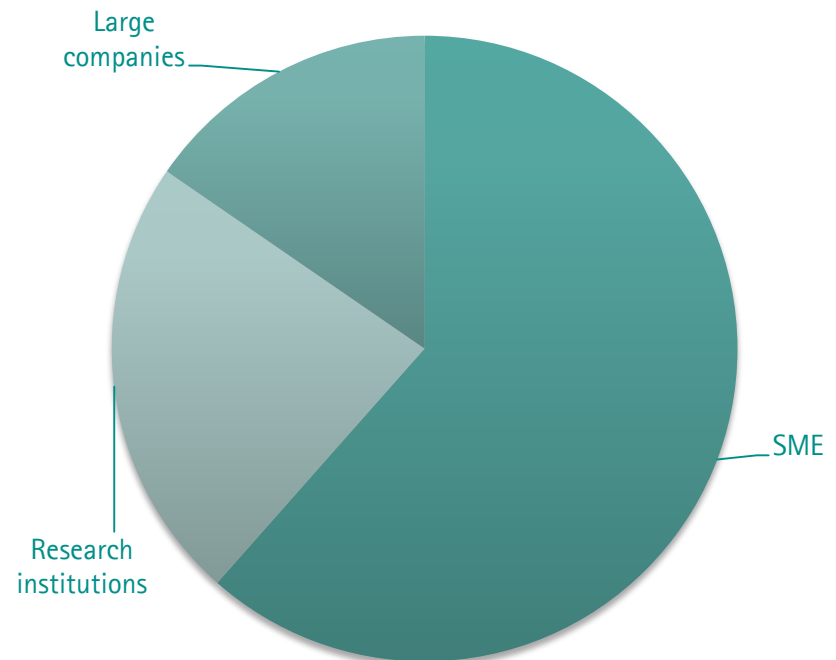
Financing of the MariGreen

Total amount: 9,9 m€

Subsidies (70%)



Own resources (30%)

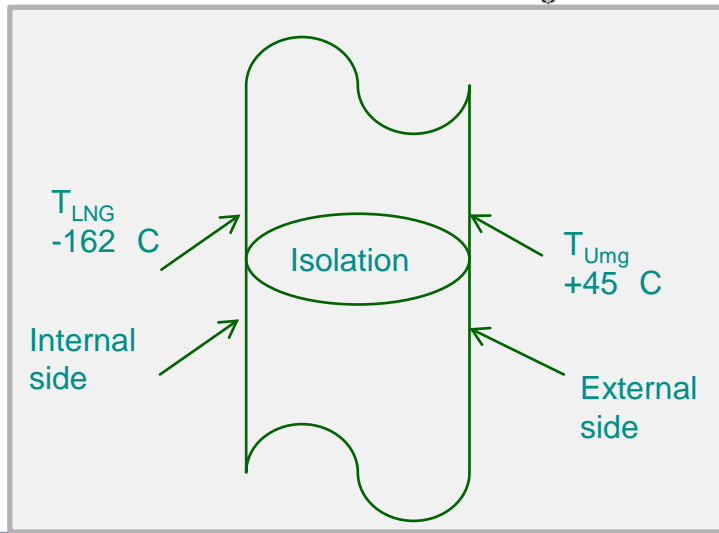
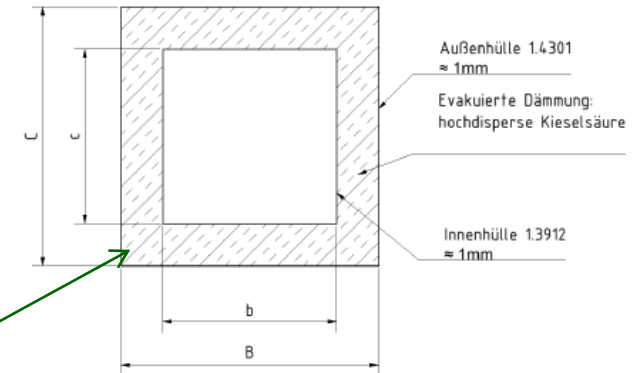
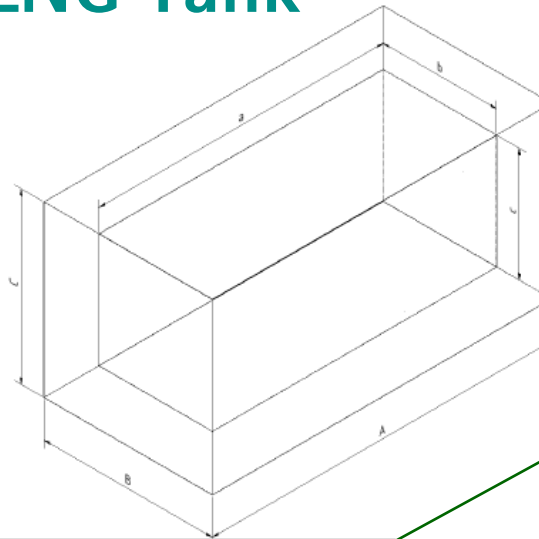


MariGreen Subprojects:

LNG market uptake

- Cost reduction for small scale LNG-systems
 - Improvement of emission values of LNG propulsion
 - Safe operation of LNG Systems through training
1. Low Pressure LNG Tank and Bunker Storage Solutions
 2. Plug and Play Energy pack for inland shipping and short sea
 3. Standard modular system for "Small Scale LNG" vessels
 4. Methane catalyst for LNG engines
 5. Training technologies for the use of LNG

1. Low Pressure LNG Tank

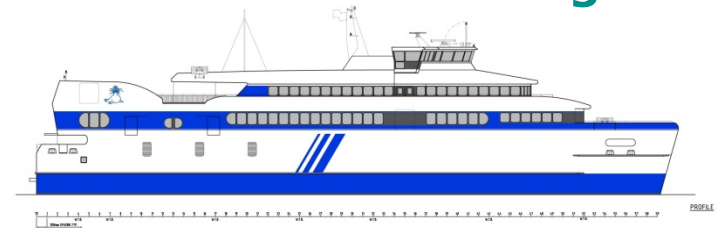


- low pressure
- integral construction
- pressure resistant isolating material
- no predetermined form
- lower weight and 50% cost reduction in comparison to Type C tanks

1. Low Pressure LNG Tank



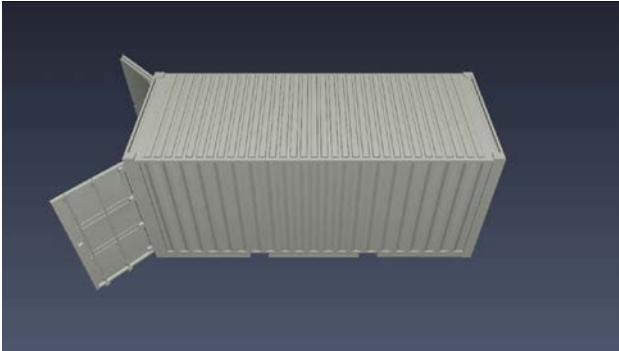
Rederij Doeksen,
flexible LNG bunkerbarge



Reederei Norden-Frisia,
form free LNG tank

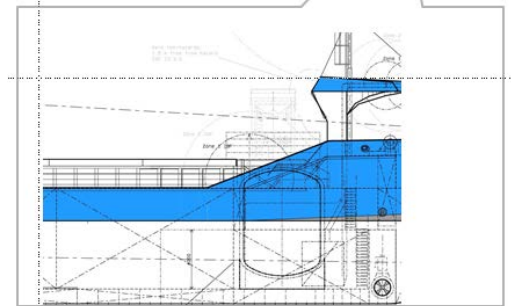
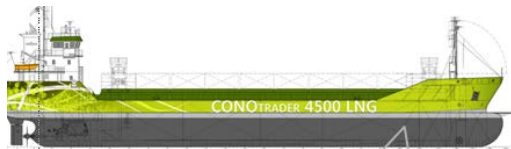


2. Plug and Play Energy Pack

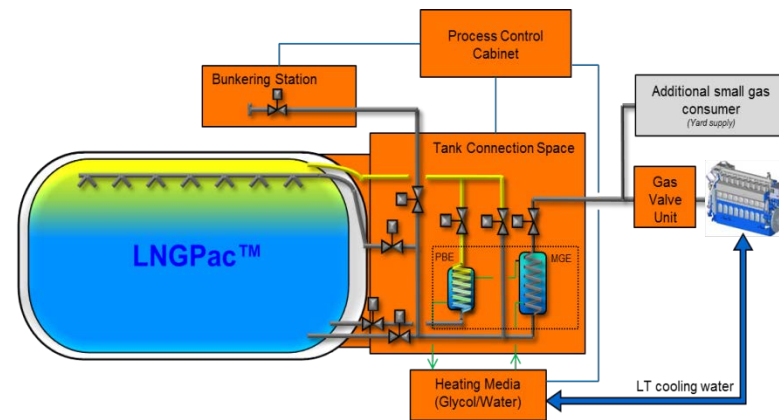


- small scale LNG solution through LNG-turbine technology to cover the demand of electricity for inland- and short sea vessels
- Power generator together with fuel tank in one box
- direct LNG injection
- (No) methane slip → good emission profile
- Test on MV "Emeli", training ship of Maritime Academie Harlingen, (Electrification of one main engine)
- cost price < 300.000 €
- total efficiency 40-45% for a 200kW system

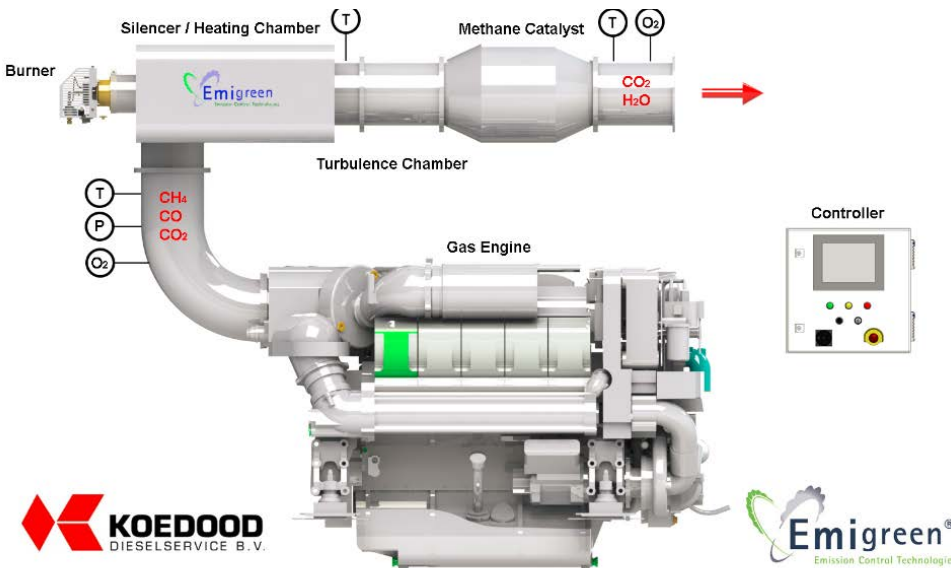
3. Standard Modular LNG System



- standardization of modules regarding small scale LNG systems
- 30 % cost reduction through standardization in order to smooth the way for Fishing and Shortsea Vessels



4. Methane Catalyst

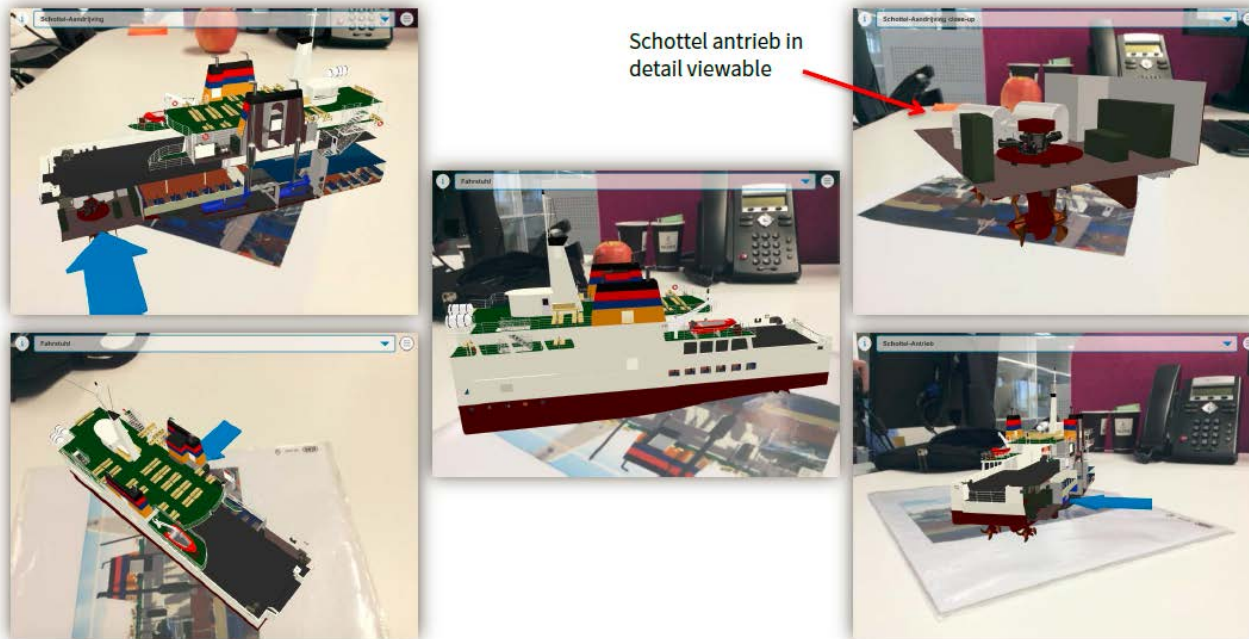


- Methane slip is a common issue regarding LNG propulsion
- methane has a global warming potential which is 25 times higher in comparison to CO₂
- no methane reduction installation available yet
- development of a methane catalyst in order to avoid methane slip (split CH₄ to CO₂ and H₂O)

Exhaust gas flow 200 kg/h

Exhaust gas temperature 400 C

5. LNG Training Technologies



Development of LNG training courses based on blended learning technology

Thank you for your attention!

Unterstützt durch: / Mede mogelijk gemaakt door:

provincie Drenthe



provincie Fryslân
provincie Fryslân

Provincie Noord-Brabant

provincie Overijssel

provincie
Gelderland

PROVINCIE FLEVOLAND



Ministerie van Economische Zaken



Niedersächsische
Staatskanzlei

Ministerium für Wirtschaft, Energie,
Industrie, Mittelstand und Handwerk
des Landes Nordrhein-Westfalen



INTERREG
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EDR

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Das Projekt MariGreen wird im Rahmen des INTERREG V A Programms Deutschland-Nederland mit Mitteln des Europäischen Fonds für Regionale Entwicklung (EFRE) und des niederländischen Wirtschaftsministeriums (Ministerie van Economische Zaken), des Landes Niedersachsen (Niedersächsische Staatskanzlei) sowie des nordrhein-westfälischen Ministeriums für Wirtschaft, Energie, Industrie, Mittelstand und Handwerk und der Provinzen Drenthe, Flevoland, Friesland, Gelderland, Groningen, Noord-Brabant und Overijssel kofinanziert. Es wird begleitet durch das Programm-Management INTERREG bei der Ems Dollart Region (EDR).

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