



Herzlich Willkommen / Hartelijk welkom

# Kick-off Meeting



# Grenzübergreifende Kooperation in GreenShipping

## Grensoverschrijdende samenwerking in GreenShipping

Im Gespräch mit: / In gesprek met:

Harald Krebs, Leiter Amt für Wirtschaftsförderung im Landkreis Leer

Patrick Brouns, Gedeputeerde van de provincie Groningen

Franz-Josef Sickelmann, Beauftragter für regionale Landesentwicklung

Hermann Wessels, Geschäftsführer INTERREG bei der EDR



# LNG Market Uptake

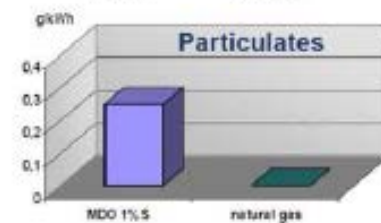
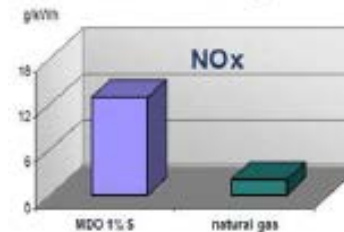
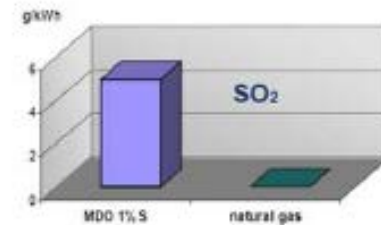
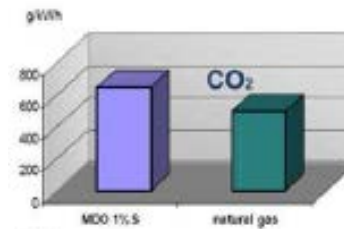
**LNG:** CH<sub>4</sub> ,Boiling point: - 162°C



- Liquefied Natural Gas (LNG) is natural gas cooled down to - 162°C where it condenses into a liquid at atmospheric pressure.
- Liquefaction reduces the volume of gas approximately 600 times.
- Economical to store and transport over long distances.



LNG "boiling" at atmospheric pressure and temperature (Source: Osaka Gas Co. Ltd.)



# LNG Market Uptake

## Low Pressure LNG Tank and Bunker Storage Solutions (LPTSolutions)

Plug and Play Energy pack für Inland- und Shortsea-Shipping

Standard modular LNG system for „Small Scale LNG“ vessels

Methan catalyst for LNG engines

Training technologies for the use of LNG

 <b>Ahlers &amp; Vogel</b> <small>Ahlers &amp; Vogel</small>	 <b>DE BOER &amp; DE GROOT</b> CIVIELE WERKEN <small>De Boer &amp; De Groot civiele werken B.V.</small>	 <b>DORHOUT</b> ADVOCATEN <small>Dorhout Advocaten N.V.</small>	 <b>Lloyd's</b> Register <small>Lloyd's Register</small>
 <b>ms</b> Marine Service GmbH <small>Marine Service GmbH</small>	 <b>REDERIJ DOEKSEN</b> <small>Rederij Doeksen</small>	 <b>FRISIA</b> Aktiengesellschaft Reederei Norden-Frisia <small>AG Reederei Norden-Frisia</small>	 <b>abh</b> <small>abh Ingenieurtechnik</small>

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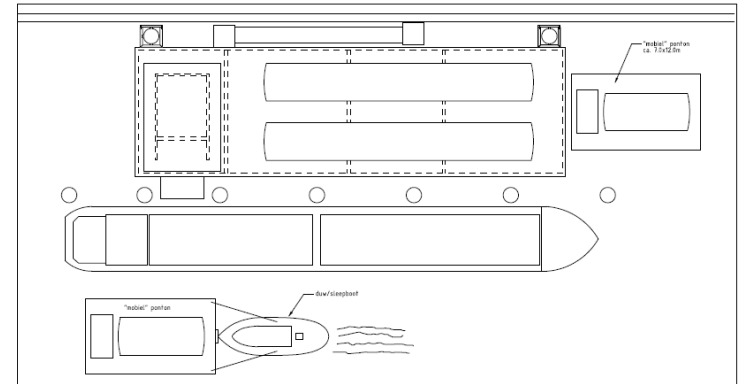
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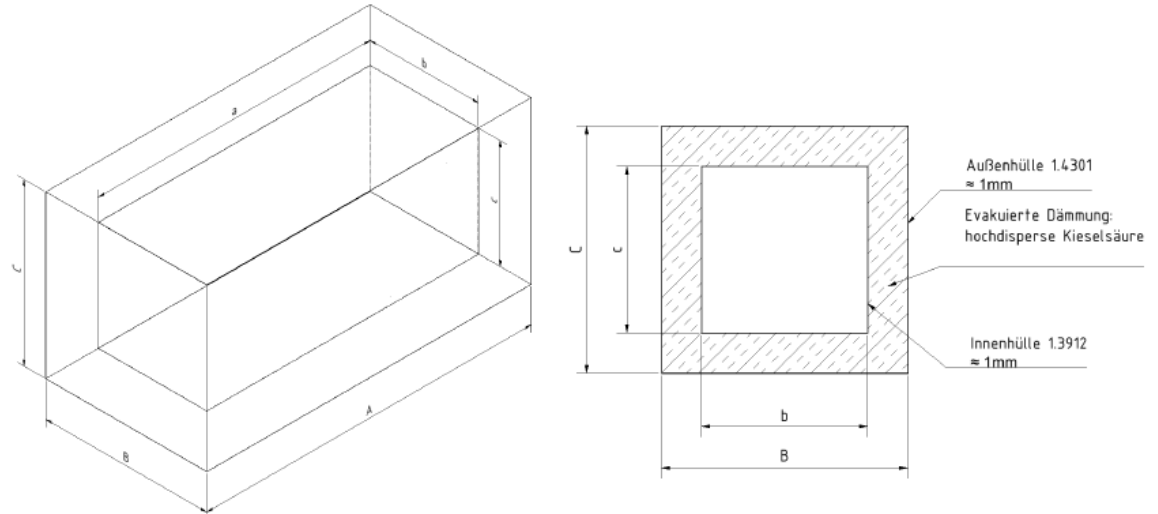
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### LPT-Solutions – Sketch of new LNG-tank design

abh



# LNG Market Uptake














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 <p><i>Cofely West Industrie</i></p>	 <p><i>Conoship International B.V.</i></p>	 <p><i>Dirks Elektrotechnik</i></p>	 <p><i>DST</i></p>
 <p><i>Electric Ship Facilities B.V.</i></p>	 <p><i>Hanze University of Applied Science</i></p>	 <p><i>Harms Elektromaschinen</i></p>	 <p><i>Maritieme Akademie Harlingen</i></p>
 <p><i>RR Maritime Engineering B.V.</i></p>	 <p><i>Scheepswerf Talsma</i></p>	 <p><i>Schipco B.V.</i></p>	 <p><i>SMB - Naval Architects &amp; Consultants</i></p>
 <p><i>TU Eindhoven</i></p>	 <p><i>Astron</i></p>		

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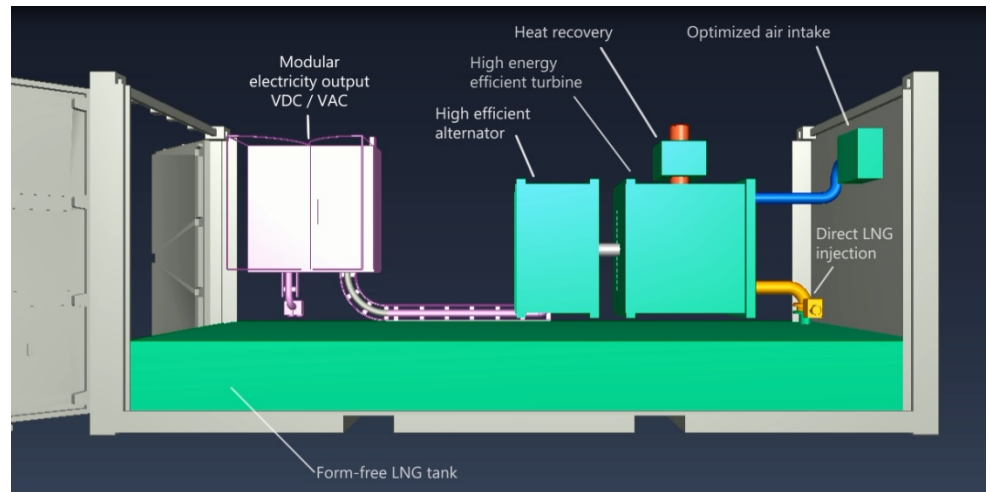
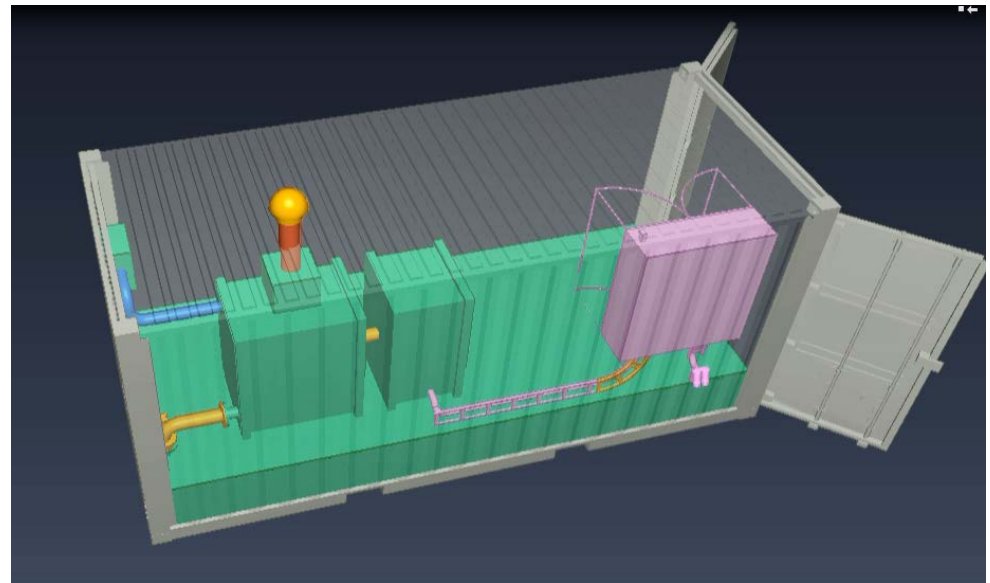
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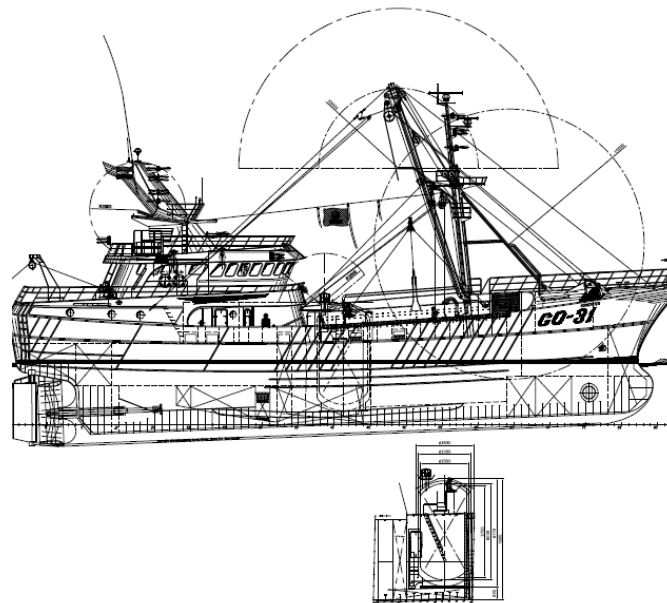
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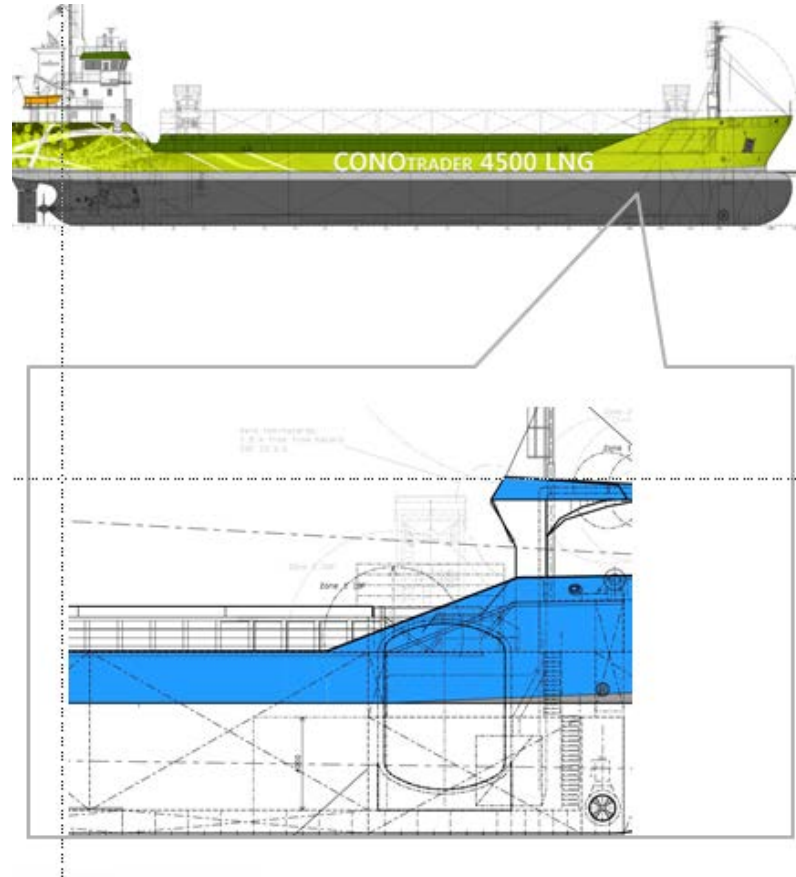
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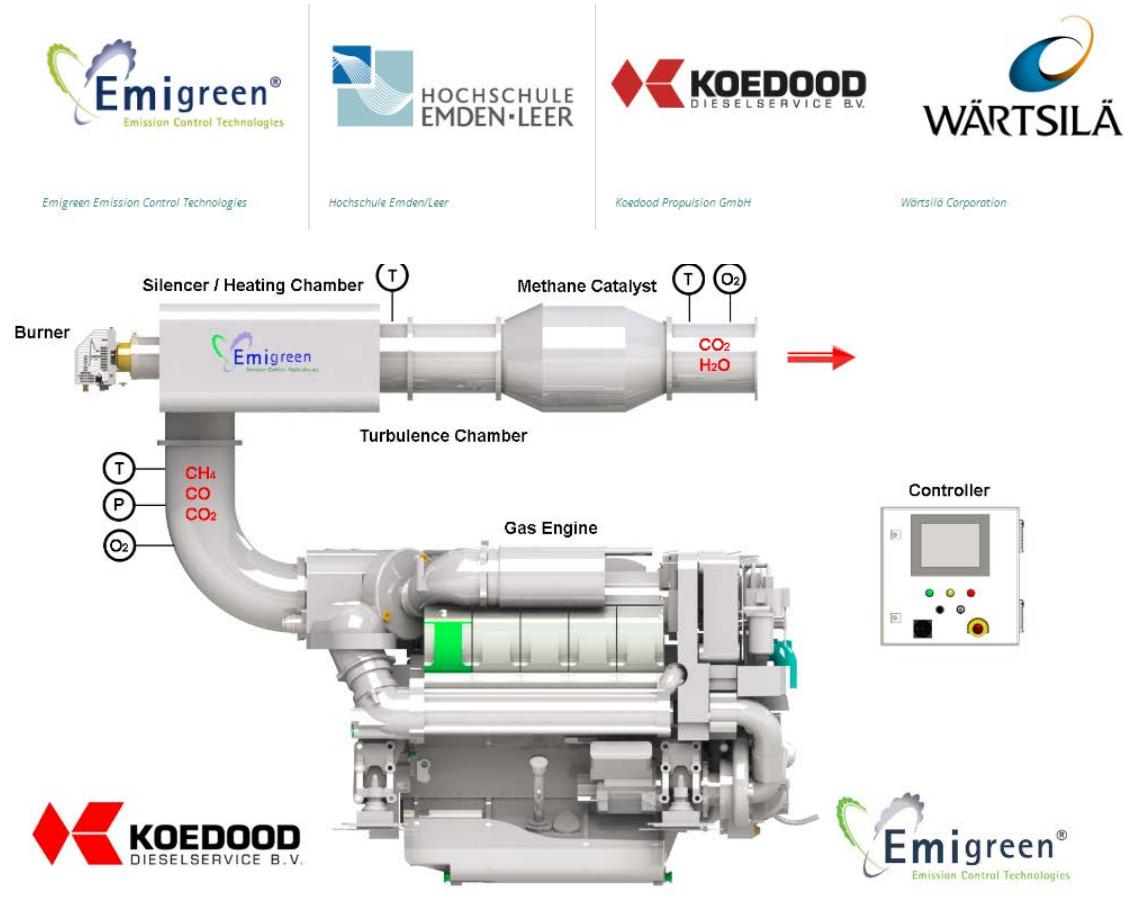
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DST



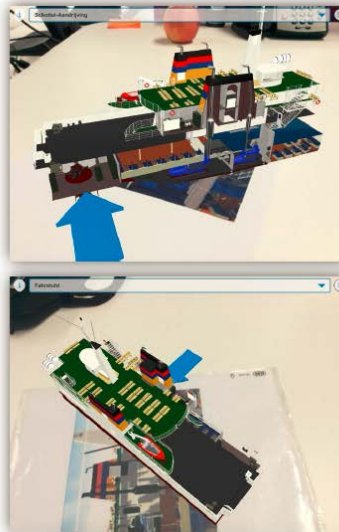
Hochschule Emden/Leer



Innovam



NHL University of Applied Science


















# Wind Propulsion in Commercial Shipping

Windship – Engineering and Design

Windship Modelling and Voyage Optimization

Green Water Taxi

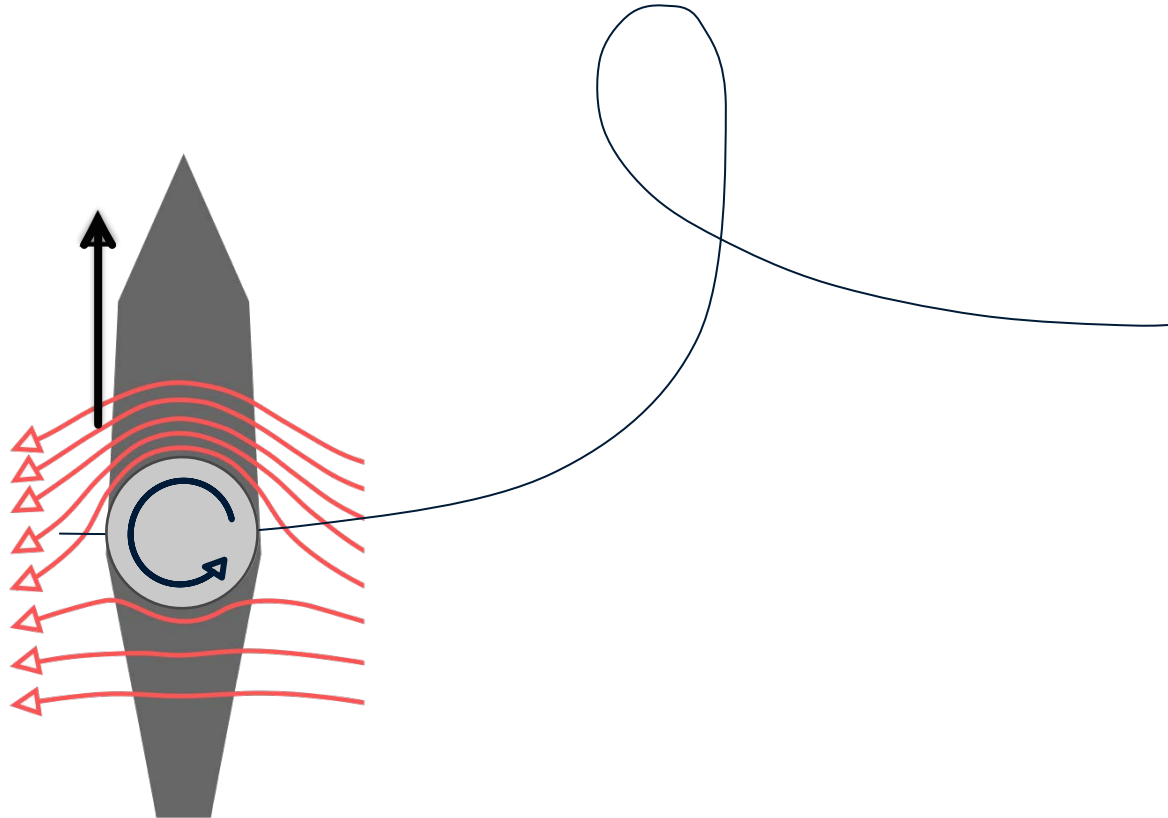
 <p><i>abh Ingenieurtechnik</i></p>	 <p><i>Ankerbeer Engineering &amp; Design</i></p>	 <p><i>BOMA Maschinenbau</i></p>	 <p><i>Dirks Elektrotechnik</i></p>
 <p><i>DNV GL</i></p>	 <p><i>Fehn-Ship Management</i></p>	 <p><i>Hochschule Emden/Leer</i></p>	 <p><i>Jens Werner Coaster Services</i></p>
 <p><i>JPW Industries</i></p>	 <p><i>LAIS Nord</i></p>	 <p><i>MFH</i></p>	 <p><i>Ralf Oltmanns Regenerative Antriebstechniken</i></p>
 <p><i>SEC Shipservices</i></p>			

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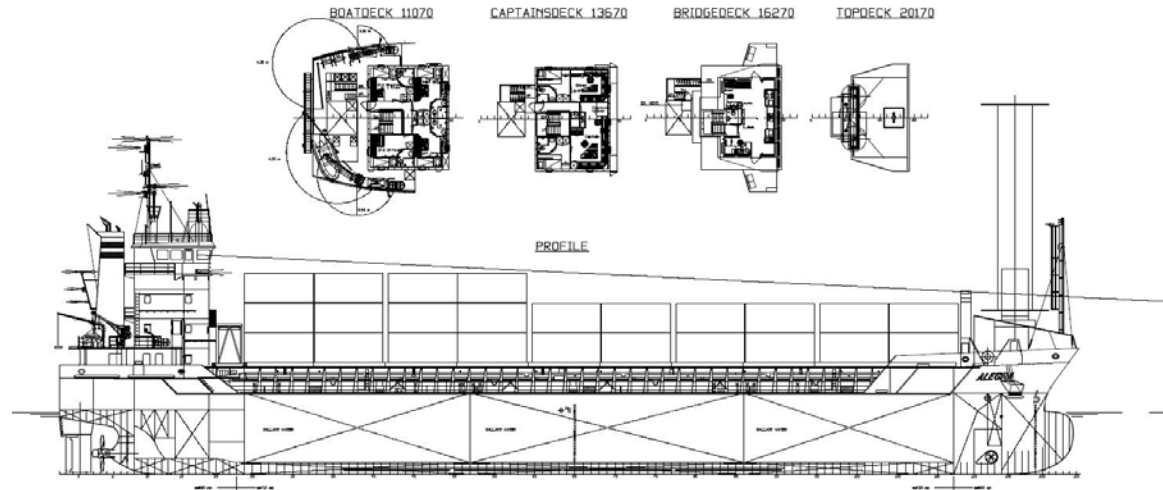


# Wind Propulsion in Commercial Shipping

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Green Water Taxi



**MariGreen**  
Maritime Innovations in Green Technologies



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DST



Hochschule Emden/Leer



Meteo Group

Pronk Maritiem



SevenCs



# Wind Propulsion in Commercial Shipping

Windship – Engineering and Design

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Green Water Taxi

Prediction and Raise of Efficiency



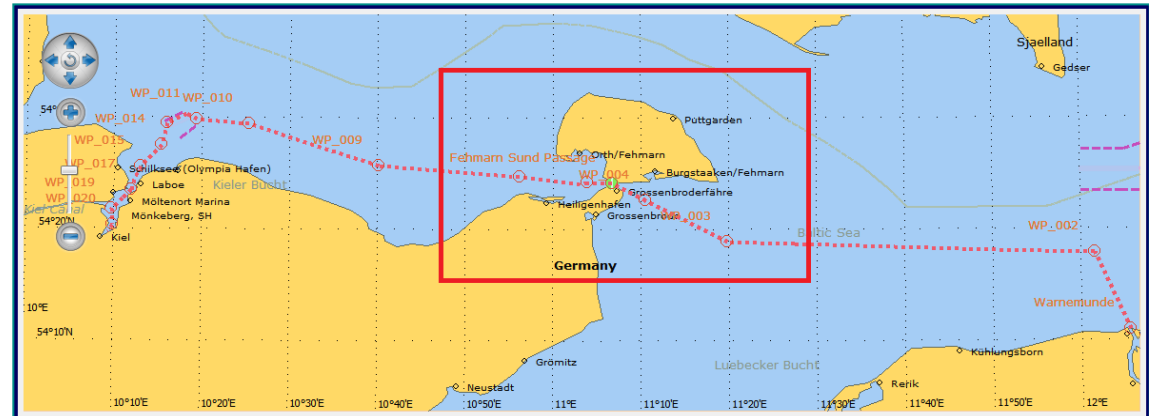
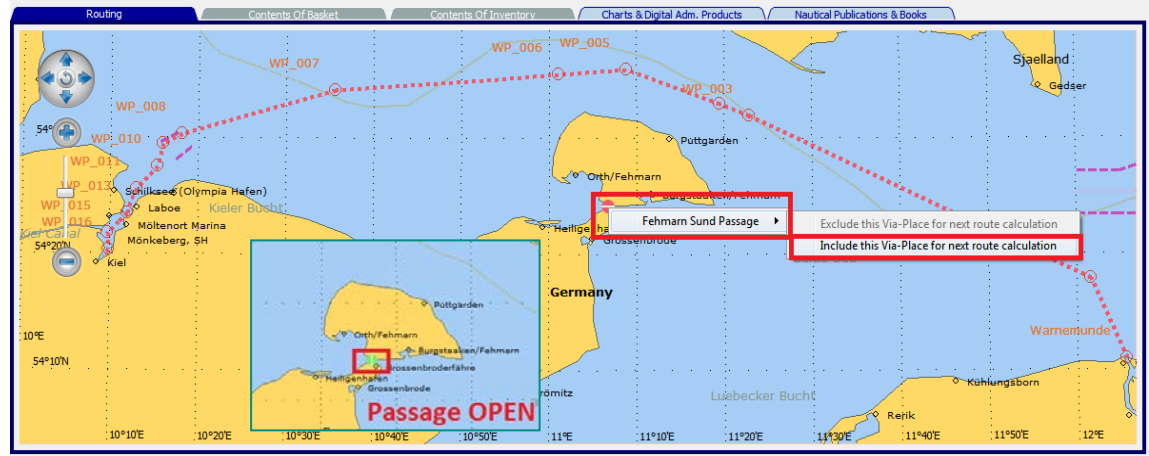


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Maritime Innovations in Green Technologies

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 <p>AG Reederei Norden-Frisia</p>	 <p>DW Shipconsult</p>	 <p>Hochschule Emden/Leer</p>	 <p>MFH</p>
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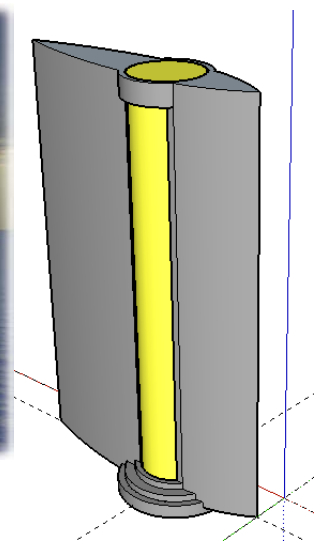
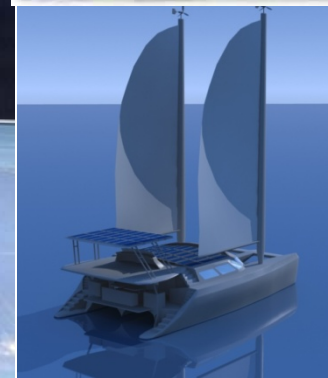
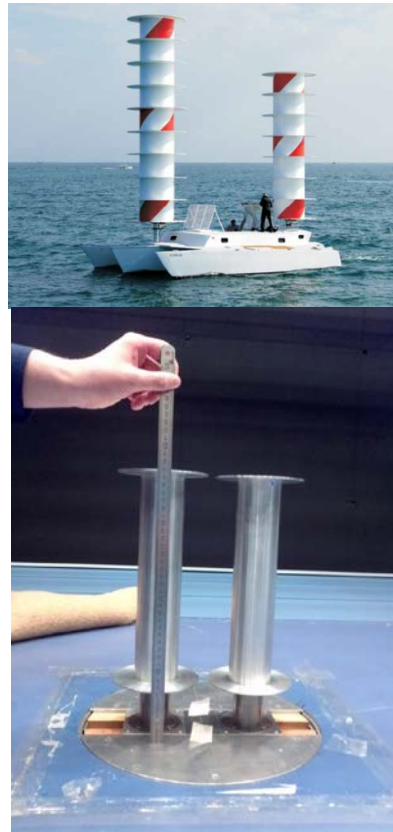
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Green Water Taxi

Green Water Taxi...driven by Wind and Sun



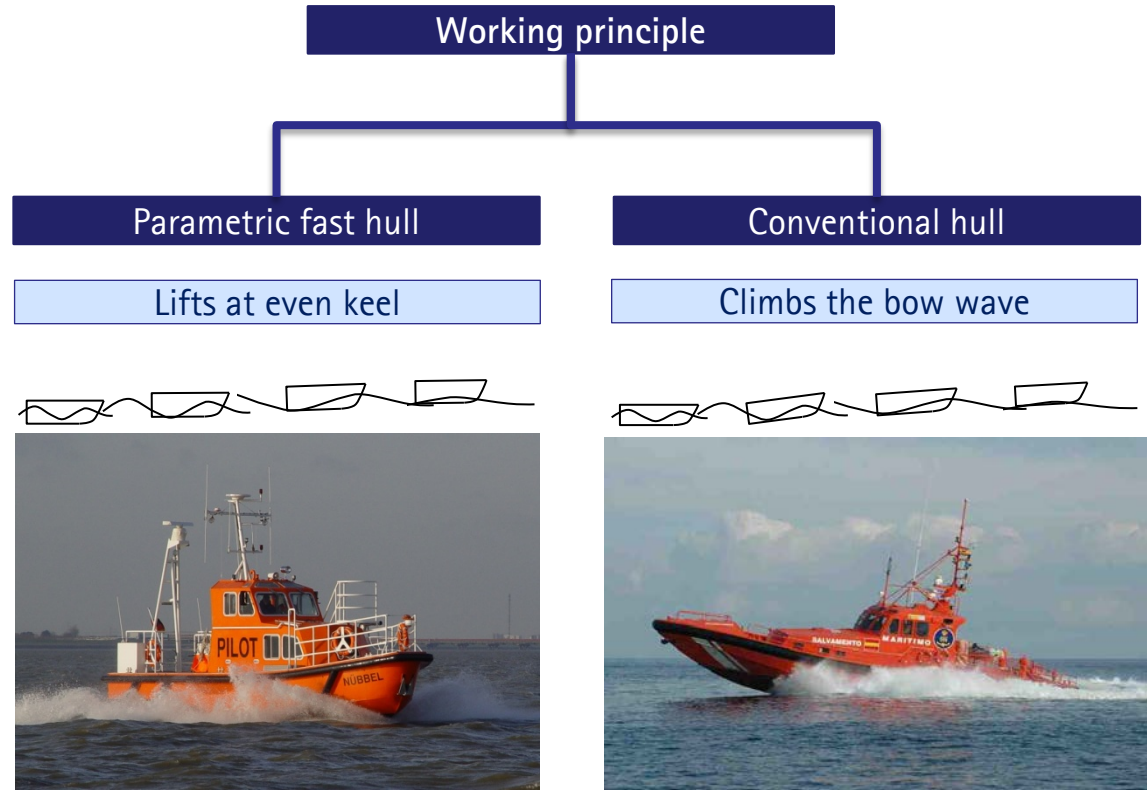
# Wind Propulsion in Commercial Shipping

Windship – Engineering and Design

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Green Water Taxi

Comparison with conventional hulls



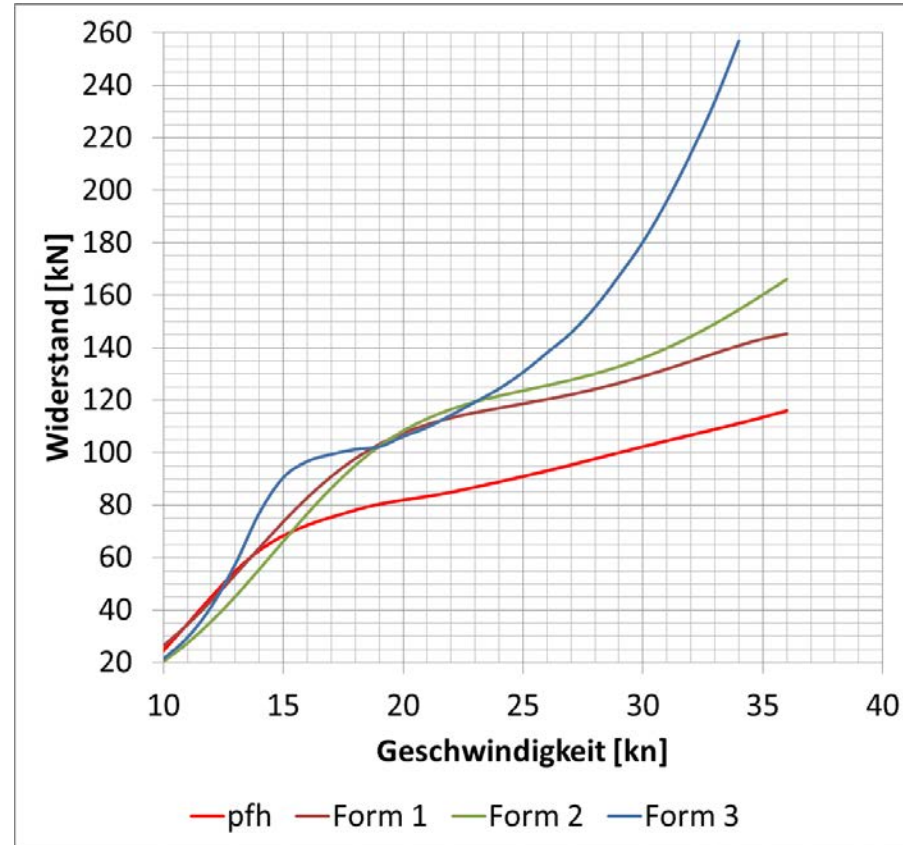
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Green Water Taxi

Power vs. Speed for pfh and conventional form (yacht)







Kaffeepause bis 16.30 Uhr  
Koffiepaauze tot 16.30 uur



# Green Logistics and Ressource Awareness

## HEWIS – High Efficient Windfarm Installation System

Simulating transport in a collaborative co-  
modal logistic environment

Optimizing vessel condition and condition  
based maintenance

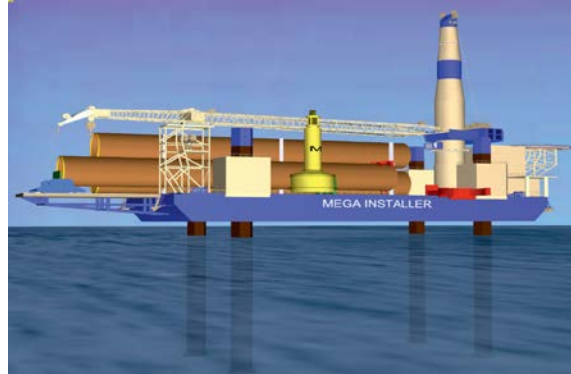


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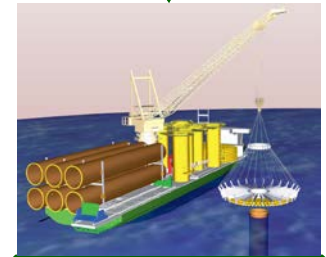
Simulating transport in a collaborative co-modal logistic environment

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- Construction Jackup-Platform
  - permanent available on site
  - installation activities only

splitting the process



- Offshore Construction Supply Feeder Vessel, OCSFV
  - transport of components from shore to site
  - installation of components in parallel to jackup

- max. utilization of weather windows
- high availability of components on site
- nearly constant installation progress
- parallelization in installation procedures



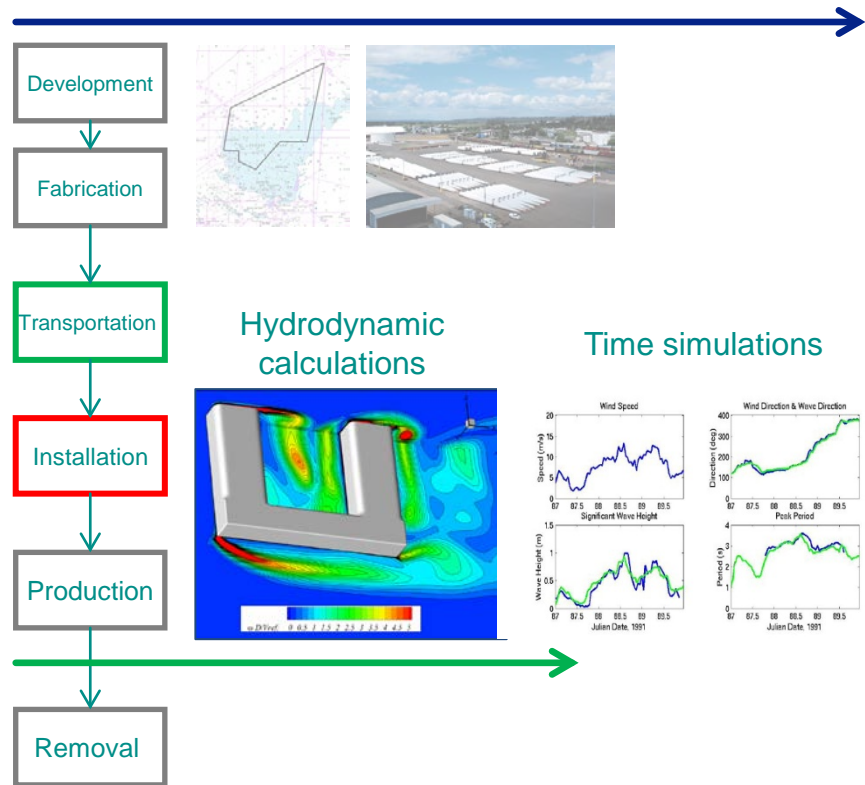
# Green Logistics and Resource Awareness

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### HEWIS: Modeling the resources



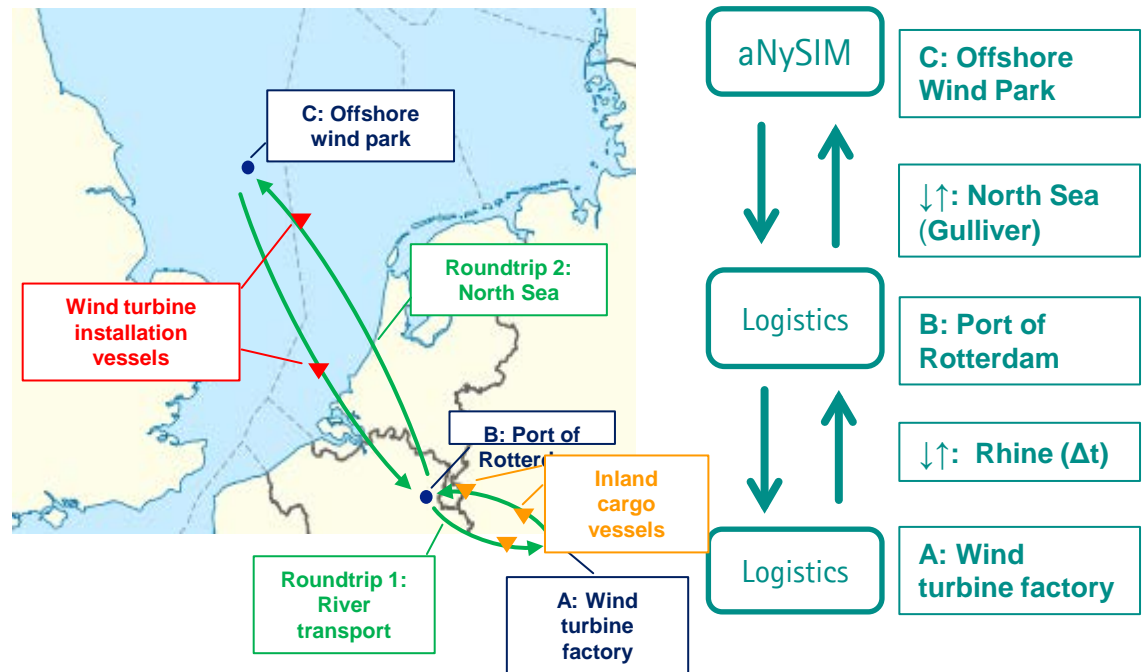
# Green Logistics and Ressource Awareness

## HEWIS – High Efficient Windfarm Installation System

Simulating transport in a collaborative co-modal logistic environment

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HEWIS: Modeling the logistics



# Green Logistics and Ressource Awareness

HEWIS – High Efficient Windfarm  
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Simulating transport in a  
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Hochschule Emden/Leer



Ralf Oltmanns Regenerative Antriebstechniken



Rijksuniversiteit Groningen



Target Holding

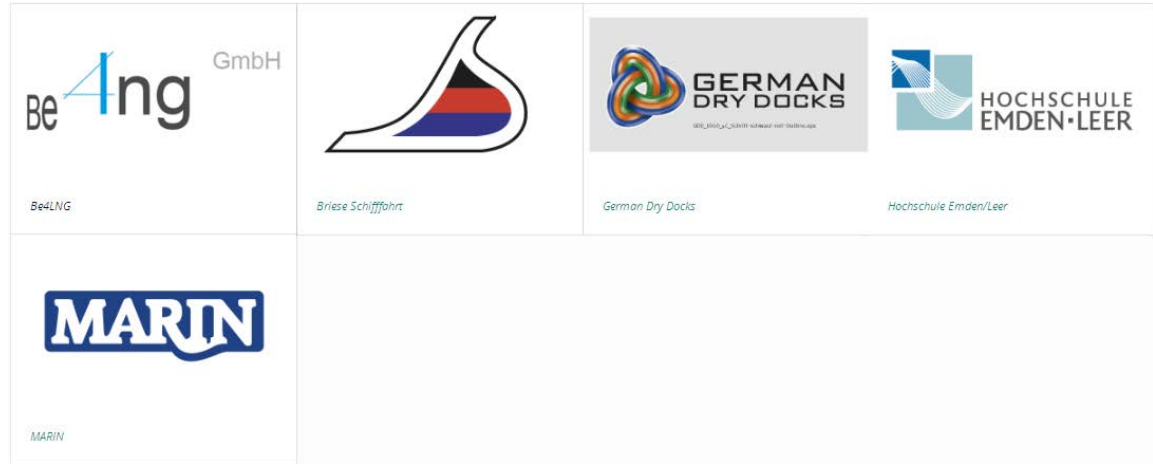


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HEWIS – High Efficient Windfarm  
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**Optimizing vessel condition and  
condition based maintenance**

## Condition Based Maintenance

- Wann macht zustandsbasierte Wartung sinn?
- Kann die Automobilindustrie mit ihren Wartungskonzepten eine Vorreiterrolle einnehmen?
- Wie profitieren regionale Werften und Reeder vom Condition Based Maintenance Konzept?
- Wie muss so ein Konzept aussehen?



# Green Logistics and Ressource Awareness

HEWIS – High Efficient Windfarm  
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## Condition Based Maintenance

- Konkrete Systeme im Projekt an denen der Zustand exemplarisch bewertet wird:
  - Kann der Zustand der Schiffshülle bezüglich bewuchs aus einer Leistungsmessung abgeleitet werden?
  - Kann der Zustand des Propellers mit Hilfe akustischer Überwachung bewertet werden?



# Green Logistics and Ressource Awareness

HEWIS – High Efficient Windfarm  
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## Trim Optimization

- Für die Trimmoptimierung gibt es viele komplexe Systeme auf dem Markt, die komplex zu bedienen sind.
- Häufig wird die Sinnhaftigkeit der Trimmoptimierung angezweifelt.
- Viele Prospekte versprechen bis 5% Kraftstoffeinsparung. Dieses ist schwer zu validieren.
- Einfach zu verstehendes Konzept, Papiergestützt, inklusive Schulungskonzept um für das Thema zu sensibilisieren

# Green Logistics and Ressource Awareness

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- Kraftstoffeinsparung durch:
  - Trimmoptimierung
  - Rechtzeitig gereinigter Schiffsrumpf
  - Rechtzeitig gewarteter Propeller
  - Ein gut gewartetes Schiff ist sicher und nachhaltig!



# Maritime Safety

## Maritime Safety Cluster

 <p>ALERT</p>	 <p>Enkhuizer Zeevaartschool Opvoeding Akkers en Grote Zeevaart www.ezs.nl - tel: +31 228 316384</p>	 <p>MARIKO Maritimes Kompetenzzentrum</p>	 <p>ntta Nautical Technical Training Academy</p>
 <p>TvK</p>			

# Maritime Safety

Maritime Safety Cluster



# Heading for a GreenShipping Workforce

Projektbegleitende Maßnahmen  
Projectbegeleidende maatregelen

1. Nachwuchskräfte für eine grünere Schifffahrt  
1. Aankomende vakkrachten voor een groenere scheepvaart
2. Know-how-Transfer für eine grünere Schifffahrt  
2. Know-how-transfer voor een groenere scheepvaart









# Ausblick Perspectief

