

**We are tech.
We are FME.**



OUR MEMBERS

2,200
Members

220,000
Employees

EUR 51
billion
in exports

EUR 108
billion
in revenues

30
Partner branches
and platforms

1/6
Share in Dutch
Export

(Figures as of January 2021)



GREEN SHIPPING
Waddenzee

GreenShipping Niedersachsen

INVITATION

Online workshop

Alternative fuels V

July 8th 2021 | 09:00 - 12:00 h

WebEx



Programma Green Shipping Waddenzee

Leo van der Burg

Business development manager FME

inholland
hogeschool

CONOSHIP
CONNECTIONS

WADDEGEWIST



GRONINGEN SEAPORTS

ENGIE

**Electric
Ship
Facilities**



eekels | TBI

**provincie
 groningen**

**New
Energy
Coalition**

BSC
Bureau Scheepvaart Certificering

**PORT OF
DEN HELDER**

Nedstack
NEW FUEL CELLS

FME **POWERED
BY DUTCH
TECHNOLOGY**

provincje fryslân
provincie fryslân

waddenfonds

**PORT OF
HARLINGEN**

**Provincie
Noord-Holland**

WADDENGEBIED
Investeringskader



GREEN SHIPPING

Waddenzee

World Heritage as an inspiration for
sustainable shipping in the Wadden Sea



GREEN SHIPPING

Waddenzee

Ambition & Goals

Program Green Shipping Wadden Sea aims to make a 60% reduction in CO2 emissions possible for the Wadden Sea fleet by 2030.

Technical objectives:

- Accelerating innovations in the field of CO2-neutral and fossil-free shipping for the Wadden Sea fleet;
- Focus on green Hydrogen and green Methanol shipping
- Developing (port) facilities

Program

- Duration April 2020 - March 2024
- At least 11 projects
- Total budget €25.8 million



GREEN SHIPPING
Waddenzee



Call for action



**Groene waterstof
Elektrolyser**

[Meer informatie](#)

**H2 ombouw
Ecolution**

[Meer informatie](#)

**Ontwikkeling
maritieme
methanolssystemen**

[Meer informatie](#)

**Waterstof
voor walstroom**

[Meer informatie](#)

**Groene waterstof
H2 Service Schip**

[Meer informatie](#)

H2 Kotter Oostwad

[Meer informatie](#)

**Zelfzuigend
beunschip**

[Meer informatie](#)

H2 Rondvaartboot

[Meer informatie](#)

Baggerschip

[Meer informatie](#)

Garnalenkotter

[Meer informatie](#)



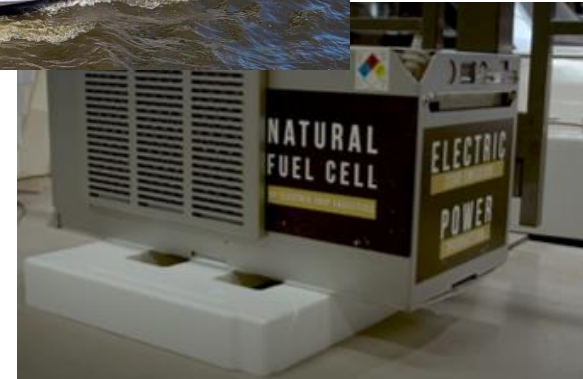
GREEN SHIPPING

Waddenzee

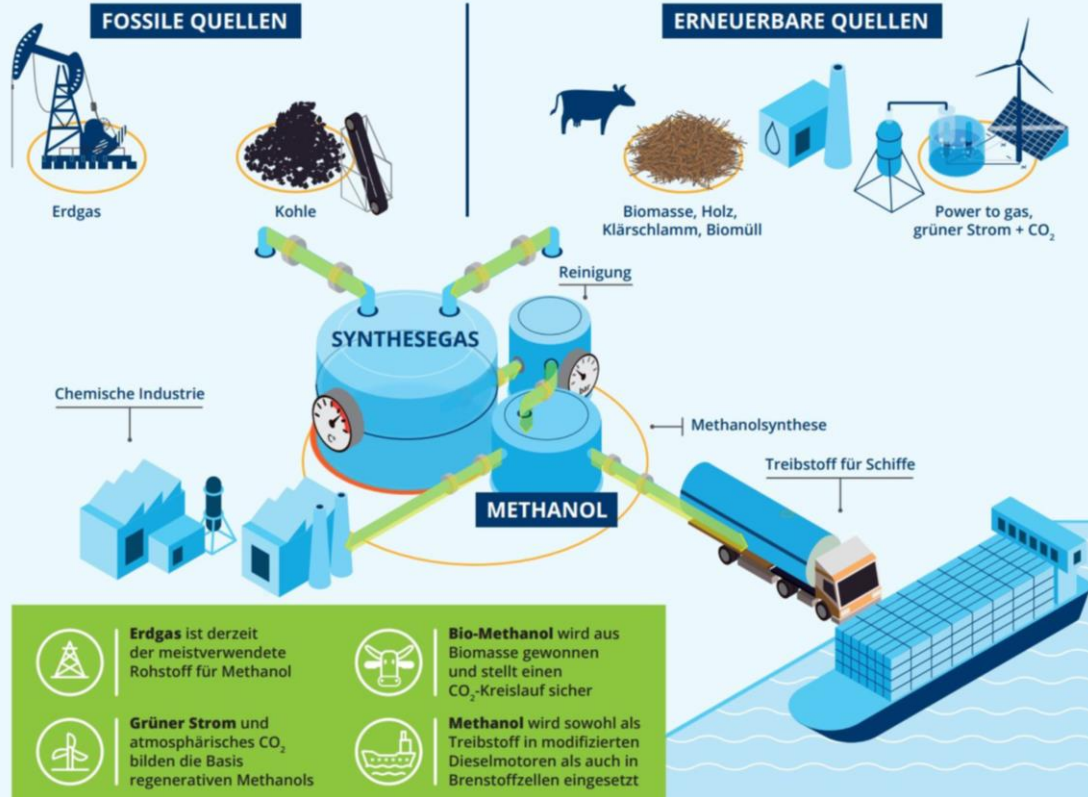


Development of marine methanol systems

- Direct Methanol Fuel Cell (DMFC)
 - 5-30 kW
 - Reforming technology
- Bio-methanol as input (Bio MCN)
- Energy set for the facility systems
- Range extension electric motor drive



METHANOL PRODUKTIONSPFADE



Production, transport, storage and use of hydrogen in the Wadden Sea



Ameland

Borkum

Ameland:

1. Solar park
2. Tidal kite
3. H₂ production & storage plant (feedstock #1 and #2) ★
4. Solar park (DC) ★

5. H₂ fuel transportation
 6. Ferry
 7. Hydrogen storage and supply ★
 8. H₂ water taxi ★
 9. Biodigester (feedstock #3) ★
 10. Electrical storage plant
- ★ = contribution from H₂Watt

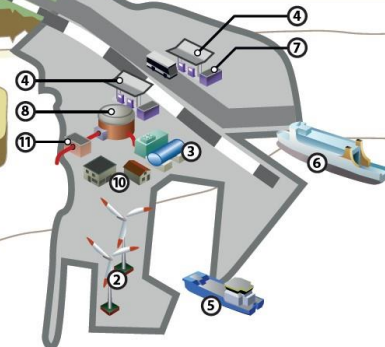
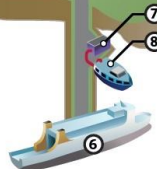
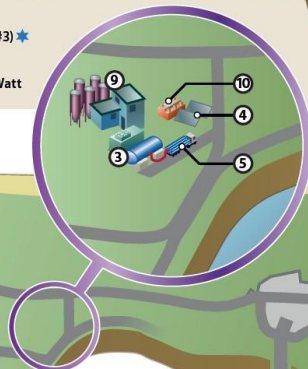
Ameland

Borkum

Borkum:

1. Solar park
2. Windpower farm
3. H₂ production & storage plant ★ (feedstock #1 and #2)
4. H₂ fuel station (feedstock #3) ★
5. Offshore supply vessels

6. Ferry
 7. Hydrogen storage and supply ★
 8. Heat storage
 9. H₂ train ★
 10. Residential area (feedstock #3 and #8) ★
 11. Seawater heat exchanger
- ★ = contribution from H₂Watt



www.h2watt.eu

INTERREG
Deutschland
Niederland



www.deutschland-niederland.eu