



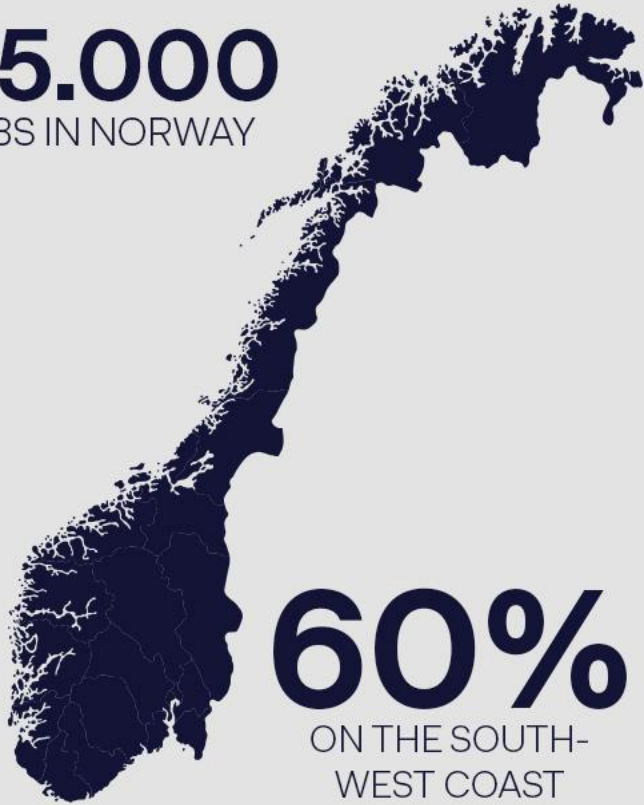
**maritime
cleantech**

State of the art in Norway: Hydrogen technologies in maritime industry

ØYSTEIN HUGLEN // STAVANGER // JUNE 20th. 2024

The Norwegian Maritime Sector

85.000
JOBS IN NORWAY



60%
ON THE SOUTH-
WEST COAST



217
BILLION NOK IN EXPORT
17% INC OIL&GAS

416
BILLION NOK IN
REVENUE



140
BILLION NOK
VALUE CREATION

8%
OF NORWEGIAN
VALUE CREATION

40%
IMO



50%
NORWEGIAN
SHORT SEA

2.5%



SHIPPING = 2,5%
OF WORLD'S CO2-EMISSIONS



NORWEGIAN SHORT SEA
SHIPPING = **10%** OF NORWEGIAN
CO2-EMISSIONS

NORWAY IS THE **WORLD'S 7.**
BIGGEST SHIPPING NATION (SHIPS)



WORLD'S 5.
BIGGEST IN VALUE



**maritime
cleantech**
Norwegian Centre of Expertise

SOURCE: NÆRINGS- OG FISKERIDEPARTEMENTET









maritime
cleantech

Norwegian Centre of Expertise



PASSENGER
& TOURISM



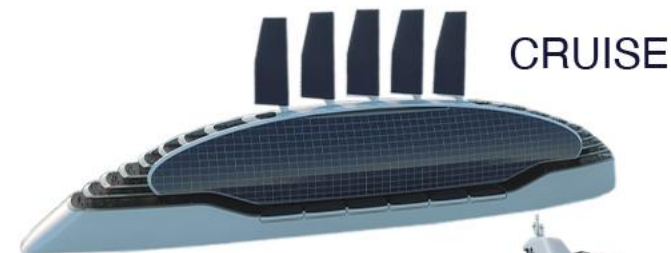
FAST FERRIES



CARGO



Out of the blue
comes green



CRUISE



AQUACULTURE



OFFSHORE WIND



OFFSHORE



RO-RO



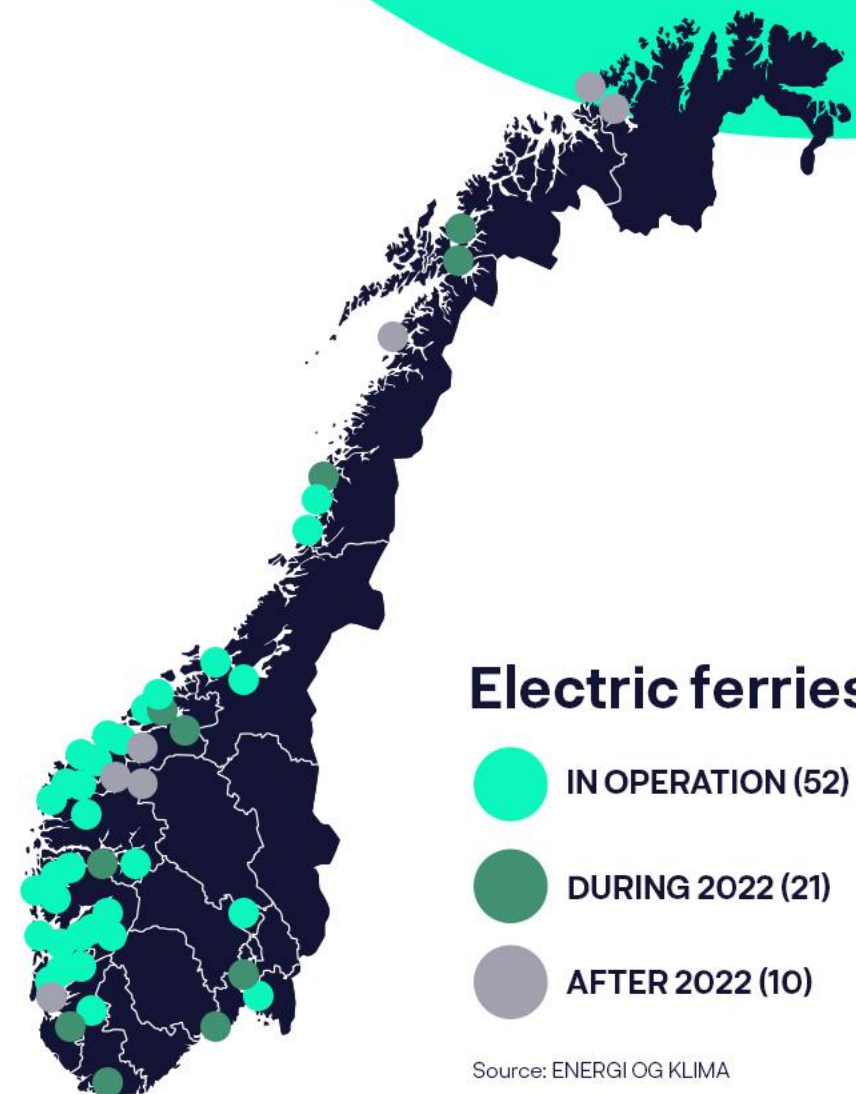
FERRIES



Public procurements



In 2015 *MF Ampere* started an electric revolution along the Norwegian coast



TFAM



Transport Advanced and Modular



maritime
cleantech



SHIP
OF THE
YEAR
AWARD
2022

BY SKIPSREVYEN



vesleppes-
FRITT

HJELP!

NH3

H2

2050

CRUISE

LNG
VIND

SOS!!!

CO2

CCS

IMO

AMMONIAKK

HYBRID

LAND-
STROM

NOx

BATTERI

H2

SHORT
SEA

DEEP
SEA

EU Projects

TFAM

Transport Advanced and Modular

World first zero emission fast ferry



FLAGSHIPS

Two commercially operated hydrogen fuel cell vessels.



SHIPFC

GREEN AMMONIA ENERGY SYSTEM

World's first high-power ammonia fuel cell on a vessel.



Orcelle Horizon

World's first wind-powered RoRo vessel



SHIP-AH₂OY

A scalable, green and sustainable technology for power and heat generation on board ships



APOLLO

The highway to low emission shipping



maritime
cleantech



FLAGSHIPS

The FLAGSHIPS project will raise the readiness of zero-emission waterborne transport to an entirely new level by deploying two commercially operated hydrogen fuel cell vessels.



ROTTERDAM,
THE NETHERLANDS

PARIS,
FRANCE





SHIPFC

GREEN AMMONIA ENERGY SYSTEM



SHIP·AH₂OY

maritime
cleantech
festival 2023



📍 STAND
T01-18

🕒 13:00

📅 6 JUNE

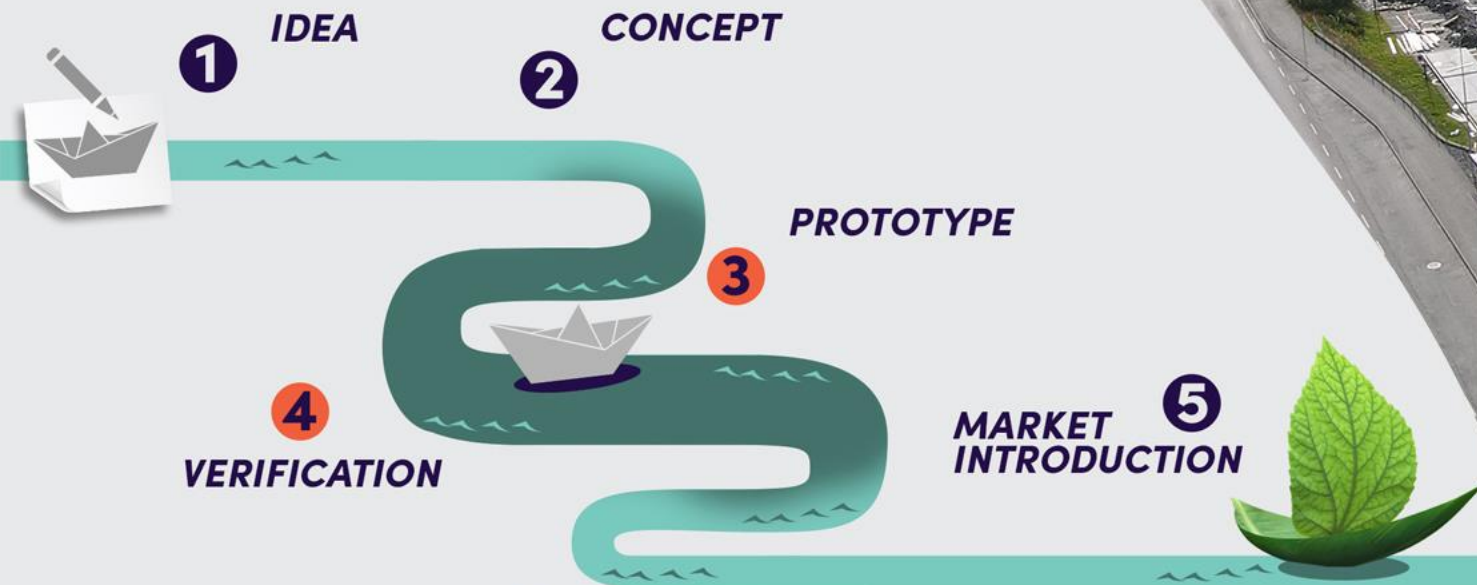
Green Hydrogen Propulsion at **Megawatt-Scale**

🔄 Nor-
Shipping
2023

SUSTAINABLE ENERGY

NORWEGIAN
CATAPULT
CENTRE

Develop and test your sustainable solutions
for the production, storage, distribution and
management of energy.





WÄRTSILÄ

ARJA

maritime
cleantech
festival 2023

📍 STAND
T01-18

🕒 14:00

📅 6 JUNE

Getting ready for **Ammonia Combustion**

🔄 Nor-
Shipping
2023



New supply chains for green ammonia



Yara Clean
Ammonia



maritime
cleantech

The world's first
vessel to operate
solely on liquid
hydrogen

MF *HYDRA*

LENGTH: 82,4 M

WIDTH: 17,5 M

FUEL CELLS: BALLARD (2X200 kW)

YARD: SEAM

SHIP OF THE YEAR



Out of the blue comes green.



@NCE Maritime CleanTech

<http://maritimecleantech.no>

