

**WEBINAR**

# **New trends in propulsion concepts for Crew Transfer Vessels (CTVs)**

**Thursday 7 November • 09:00-10:00 GMT**

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Journal

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# PANELLISTS



**John Roger Nesje**  
Sales Director  
**SEAM**

**New trends in propulsion concepts  
for Crew Transfer Vessels (CTVs)**

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We develop **Smarter** solutions,  
for a **Cleaner** and **Brighter** future.



Offshore Wind webinar - November 7. 2024

John Roger Nesje

Sales Director Europe

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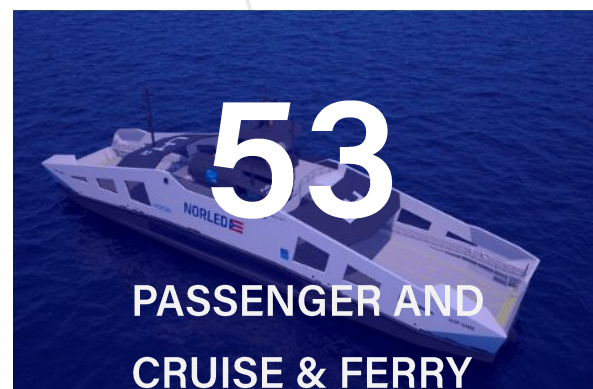
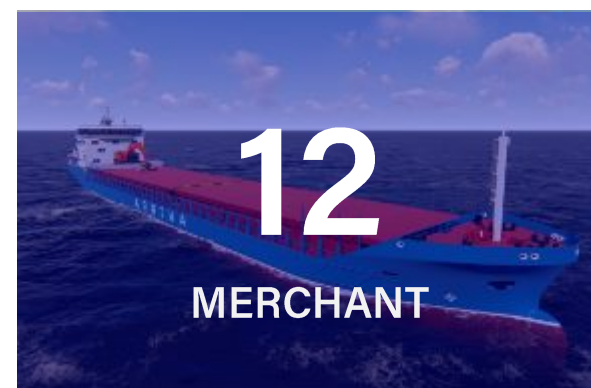
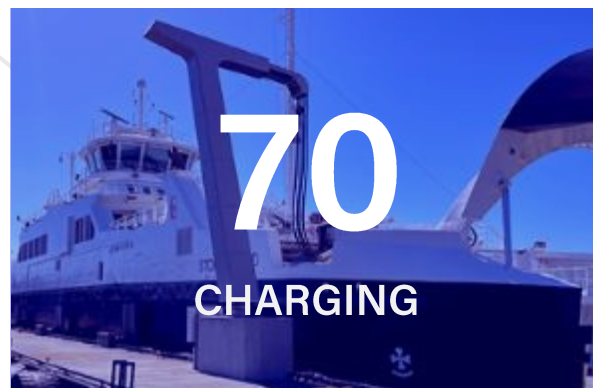
A LEADING SUPPLIER OF  
**ZERO-EMISSION** PROPULSION AND AUTOMATION SOLUTIONS

**170** employees | HQ at Karmøy, Norway



88

HYBRID & ELECTRIC  
VESSELS TO DATE



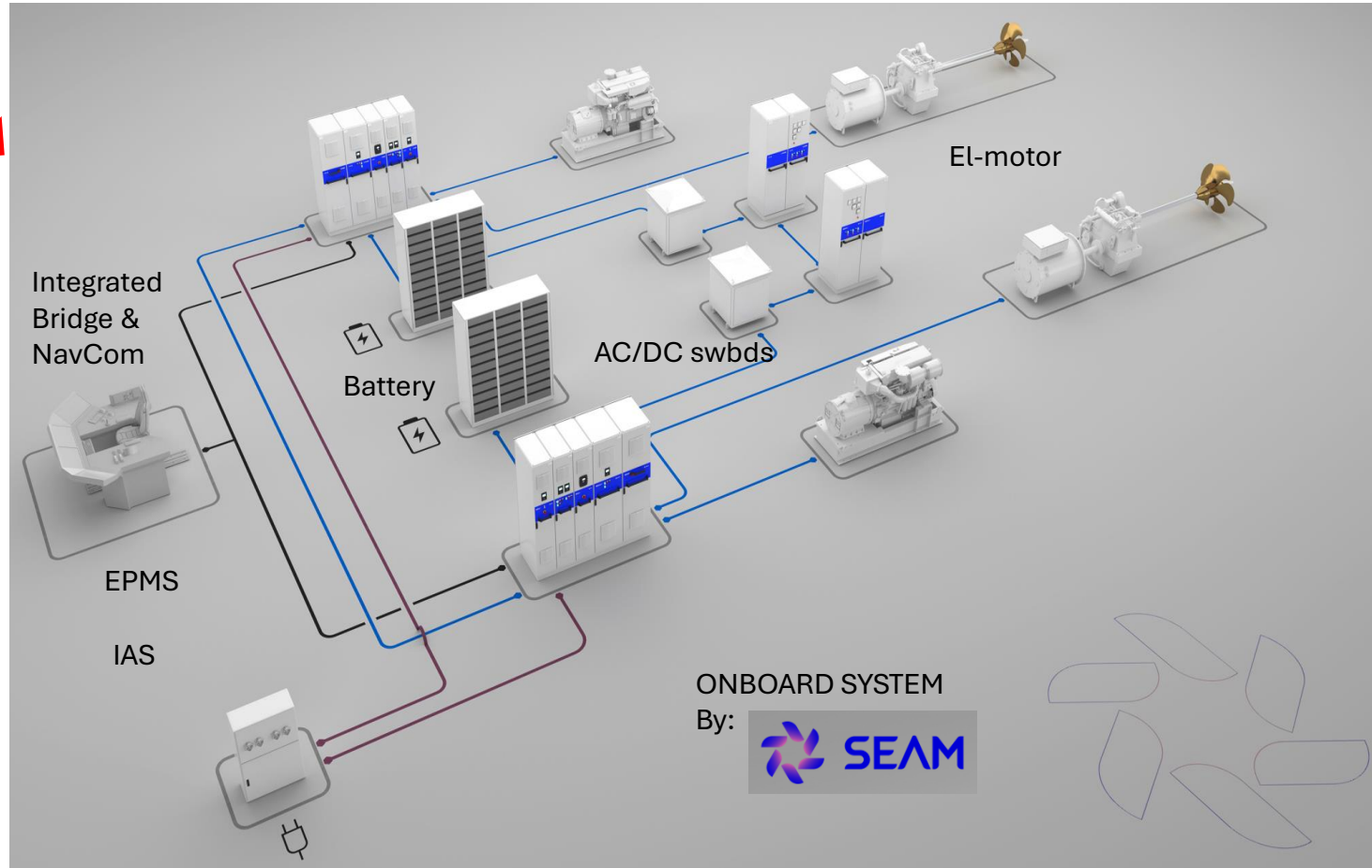
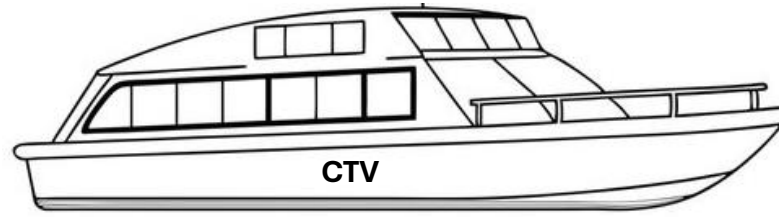


ONSHORE SYSTEM

By: 

Charging Station  
& House

Charging tower



## Sailing on batteries

«Fjordstrøm»

140 Pax

30 knots

60 nm range

4000 kWh battery

6000 kW shore charger

«Rygerelektra»

300 Pax

20 knots

40 nm range

2000 kWh battery

2400 kW shore charger



## Sailing on hydrogen

«Hydra»

Car Ferry

Liquid Hydrogen

400kW Fuel Cell

1350 kWh battery

2000 kW shore charger



«Torghatten Nord»

Car Ferry

Compressed Hydrogen

6500 kW Fuel Cell

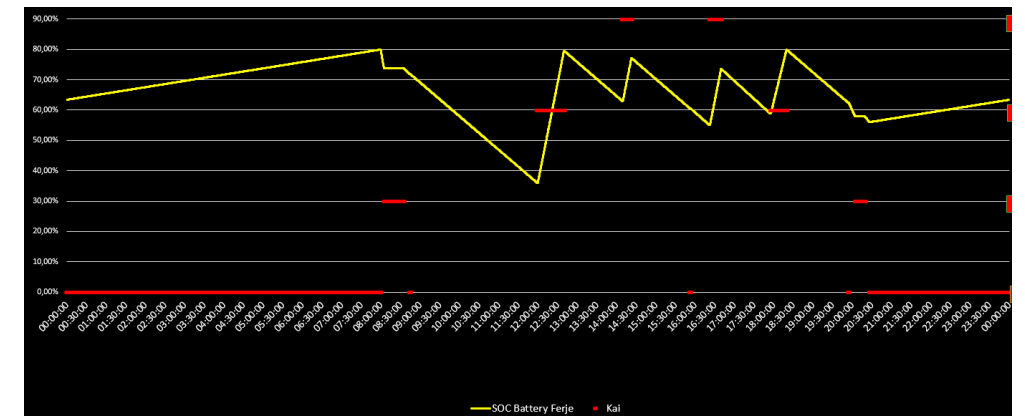
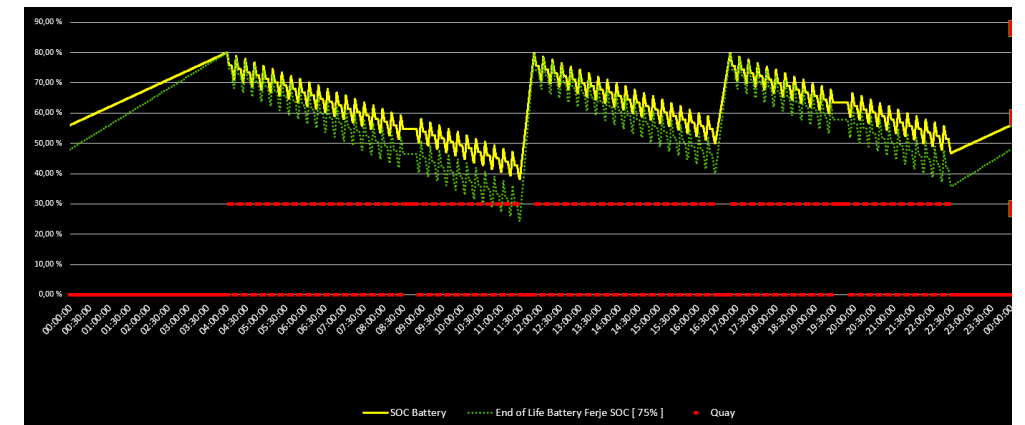
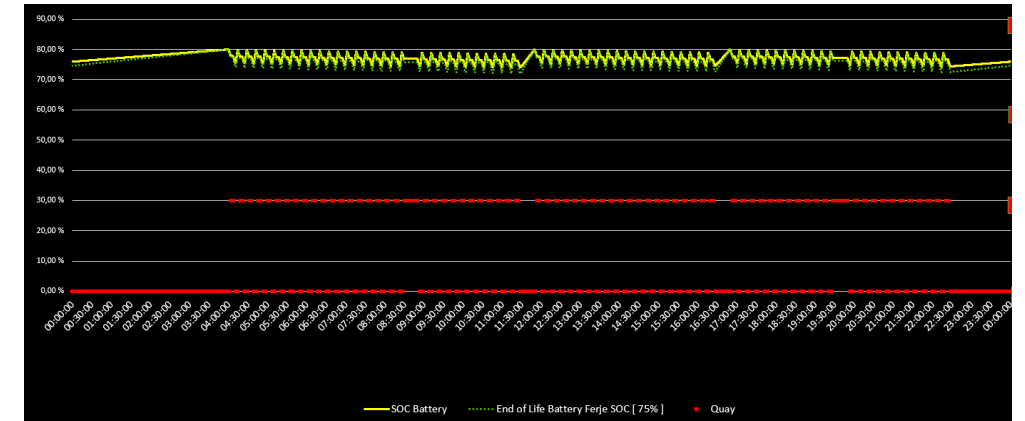
1200 kWh battery

1600 kW shore charger



## DESIGN PARAMETERS EXAMPLES

- Per trip:
    - Sailing distance
    - Sailing speed
    - Sailing time
    - Energy consumed
  - Number of trips
  - Harbour time
  - Harbour shape and tidal difference
  - Grid capacity
- Determining
- Battery onboard
  - Battery onshore
  - Manual or automatic charging
  - Floating or fixed charging
  - Possible changes in sailing time/speed etc.
  - Evaluate need for «range extender»





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# PANELLISTS



**Mik Henriksen**

Owner & CEO  
MHO-CO A/S

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Presenting  
MHO Apollo



# The CTV/FSV of the future



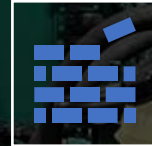
Our latest award-winning design is prepared for the future



The combination of well-trained crew and the newest technology working together provides the most reliable CTVs in the world



Our HYBRID technology brings down CO2 emissions



Power of plenty  
We have the most redundant propulsion system in the world



Highest performance gives better safety



Worldwide trade



MHO-Co

# Focus points

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- We design and build our Vessels with assistance from the best naval architects.
- Making sure to meet customer requirements and expectations
- Having the right tool for the job is essential
- Well trained crew and masters

## Future proof propulsion MHO Asgard

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- Equipped with 4x Volvo IPS 30, driven by:
- 2x Volvo Penta D13, 515kW, up to 100% BioDiesel
- 2x Danfoss EM-PMI540-T3000, 550kW
- 5x Volvo D8 Generators, up to 100% BioDiesel
- 400Kw/h Batteries
- To reduce emissions further, when required by client:
- ScandiNAOS gensets running on Methanol
- Hydrogen fuel cells
- Methanol fuel cells
- Increased battery capacity, up to 2.256Kw/h



MHO-Co

## Maneuverability

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- Volvo IPS system with “DP0”
- Joystick control
- Outstanding view from the bridge and wings
- LED Floodlights and searchlight
- IR high resolution CCTV cameras



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## Front Deck

- 110 m<sup>2</sup> deck area
- Max cargo 67.000 kg
- Container fittings: 10', 20' and 40' containers
- Crane: SWL: 1.065 Kg @ 10,25 m
- Fuel transfer Pump: 400L/min @ 45 m
- Deck power output: 3 x Reefer plugs





Thank You



# PANELLISTS



**Toby Freeman**  
Senior Naval Architect  
BMT

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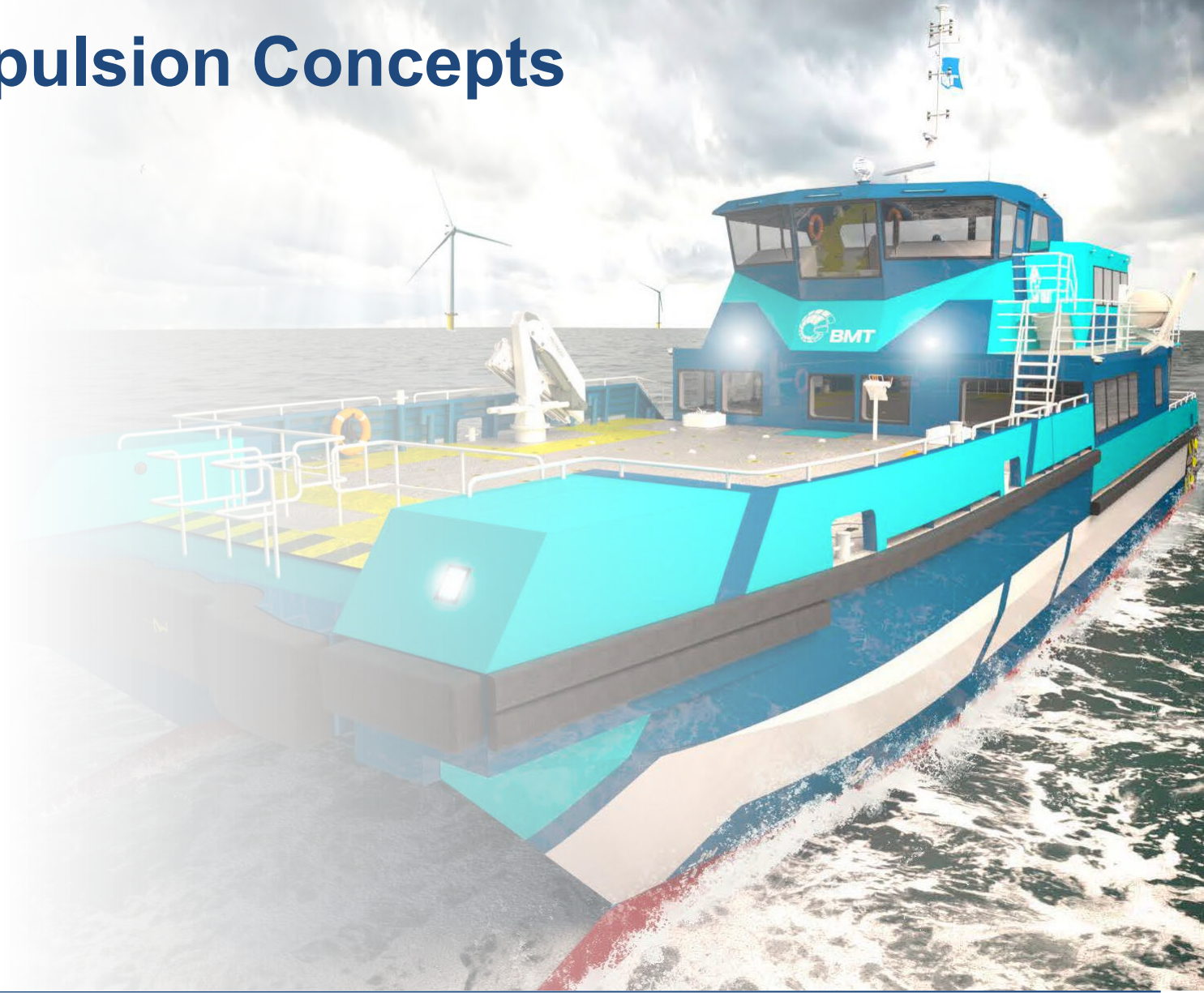
# New trends in propulsion concepts for Crew Transfer Vessels

Offshore Wind Webinar Week 2024

**Presented by Toby Freeman - Senior Naval Architect**

# Key trends in CTV Propulsion Concepts

1. Which propulsion system?
2. Hybrid is the default
3. Future Fuels
4. Hull form designs



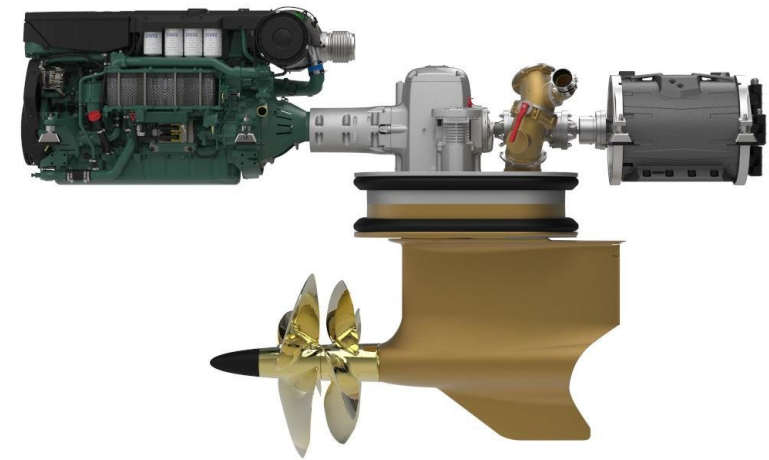
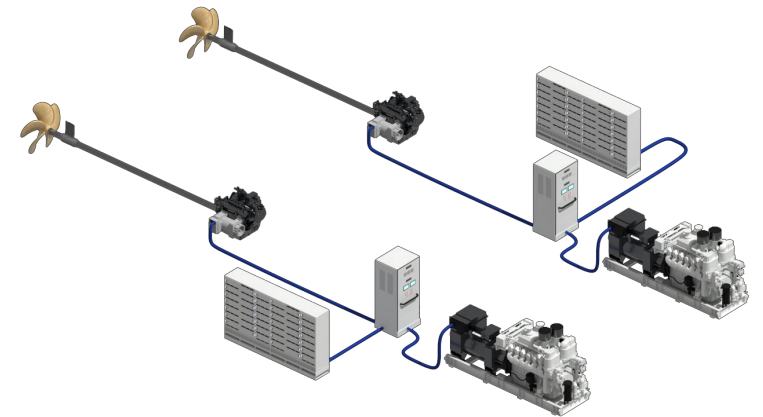
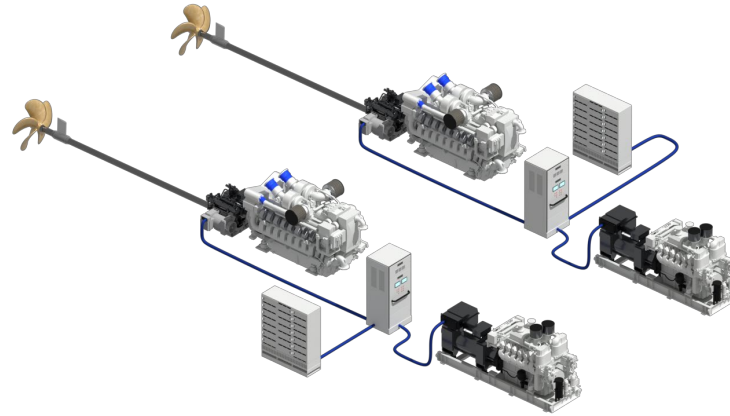
# Propulsion Systems

## System Configuration

- Diesel Mechanical
- Electrical Hybrid
- Diesel Electric
- Full Electric

## Propulsion Configuration

- Fixed Pitch
- Controllable Pitch
- Waterjets
- Volvo IPS



# Exploration of Future Fuels

|                                                    | H <sub>2</sub>           | LNG CH <sub>4</sub>         | Ammonia NH <sub>3</sub>                    | Green Methanol CH <sub>3</sub> OH                              | Battery                                             | Diesel                                                     |
|----------------------------------------------------|--------------------------|-----------------------------|--------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------|
| With Tank (Gross) Volumetric Energy Density (MJ/L) | 2.7-7.9                  | 13.2                        | 11.5                                       | 14.2-15.1                                                      | 0.4 – 0.8                                           | 27.3-31.0                                                  |
| General Storage Conditions                         | Cryogenic or Pressurized | Cryogenic                   | Cryogenic or Pressurized                   | Ambient                                                        | Ambient                                             | Ambient                                                    |
| Flash Point (°C)                                   | -253                     | -162                        | -33                                        | +12                                                            | N/A                                                 | +61.5                                                      |
| Safety RAG                                         | Red – Highly flammable   | Amber – Medium flammability | Red – Medium flammability but highly toxic | Amber - Toxic to humans, but very low toxicity to aquatic life | Green – Mostly stable unless damaged or waterlogged | Green - Small flammability range with high ignition energy |

# Hull Design Considerations

- Area of operation
  - Windfarm Distance offshore
  - Environmental Conditions
  - Load line
  - Gross Tonnage
- Profile of operation
  - Transit Speeds
  - Transit Duration
  - Tech Transfer Frequency duration
- Type of operation
  - Construction Operations
  - Cargo Operations
  - Bunker Operations
  - Pax Transfer





Thank You

# UPCOMING EVENTS

WEBINAR

Hybridisation, electrification and the vital role of torsional vibration analysis

marine propulsion

In association with 

Vessel Optimisation Webinar Week

MARITIME OPTIMISATION & COMMUNICATIONS

LNG SHIPPING & TERMINALS CONFERENCE

LNG SHIPPING & TERMINALS



INTERNATIONAL BULK SHIPPING CONFERENCE

riviera



Worldwide Turbocharger Webinar Week

marine propulsion

Marine Coatings Webinar Week

marine propulsion

MARITIME DECARBONIZATION CONFERENCE AMERICAS

marine propulsion



OFFSHORE SUPPORT JOURNAL CONFERENCE MIDDLE EAST

osj offshore support journal



SCAN HERE TO SEE THE FULL EVENTS SCHEDULE





# “MEALTIMES WITH MY MARITIME FRIENDS” BOOK LAUNCH EVENT

**Wine tasting, buffet dinner, art tour,  
book signing and live auction!**

Wednesday 20 November  
17:30–21:30, London

