



AMMONIA ENERGY
ASSOCIATION



EXMAR's World's first oceangoing Ammonia Fuelled Ships

November 2024 – Ammonia Energy Association

EXMAR's shipping activities



Fully Pressurized Carriers



Midsize Gas Carriers



Very Large Gas Carriers

References

LPG

Ammonia / Petrochem



Achievements

- Leading innovator in gas shipping with ships from 3,500 up to 88,000 m³
- World's first LPG-fuelled VLGCs delivered in June and Sept 2021
- World's first NH₃-fuelled seagoing MGCs with delivery in 2026
- Current fleet of 17 MGCs and 12 MGC New Builds on order

40 years of Ammonia Shipping

EXMAR's experience



- Largest Independent Owner in the Midsize LPG/NH₃ segment
- 2 to 5 mtpa during the last 40 years out of the abt. 17 mtpa seaborne ammonia
- Pivotal position in ammonia seaborne transport (+100 mtpa)
- 50% of EXMAR's MGC fleet is on ammonia trade

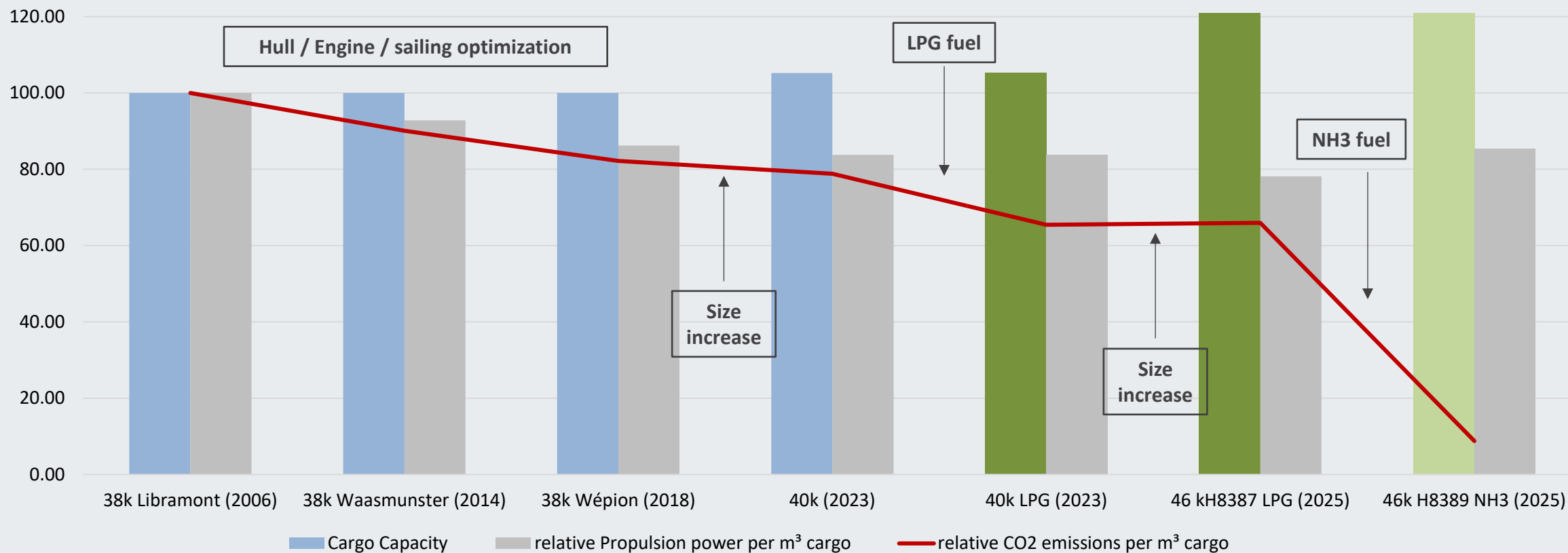
Financial realities



- You need abt. 2 times the mass of NH₃ compared to VLSHFO (taking into account the pilot fuel)
- +15% more CAPEX compared to the same MGC on conventional fuel
- CAPEX increase for none gas carriers will not be lower

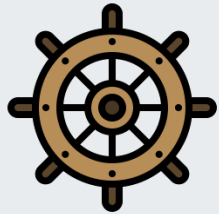
Transport more cargo with less emissions

Midsize Gas Carrier CO₂ footprint (%)



Four NH₃ fuelled Midsize Gas Carriers

4 Midsize Gas Carriers (MGCs)



- World's first ocean going ammonia fuelled ships
- Built by HD Hyundai Mipo
- Delivery scheduled for 2026
- Equipped to use ammonia as fuel from the point of delivery



Is the Industry Ready?

- When will there be sufficient supply of clean ammonia to support its use as a viable fuel?



Incentivize Ammonia as a Bunker Fuel

- Set the foundation for other vessel segments by first operating ammonia-fueled gas carriers.
- Streamline logistics, as no separate bunkering operations are needed—cargo handling and bunkering are effectively the same.



We are ready but regulatory support will be key

EXMAR's Readiness:

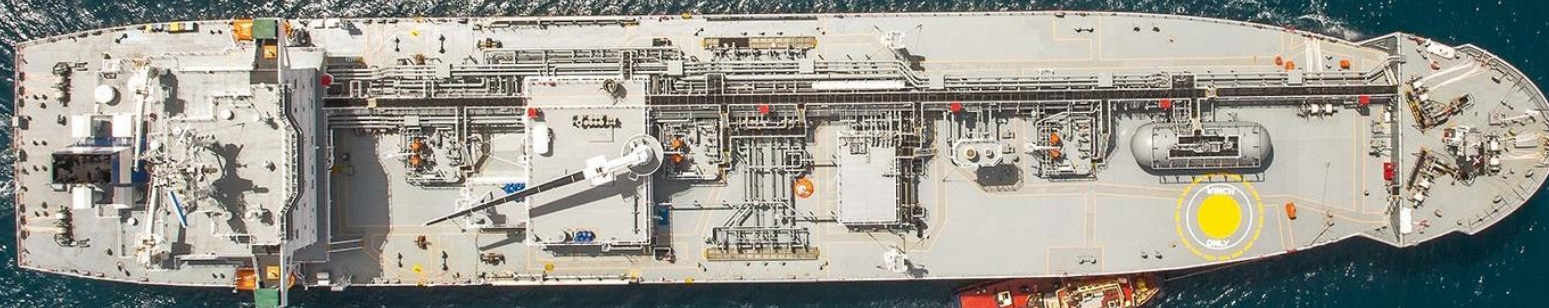


- Significant investments are required to transition toward zero-carbon fuels.
- EXMAR is committed to this path, taking on the risks involved to drive forward decarbonization.
- Low-carbon ammonia, based on CCS, will likely be available sooner at large scale than renewable options using electrolysis.

The Role of Regulation:



- A global regulatory framework and financial incentives are needed
- Regulations should incentivize decarbonized ammonia production, particularly from CCS-based sources as a gradual introduction of ammonia as energy carrier.



Thank you for your attention

EXMAR – Jens Ismar – jens.ismar@exmar.be