Transition to zero emission solutions for shipping in Norway

IMO Symposium on Alternative low-carbon and zero-carbon fuels for shipping
9 - 10 February 2021
Norway - a laboratory for the introduction of alternative fuels with investments in infrastructure in parallel

LNG
- In Operation: 58
- On Order: 13
- Several in the pipeline

BATTERY
- In Operation: 135
- On Order: 70
- Several in the pipeline

HYDROGEN
- In Operation: 0
- On Order: 1
- Several in the pipeline

AMMONIA
- In Operation: 0
- On Order: 0
- Increasing interest
- Pilot project ongoing
The Alternative Fuel Barrier Dashboard – indicative status of key barriers for selected alternative fuels in 2020

- HVO – hydrotreated vegetable oil;
- LNG – liquefied natural gas;
- LPG – liquefied petroleum gas;
- Hydrogen – carbon-neutral liquefied hydrogen consumed in fuel cells;
- Ammonia – carbon-neutral ammonia burned in internal combustion engines;
- Electricity in batteries – full-electric with batteries;
- Methanol – carbon-neutral methanol burned in internal combustion engines.

Source: DNV GL’s Maritime Forecast to 2050
A new generation of carbon-neutral ships - what are the safety challenges?

Most non-conventional fuels have properties posing different safety challenges from those of conventional fuel oils.

Additional safety barriers required to maintain the safety level when compared with conventional fuels.

Development of regulations and technical rules for safe design and use onboard ships is required.
The continued development of IMO regulations for new fuels is key to enable uptake of alternative fuels in global deep-sea shipping.
Less than 1% of the existing fleet is running on alternative fuels

10% of current newbuilds are ordered with alternative fuel systems

Pathway modelling indicates need for more than 30% alternative fuels in 2030

- Uptake and fuel mix depends on the scenario; 1 of the 12 IMO compliance scenarios is shown in the figure

Source: Alternative Fuels Insight: afi.dnvgl.com and DNV GL’s Maritime Forecast to 2050
All alternative fuels have barriers and challenges.

Resolving these barriers will take a long time.

Fuel flexibility and alternative fuel-ready solutions can:
- Ease the transition, and
- Minimize the risk of investing in stranded assets.
New fuels and technologies maturing in short-sea shipping for later use in deep-sea shipping
For more information visit:

www.dnvgl.com/maritime/insights/topics/decarbonization-in-shipping

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