Ammonia Insights from maritime industry

~ The integrated role of low carbon Ammonia maritime strategy ~



November 13, 2023 Mitsui O.S.K. Lines

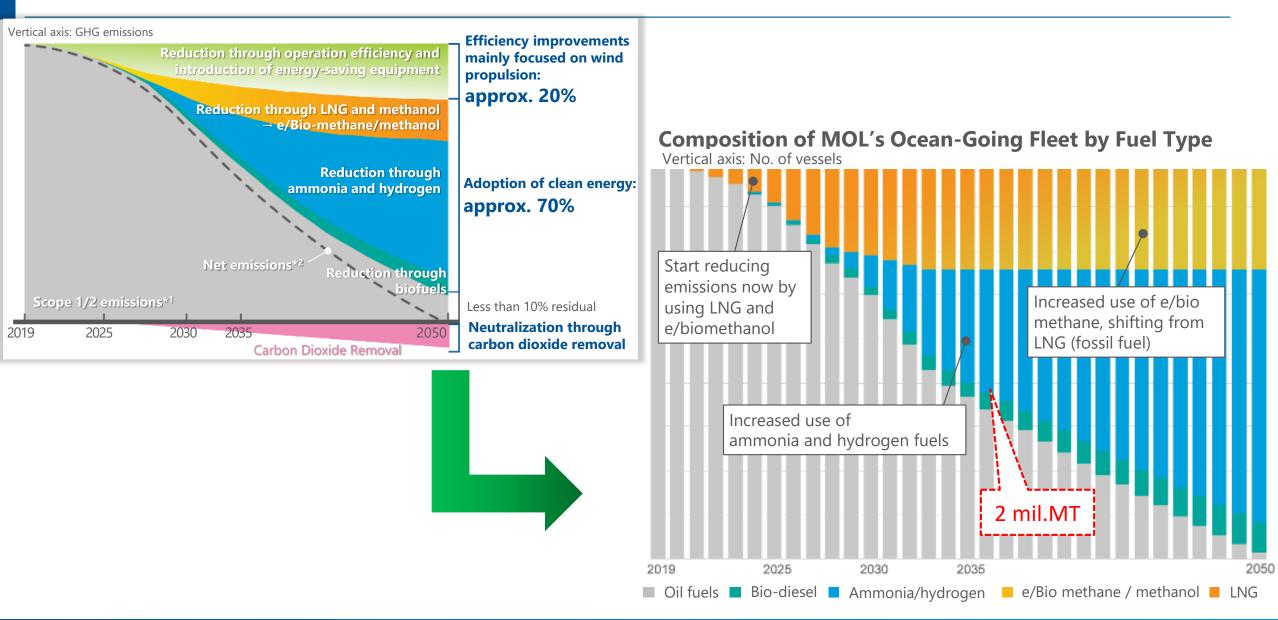
(as of March, 2022)

Fleet Composition

(number of vessels)

BULK CARRIERS CONTAINER SHIPS(*) OTHERS CAR CARRIERS (PCC) 93 319 99 LNG CARRIERS/ FSRU/FSU **TANKERS** Over 800 ships

Clarifying the "Pathway to Net Zero Emissions"



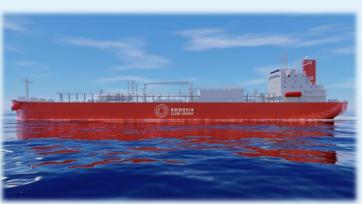
Transportation and utilization of NH3 as fuel

NH3-burning Main Engine

















- Upstream -









Renewable

Electrolysis

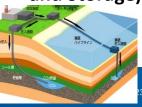


Reforming





CCS (Carbon dioxide Capture and Storage)



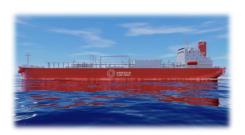
Producing Storage Ammonia

LCO₂ **Transportation**



LCO2 Carrier

MOL



H2/NH3 Carrier





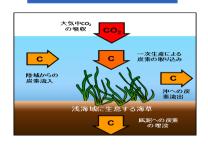


H2/NH3 **Powership**



H2/NH3 FSRU





- Downstream -



Power Plant



NH3 Cape-Size Bulker



NH3BV

Carbon Business

Leads strategic energy transition showing demand signal - with international initiative & Partners -





