

# SPECIAL FEATURE: LNG DUAL-FUEL VLCCs

## TOWARDS NEW FRONTIERS WITH LNG DUAL-FUEL VLCCs

The completion of two LNG dual-fuel Very Large Crude Carriers (VLCCs) in 2022 is a game changer in the world of conventional energy shipping. Amongst the most environmentally friendly VLCCs in the market, they represent a significant step forward by AET towards International Maritime Organization (IMO)'s 2030 Greenhouse Gas (GHG) strategy.

Two of the world's first LNG dual-fuel vessels, HN2388 and HN2389, are being constructed at Samsung Heavy Industries' shipyard in South Korea. Upon delivery to AET in 2022, they will be chartered to the French energy major Total under long-term contracts, enabling Total to advance its environmental targets.

Several cutting-edge features make these 298,700 DWT tankers highly unique. These include a range of energy-saving devices and an LNG fuel supply system. The ability to run on LNG enables the vessel to achieve a 99% reduction in sulphur oxide (SOx) emission, 85% reduction in nitrogen oxides (NOx), 95% less particulate matter, and up to 25% less CO<sub>2</sub>, compared to the use of marine gasoil. These deliverables will enable the vessels' users to comply with IMO Tier III standards for NOx emissions and the IMO 2020 regulation for a sulphur cap of 0.5%.

Other innovative features include a hybrid vertical bow, designed to lower hull resistance thereby improving fuel efficiency and reducing ship vibration. The vessels also feature energy-saving SAVER fins, capable of reducing fuel consumption by up to 6.5%.

By design, these vessels are up to 25% more efficient than the VLCCs built in the early part of the last decade. They further demonstrate AET's aspiration to align with IMO's 2030 carbon intensity targets and assist its customers in reducing their own emissions.

The newbuilds will complement AET's existing fleet of LNG dual-fuel assets, comprising two Aframax and two Dynamic Positioning Shuttle Tankers (DPSTs), with another three VLCCs secured on contracts with an energy major in Q1 2021 on orderbook. These pioneering investments underscore AET's commitment to reduce the carbon footprint of shipping activities using the best fuel solution immediately available in the market.



### Emissions Reductions

▶ **Up to 25%**  
less CO<sub>2</sub> as per design

▶ **99%**  
less SOx

▶ **85%**  
less NOx

▶ **95%**  
less particulate matter (PM)

SOx - Sulphur oxide      NOx - Nitrogen oxide

### DESIGN FEATURES:

Ballast Water Treatment System (BWTS)

Low friction SPC Anti-Fouling System

Energy Saving Device (ESD)

STAR propeller

SAVER Fins

SARB (Samsung Advanced Rudder Bulb)

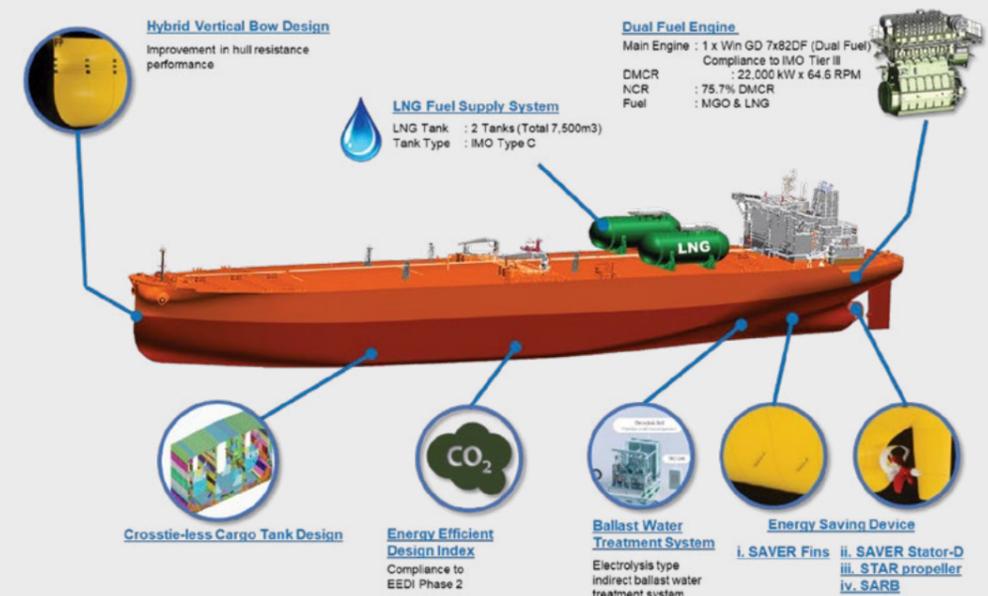
SAVER Stator-D

Hybrid Vertical Bow Design

Better hull resistance performance in actual seas as compared to conventional bulbous bow design

Energy Efficiency Design Index (EEDI) – Compliance to EEDI Phase 2

## PRIMARY FEATURES OF AET'S NEW DUAL-FUEL VLCC



AET is investing in building efficiency in our partners' energy logistics activities, including assisting them to meet their environmental targets. As a responsible player in the energy shipping industry, we continue to innovate and pioneer new technologies that align well with our Environmental, Social and Governance (ESG) commitments and UN Sustainability Development Goals. These VLCCs along with our ongoing investment in other dual-fuel assets, clearly demonstrate this sustainability focus, as well as our philosophy that commercial viability coupled with environmental sustainability is possible.

Capt. Rajalingam Subramaniam, President & CEO