

## Green Technology Uptake Tracker - June 2023

As emissions regulatory and policy decisions continue to “ramp up” across maritime, Clarksons Research is closely tracking uptake of “green” technology that will impact the shipping industry's 855mt and 2.3% contribution to global CO<sub>2</sub> (and 1.8% of all GHG). Summarising the latest trends in technology uptake and fleet renewal from our Fuelling Transition report and monthly data series, Steve Gordon, Clarksons Research Managing Director, commented:

- In Jan-May 2023, against the backdrop of a relatively moderate start to the year in terms of overall newbuild contract activity, 156 units of 10.1m GT ordered were reported to have alternative fuel capability, 40% of total GT ordered. This includes 59 LNG capable ships of 5.5m GT (22% of total ordering), 42 methanol capable vessels of 3.4m GT (14%), and 19 LPG capable vessels, while 29 units are set to be equipped with battery-hybrid propulsion. This follows full year 2022, when a record c.60%\* of all newbuild orders by tonnage (GT) were alternative fuel capable (basis non LNG carriers: 44% of tonnage). For context, in 2021 31.4% of newbuild tonnage ordered was for alternative fuel capable vessels (506 units), up from 211 orders in 2020 and 50 orders in 2016.
- Uptake of alternative fuels has continued to progress, with 5.5%\*\* (start 2022: 4.4%, 2017: 2.3%) of the fleet on the water and 47.7% (start 2022: 33.3%, 2017: 10.7%) of the orderbook in tonnage terms capable of using alternative fuels or propulsion.
- Of the total orderbook, 39.0% of tonnage is set to use LNG (858 units), 5.4% to use methanol (109 units), 2.1% to use LPG (87 units) and c.2.8% due to use other alternative fuels (c.300 units) including hydrogen (16), ethane (15), biofuels (12) and battery/hybrid propulsion (c.260).
- With future optionality over fuel choice continuing to gain traction, there are now over 371 LNG ready ships in the fleet and 95 on the orderbook, while there are 191 ammonia ready, 130 methanol ready and 9 hydrogen ready vessels on order.
- Energy saving technologies (ESTs) have been fitted on over 6,250 ships, accounting for 27.3% of fleet tonnage: this includes propeller ducts, rudder bulbs, Flettner rotors, wind kites, air lubrication systems and others.
- Scrubbers are now fitted to over 5,050 ships in the fleet, equivalent to 25.4% of total tonnage. While scrubber retrofitting activity has slowed, newbuild uptake has increased in 2023 so far, with 122 scrubber fitted ships reported ordered, already surpassing last year's total, though still down from 2021 (343 units). The price differential between HSFO and VLSFO has narrowed in recent months to closer to \$100/tonne in key ports, from closer to \$200/tonne earlier in 2023.
- 'Eco' ships make up a growing share of the fleet ('modern' eco vessels now 30.4% of total GT) with implications for earning potential, asset values and increasingly "tiered" and complex charter markets. For context, we estimate that 27.1% of global tonnage was 'eco' as of start 2022, and just 14.6% at start-2018.
- The average age of the world fleet is increasing, standing at 12.4 years on a GT weighted basis (up from a low of 9.7 years in 2013). For the bulkcarrier fleet, the average age is 11.9 years, for tankers it is 12.6 years and for the container fleet it is 14.3 years. Today, 30% of global tonnage is aged over 15 years. We estimated that under CII, around 30% of today's tanker, bulkcarrier and container fleets will be D or E rated if they are still trading in 2026 and have not modified speed or specification. Our latest EEXI & CII impact assessment is available on World Fleet Register.
- The overall orderbook as a % of fleet capacity remains historically moderate at ~10%, though with significant variation between sectors - the LNG carrier and containership orderbooks equal 51% and 28% respectively, while bulkers and tankers equal just ~7% and ~5%.
- 'Green' port infrastructure is continuing to expand: currently there are 169 active LNG bunkering ports (and 95 planned facilities), while over 2,000 vessels are fitted/set to be fitted with shore power connections; Clarksons Research are also collecting data on ammonia and hydrogen infrastructure, and carbon capture projects.

- BWMS retrofit programme ongoing: majority of fleet tonnage (78%) now BWMS-fitted.

\*in number of vessels this is 32%.

\*\*in number of vessels this is ~1.4%.

While we continue to integrate much of our longstanding work around the Fuelling Transition within our existing research framework, the Green module of World Fleet Register (WFR) and Shipping Intelligence Network (SIN) consolidates this data work into a single resource. An additional subscription or upgrade is required for access and please contact [research.crs@clarksons.com](mailto:research.crs@clarksons.com) if you would like to arrange this. Please note the best option for access, alongside access to the underlying data, is already available via a subscription to the World Fleet Register which many SIN subscribers have found an increasingly useful tool.

As pressures build globally to find solutions to moderate climate change, the Green Transition will cause fundamental change to shipping, trade, offshore and energy. We are committed to providing data and intelligence to help frame the critical decisions that stakeholders across our industry will need to make to facilitate the Green Transition. Clarkson Research will continue to support its clients to (i) understand, in commercial terms, upcoming technical regulation (ii) track technology uptake by the shipping industry (iii) analyse the impact of environmental policy, regulation and technology on market supply / demand, asset values, vessel earnings and companies and (iv) project scenarios for required investment, including new-buildings.

Yours sincerely,  
Clarksons Research