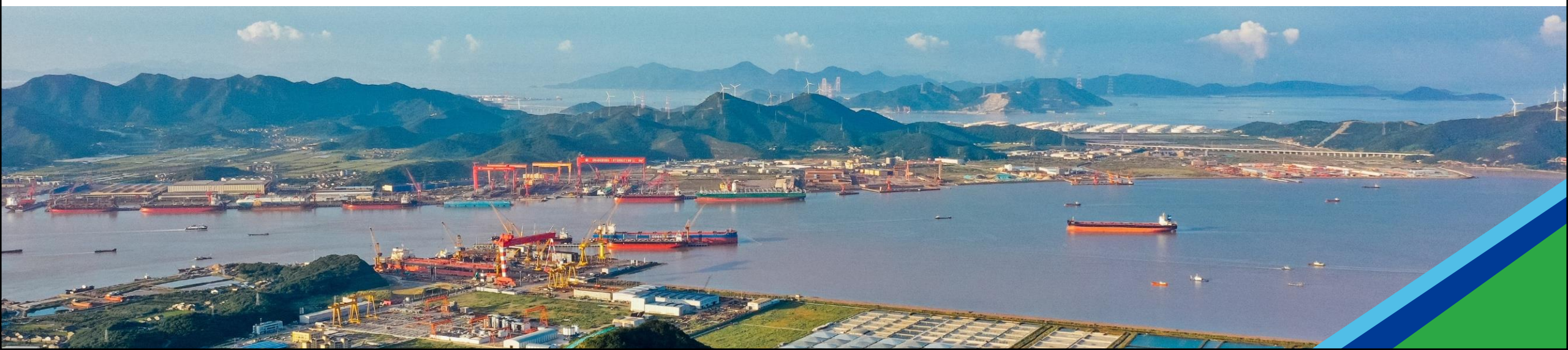


THE CAPITAL FOR SHIP REPAIR & RETROFIT

Decarbonization alternatives for the
current merchant fleet



London International Shipping Week – September 12th, 2023



CONCLUSION FIRST



**SHIPPING CAN EXEMPLIFY
HOW AN ENTIRE INDUSTRY
CAN DECARBONIZE!**

CONSEQUENCES STARTING TO SURFACE



[XYZ] wins another contract with lower emission fleet

Too late to retrofit?

Legal & General dumping Cosco stock due to slow pace of decarbonisation

Move by UK investor shows real-world consequences of shipowners' actions on climate change

22 June 2023 8:52 GMT UPDATED 22 June 2023 9:46 GMT

By [Gary Dixon](#) in London

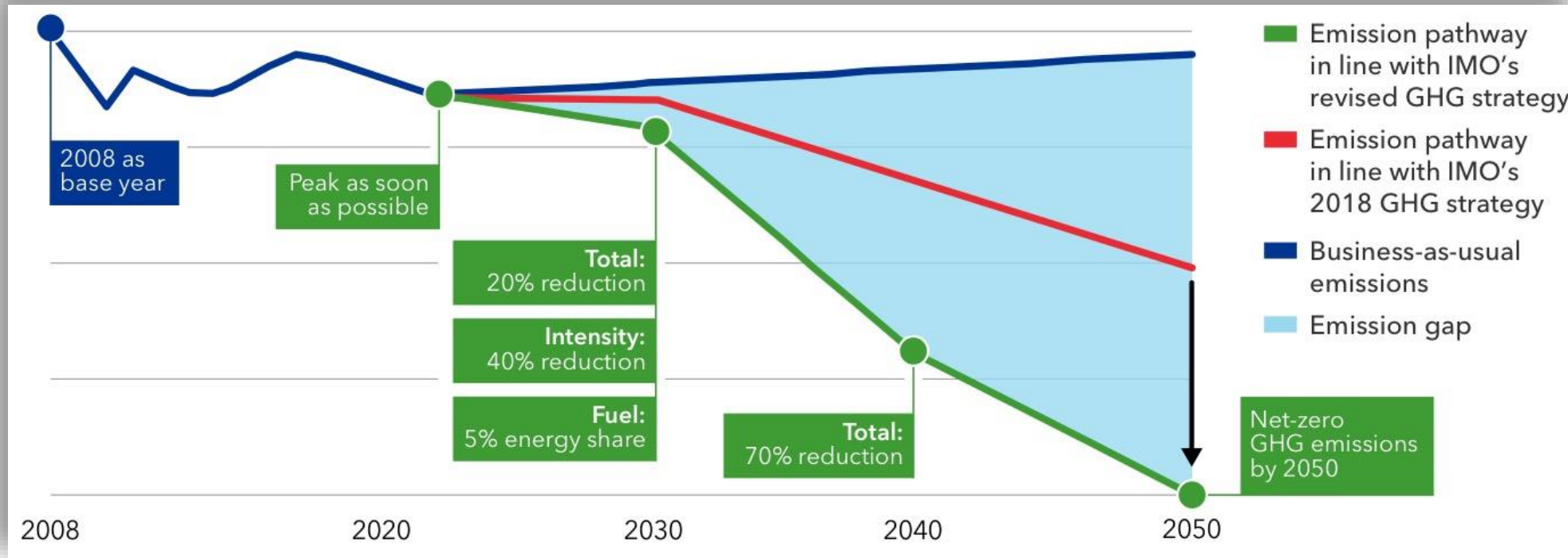
Legal & General is selling out of the world's biggest shipowner due to what it sees as a lack of commitment to climate change.

The UK financial services giant's Legal & General Investment Management (LGIM) said state-controlled behemoth Cosco Shipping Holdings does have an operational target, "but the level of ambition for this target is low compared to leading peers. There is no commitment or investment in low-carbon fuels, which is key to sector decarbonisation."

Clients abandon partnerships in favor of greener fleets

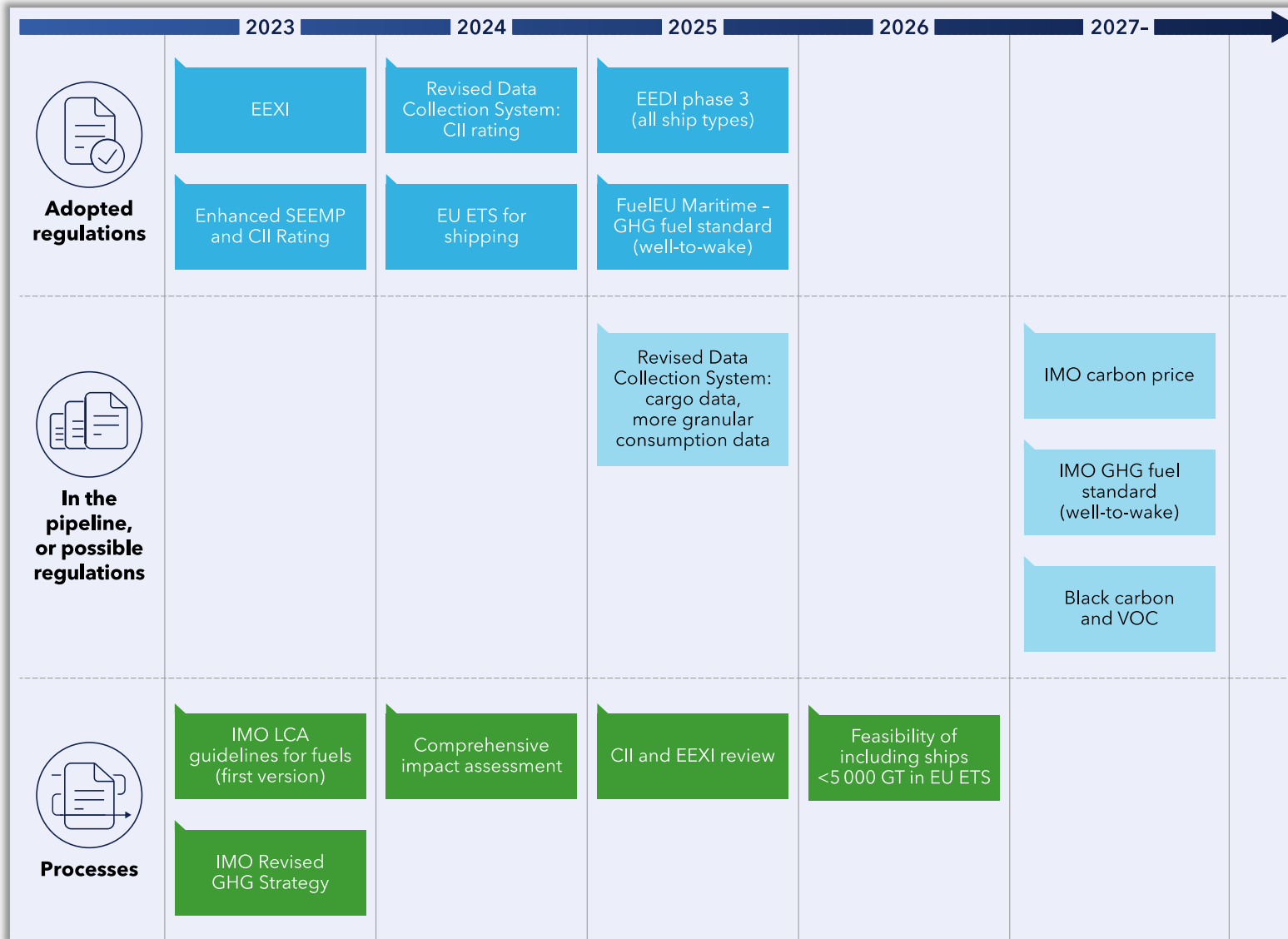
Source: Tradewinds

IMO UPDATE



Well-to-wake GHG reduction of **20% by 2030** vs 2008, *while striving for 30%
70% by 2040* , *while striving for 80%
Net-zero by or around 2050*
Interim guidelines for the use of biofuels

GHG REGULATORY TIMELINE TOWARDS 2030

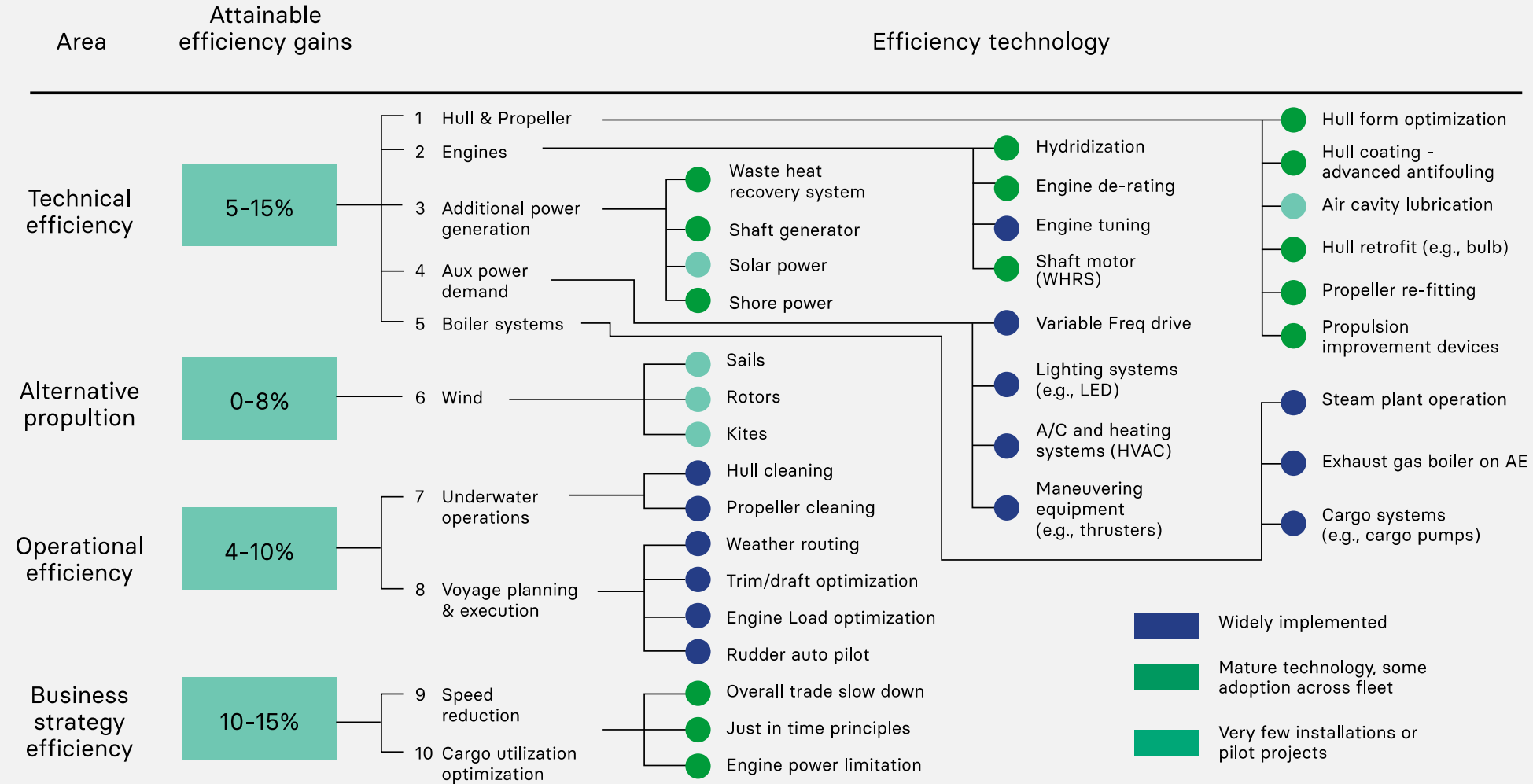


ENERGY EFFICIENCY IS A KEY PILLAR TO OUR PROGRESS



- The industry increased its energy efficiency by almost 4% annually between 2008 and 2022
- In the same period, seaborne trade volumes increased by 44%, while total emissions declined by 17%
- Half of the improvement was achieved via slow steaming of vessels
- The challenge is to supercharge the decoupling of emissions from seaborne trade volumes

GAINS FROM ENERGY EFFICIENCY AND DEMAND REDUCTION



BIOFUELS AND RENEWABLES

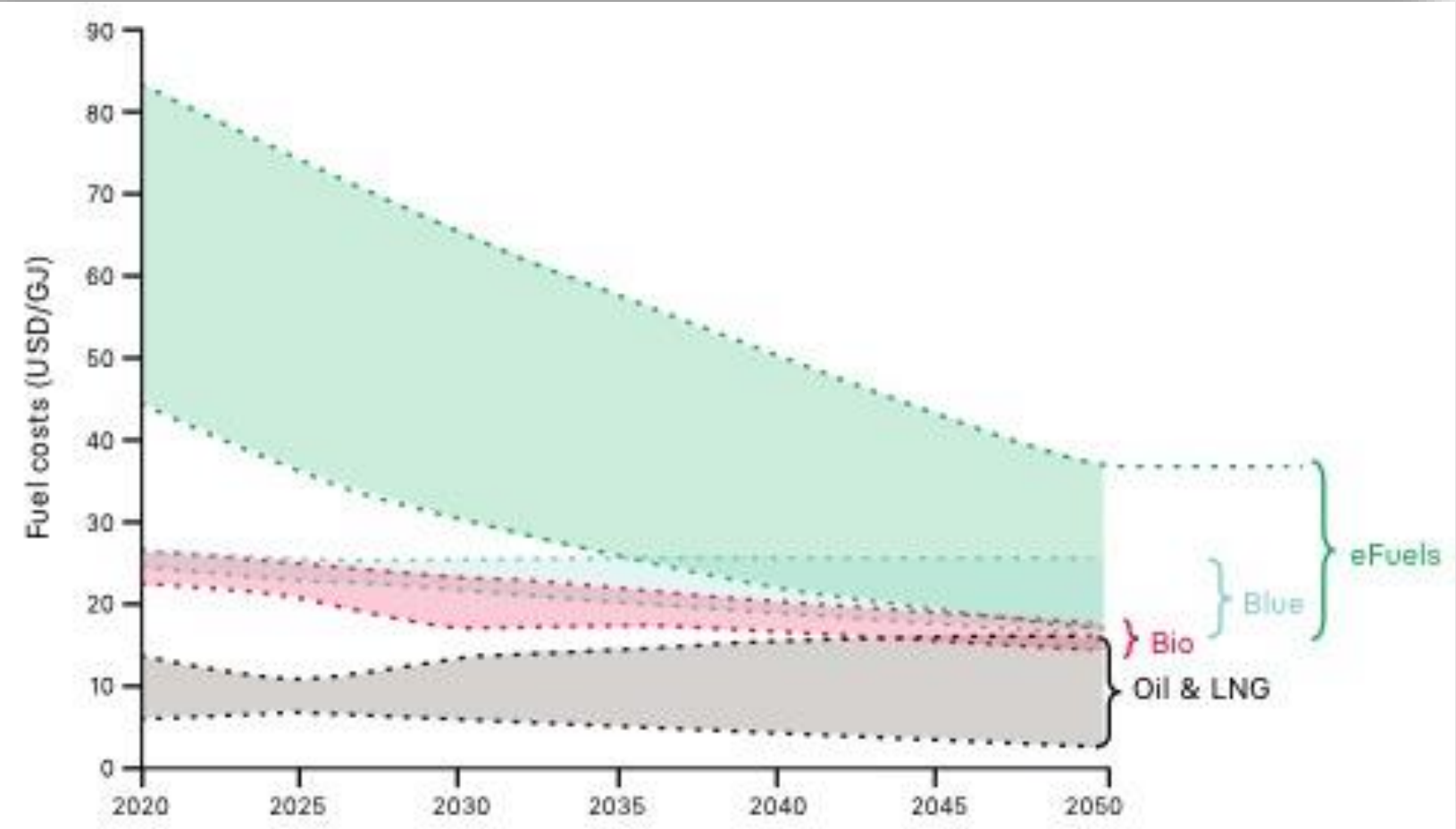


Achieving the complete transition of the maritime industry to e-fuels such as ammonia and methanol would require ~2,000 Gigawatts of renewable energy

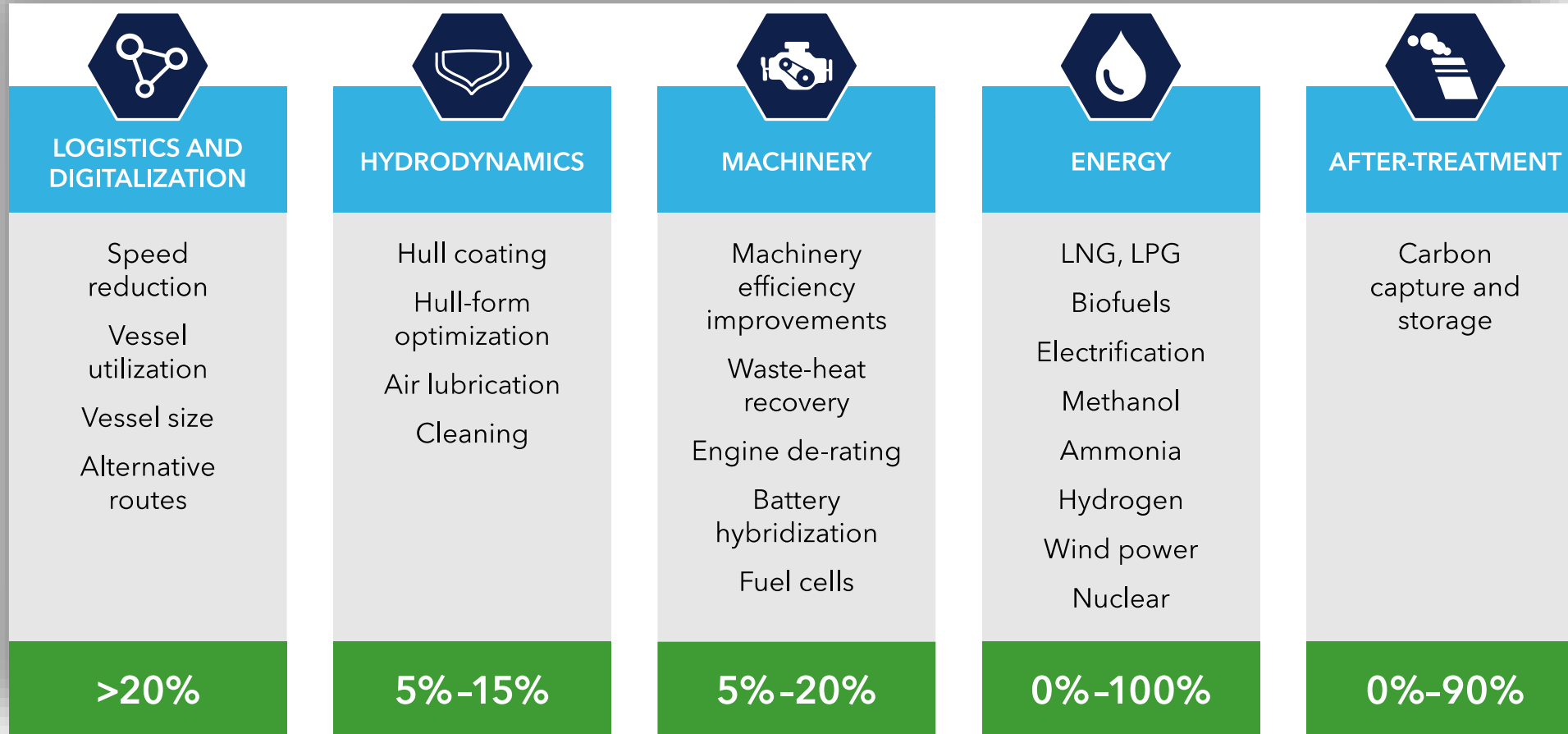
Another estimate according to IRENA 2022, by 2050, shipping will require a total of 46 million tonnes of carbon neutral hydrogen for e-fuels production. Based on current technology, this equates to 500GW of electrolyser and 1,000GW * of renewable electricity capacity

100 units of renewable energy to produce e-fuels, output at the propeller stands at just 25 units

PROJECTED MARITIME SHIPPING FUEL COSTS



DECARBONIZATION TOOLSET AND GHG REDUCTION POTENTIAL

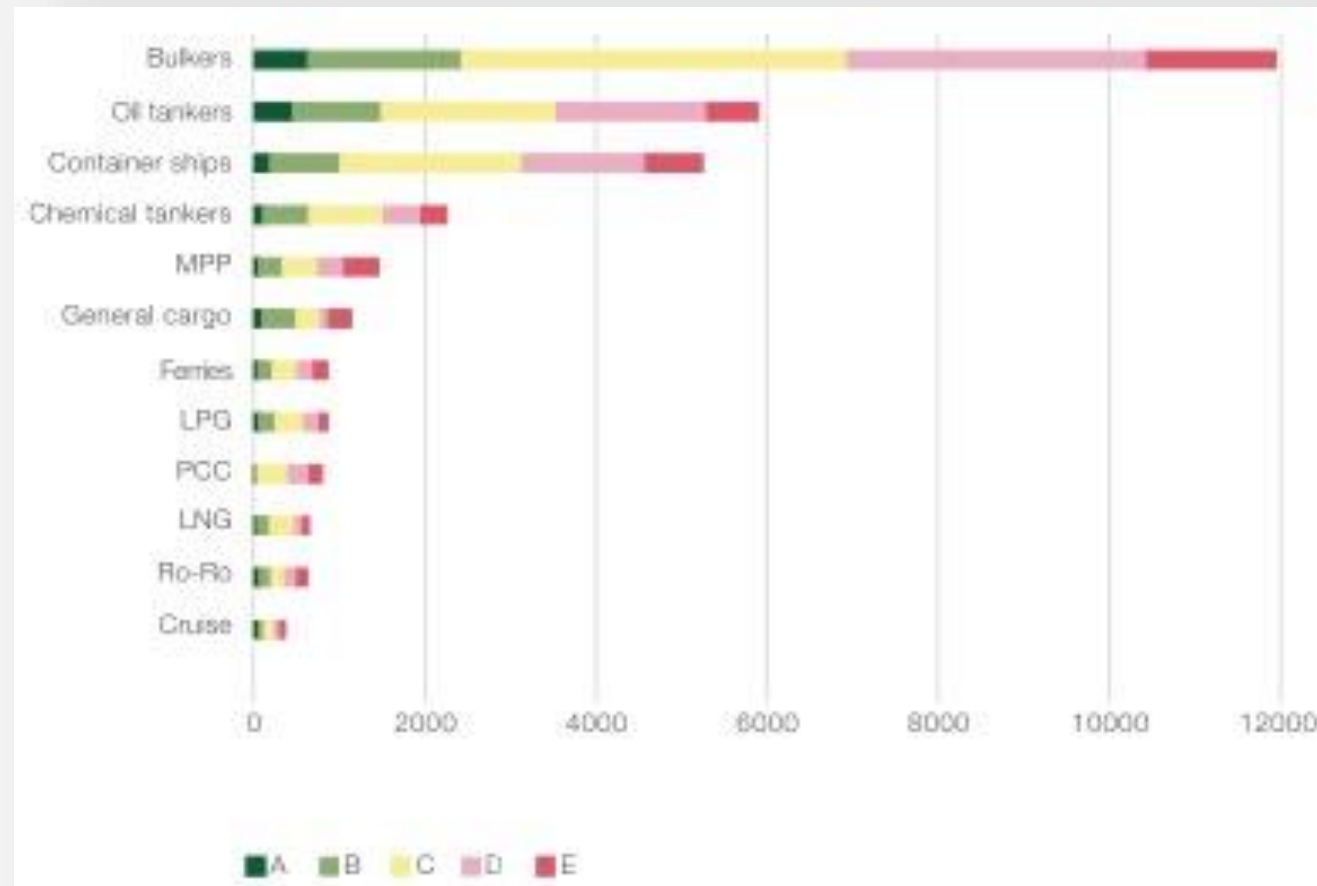


CURRENT FLEET



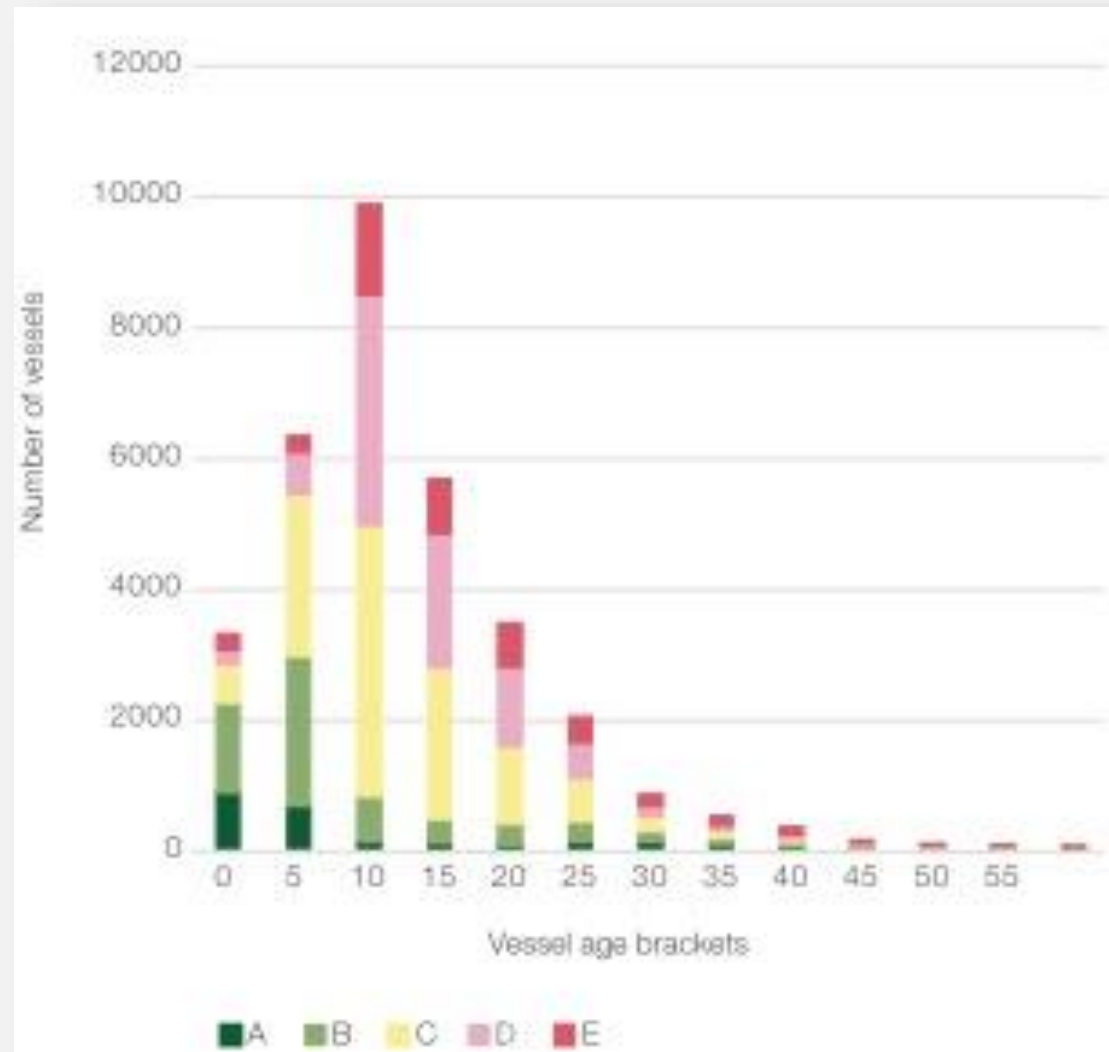
- **Current Fleet: Average age 12.3 years in 2022 vs. 9.8 years in 2013**
- 28.7% of global tonnage over 15 years
- **Clarksons estimates under CII, 40% of today's tanker, bulk and container segments will be D or E rated if still standing in 2026 without modifications**
- BWMS: of existing tonnage 73.7% fitted
- **LNG "ready": 340 units**
- Ammonia "ready": 150 units
- **Methanol "ready": 55 units**
- Hydrogen "ready": 6 units
- **Energy Saving Technologies: EST fitted to over 5,775 ships (25.3% of existing tonnage) including propeller ducts, rudder bulbs, Flettner rotors, wind kites and air lubrication systems**
- Scrubbers: Fitted to over 4,942 ships including pending retrofit (25.1% of total tonnage)

PREDICTED CII COMPLIANCE STATUS IN 2023 BY VESSEL SEGMENT



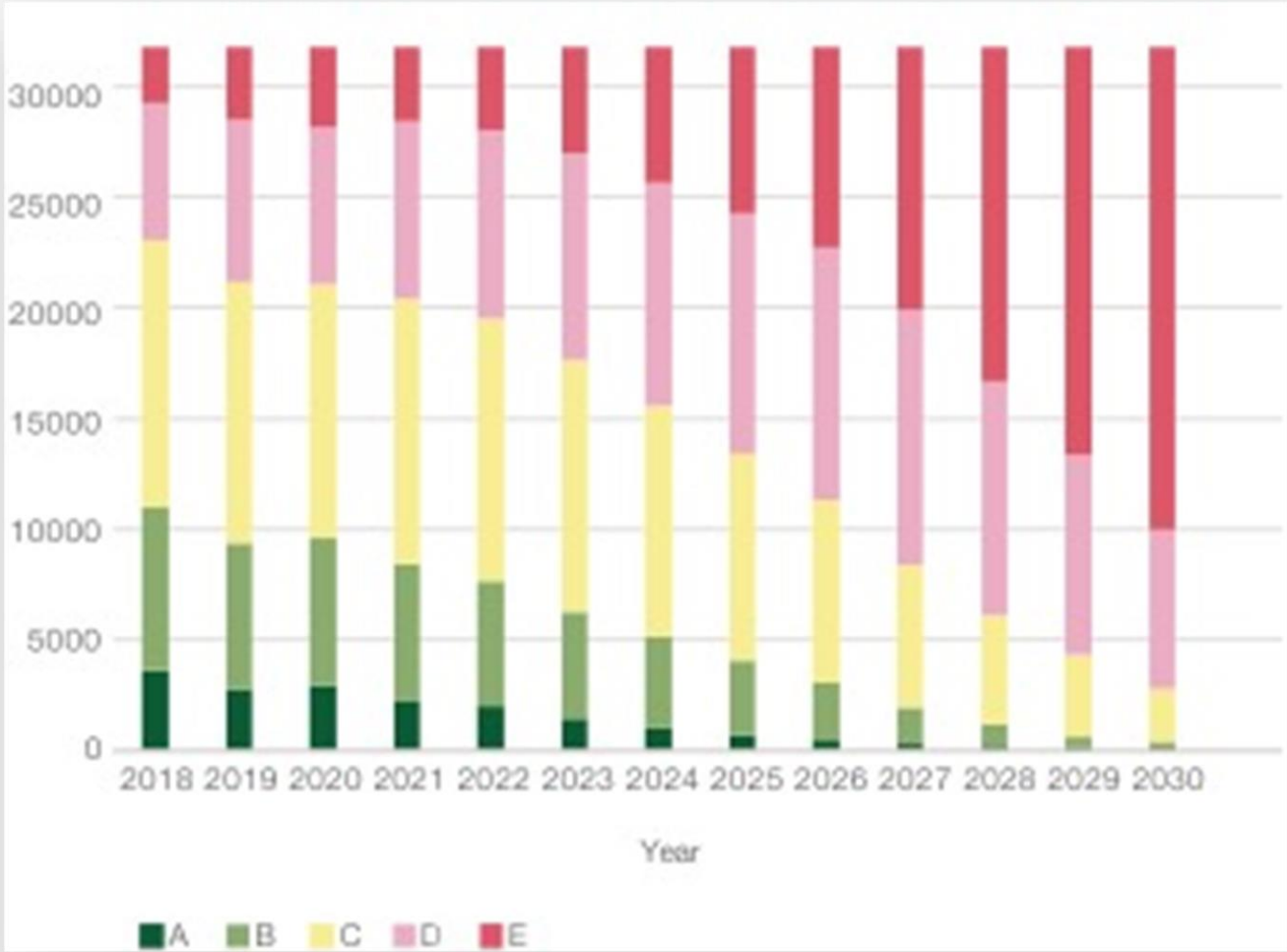
Nearly all vessels aged 10-15 years were likely to be in category C, D or E, meaning they will need serious efficiency improvements if they are to see out the rest of their useful life.

CII COMPLIANCE STATUS BY VESSEL AGE



As early as 2024 more than half of the global fleet subject to CII (16,822 vessels) would be non-compliant if no action was taken.

CII COMPLIANCE FLEET DEGRADATION 2018 – 2030



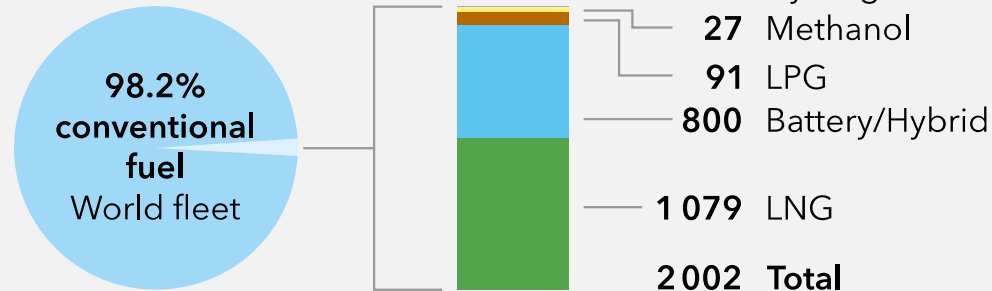
By 2030, if no action is taken:
81% of bulkers
57% of oil tankers and
80% of container ships will be in category E.

ALTERNATIVE FUEL UPTAKE AS OF JULY 2023

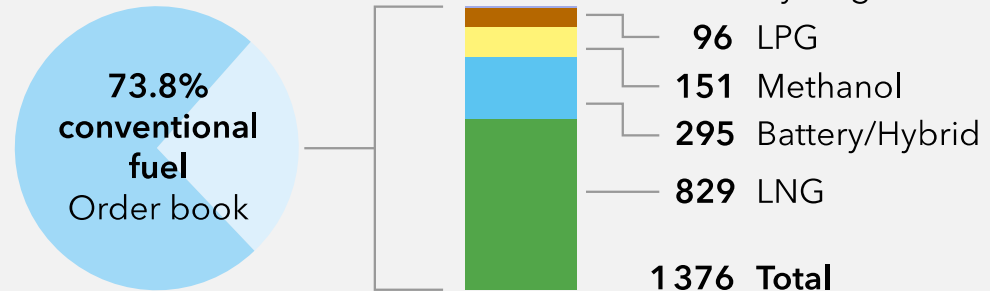


NUMBER OF SHIPS

Ships in operation

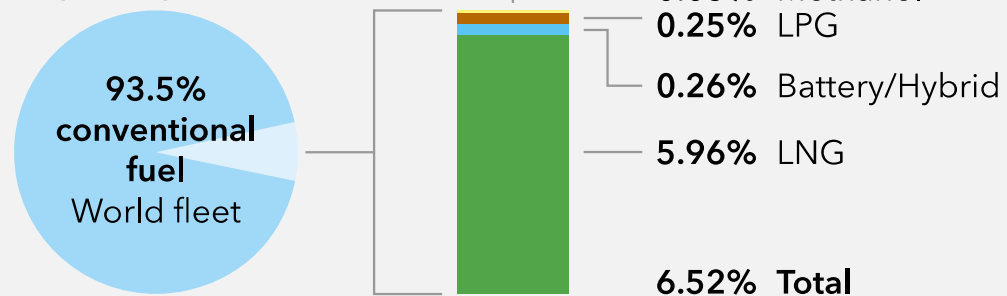


Ships on order

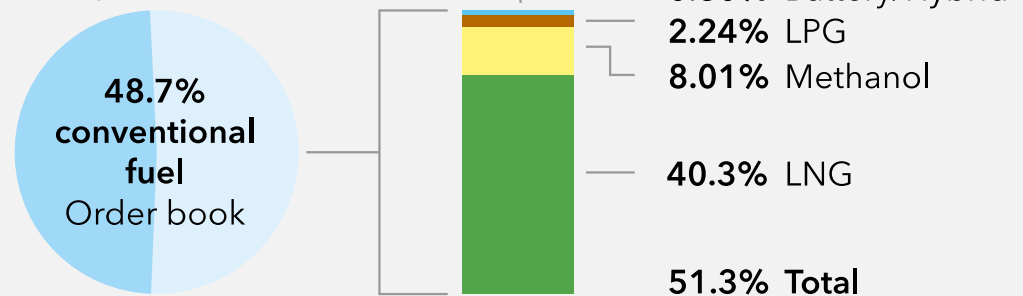


GROSS TONNAGE

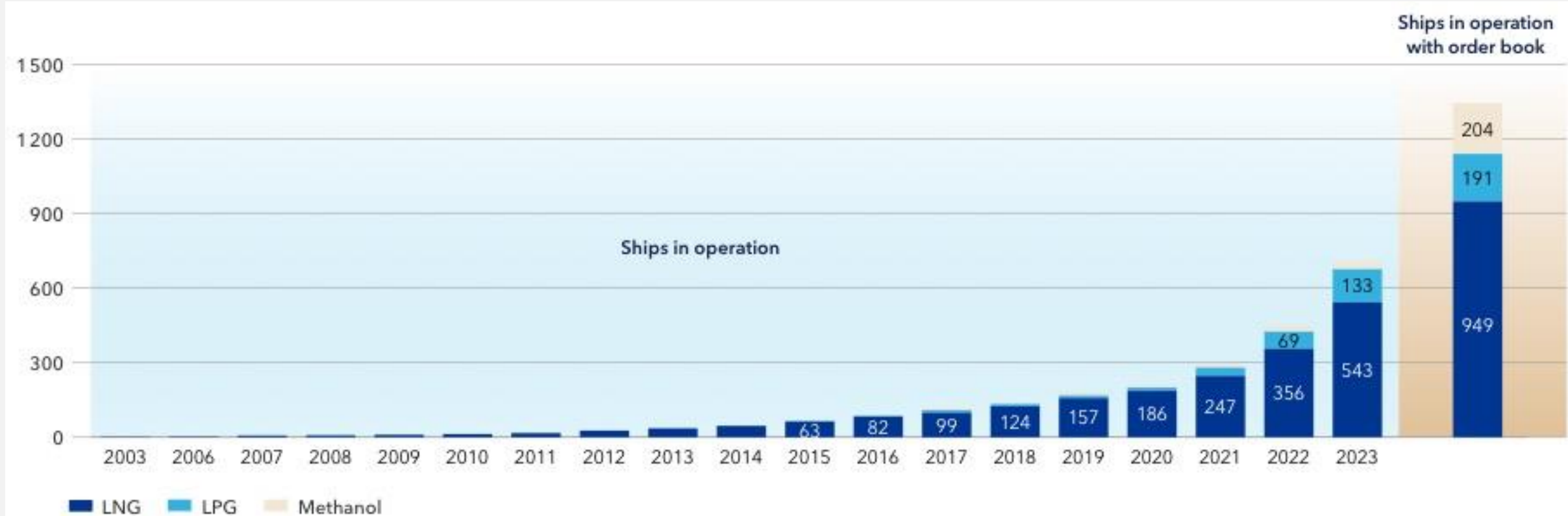
Ships in operation



Ships on order



LNG, LPG AND METHANOL FUEL TECHNOLOGY UPTAKE





FINANCING REQUIREMENTS

To decarbonize shipping, by 2050
between US\$ 1-1.4 trillion
investment into the industry is
estimated to be required



**HOW CAN
WE HELP?**

GLOBAL SHIP REPAIR AND RETROFIT SERVICES



**8 OFFICES WORLDWIDE
– LONDON HQ**

150+ GLOBAL SERVICE TEAM

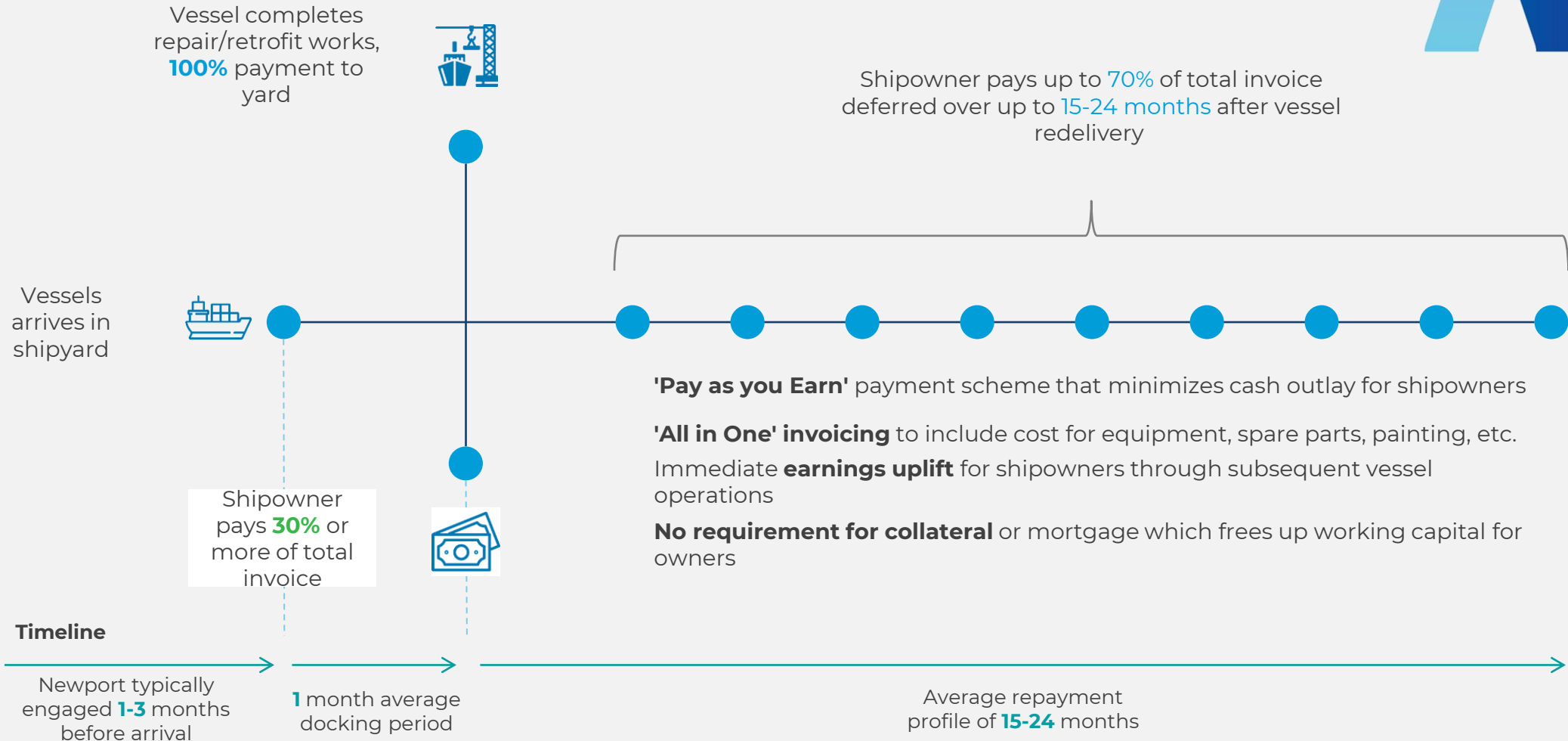
16 PARTNER SHIPYARDS

43 REPAIR DOCKS

2,800 ANNUAL SLOTS

 SHIPYARD LOCATIONS
 OFFICE LOCATIONS

HIGHLY ATTRACTIVE DEFERRED PAYMENT MODEL



PRIORITIES



| Fuel | Energy Density (MJ) |
|----------|------------------------|
| IFO | 41 MJ / kg |
| Ammonia | 19 MJ / kg |
| Methanol | 20 MJ / kg |
| LNG | 54 MJ / m ³ |

- GHG emissions are cumulative
- LNG has global availability at scale, safety record, established infrastructure and other existing advantages over alternatives such as energy density

CAPABILITIES



Turnkey decarbonization program ensures that the LNG retrofit investment is aligned with strategic and commercial goals.

Advantages:

- Proprietary design with AiP status (Bureau Veritas and DNV)
- Detailed evaluation of retrofit options for each vessel in your fleet
- Access to turnkey execution with our partner yards and suppliers
- Access to finance to support the retrofit investment
- - Newport can structure customized financing solutions for the retrofit project

CAN YOU AFFORD TO RETROFIT?

Engineering Feasibility Study

Financing

Vessel

LNG System

Project Credit Rating

Technical Profile

- Vessel type / age
- Engine type / maker
- Engine room details
- Vessel general arrangement
- Propulsion system

Operational Profile

- Fuel consumption
- Trading route
- Voyage days
- Ballast days
- Port days

SOLUTION →

- Retrofit
- Replacing

LNG FUEL GAS SYSTEM →

- Tank Type
- Tank Capacity
- Tank Pressure
- Tank Structure
- Bunkering Method

SUPPLIERS →



Vessel Owner / Manager Profile

LNG expertise

Market Segment

Vessel Charter Hire

Vessel OPEX

Financing Ratio
Repayment Period

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