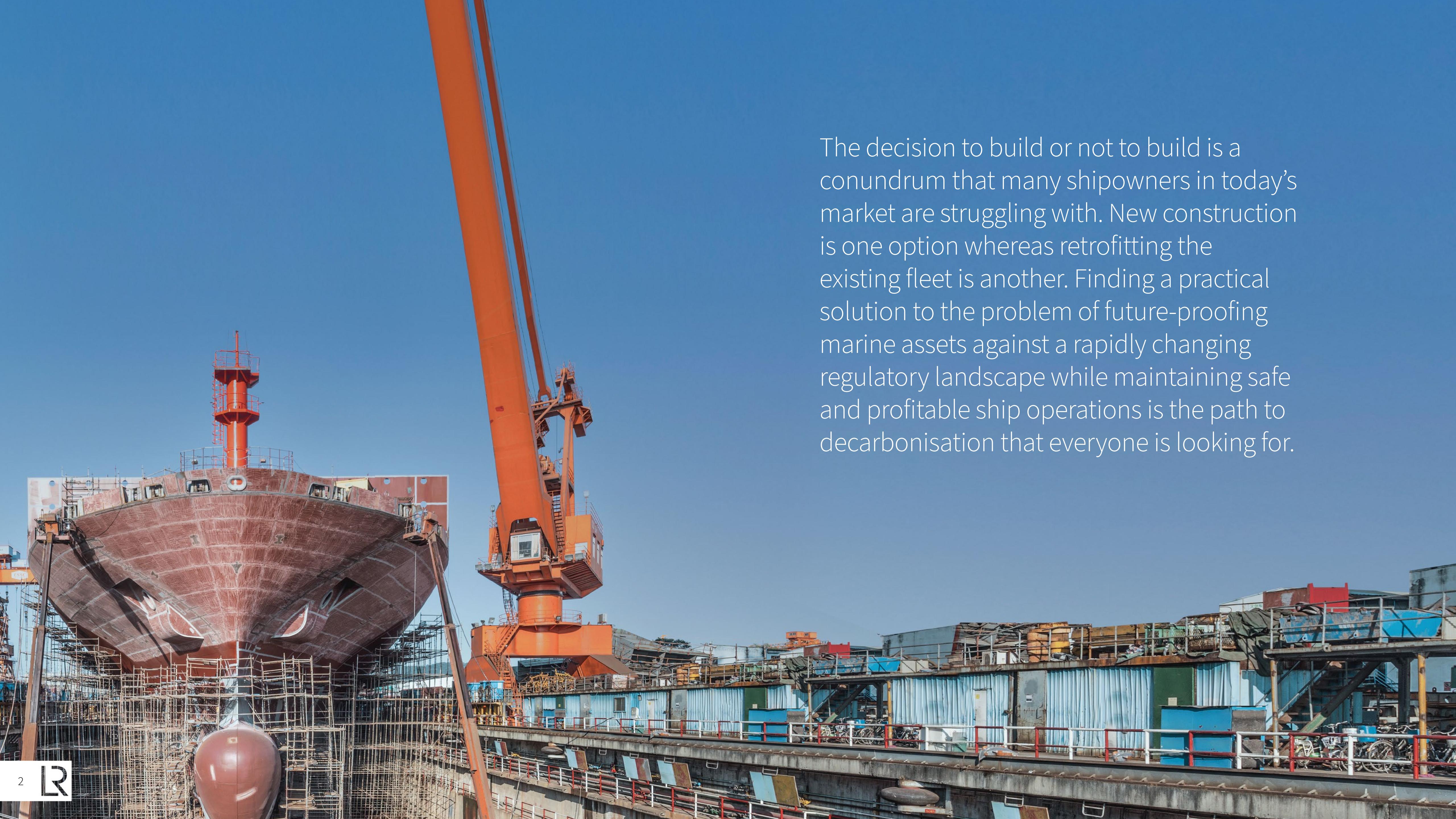




NEWBUILD OR RETROFIT GUIDE

Can shipowners and operators
retrofit their way through today's
maritime challenges, or will only
new construction do?





The decision to build or not to build is a conundrum that many shipowners in today's market are struggling with. New construction is one option whereas retrofitting the existing fleet is another. Finding a practical solution to the problem of future-proofing marine assets against a rapidly changing regulatory landscape while maintaining safe and profitable ship operations is the path to decarbonisation that everyone is looking for.

Unfortunately for most, there is no clear solution. Regulation and compliance deadlines are set, and emerging technology or fuel choices remain unproven. Most of the larger newbuild yards are fully booked for the next two years. And, despite a slight drop in steel prices, commodity prices keep newbuild costs relatively high.

This collision of factors, against the backdrop of an energy security socio-economic challenge, means that shipowners today must think carefully about the future of their existing vessels or fleets. How does a single vessel compare to its peers in the open market? How do prospective charterers evaluate their portfolios against their current ESG responsibilities? How are financiers assessing the environmental performance of the assets they support? All of these questions are being asked at a time of market recovery and upheaval as we emerge from the quagmire of the past two years. This leads to a decision gate: Do I build, or do I retrofit?

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There's a lot of pressure from everywhere: build prices are still high, realistic yard slots are scarce, yet the demand is still there. It's a complex dilemma to unpick.”

Roger Cornish

Global New Construction Sales Manager

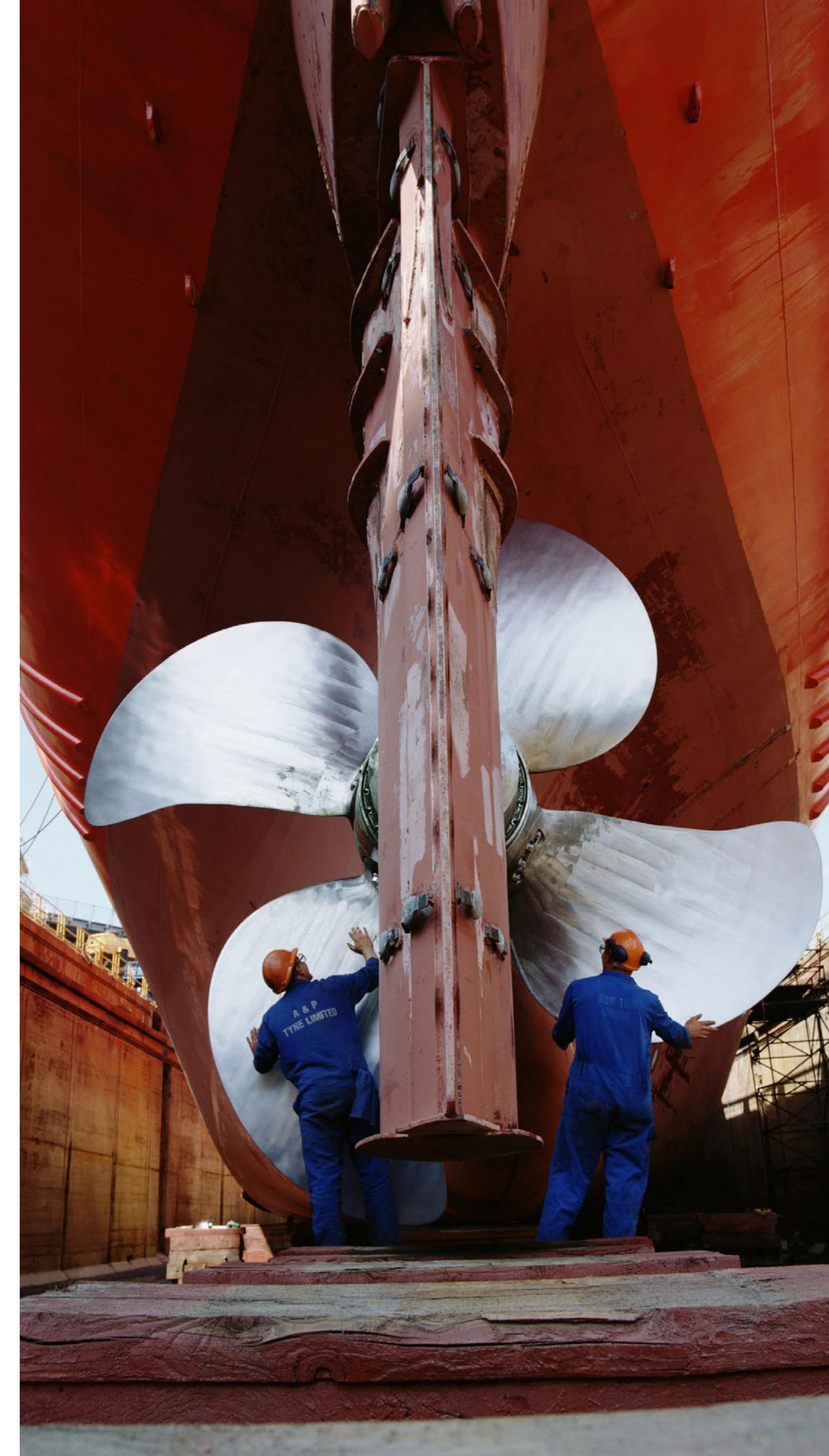


To progress the transition to zero-carbon fuels, Lloyd's Register helped develop the first Chinese Newcastlemax bulk carrier concept powered by ammonia, using our expertise in alternative fuels to review the suitability and risks of the design.

Placing newbuild orders for cargo transportation now could mean paying 30-40% more for the same ship than 18 months ago – not to mention the additional cost for the installation of non-standard energy efficiency technology. It also means waiting, as the earliest delivery slots are not until 2025 or 2026.

Taking the step to commission a newbuild is a complex process requiring expertise and experience to ensure success. Retrofitting existing vessels is in many ways, more complicated.

Retrofitting now means taking a bet on the technology choice or type of fuel that will keep the ships within their required operational envelopes for the rest of their economic lifespan. And it means rebalancing the books to account for the changes. There is one final complication: repair yards are full.



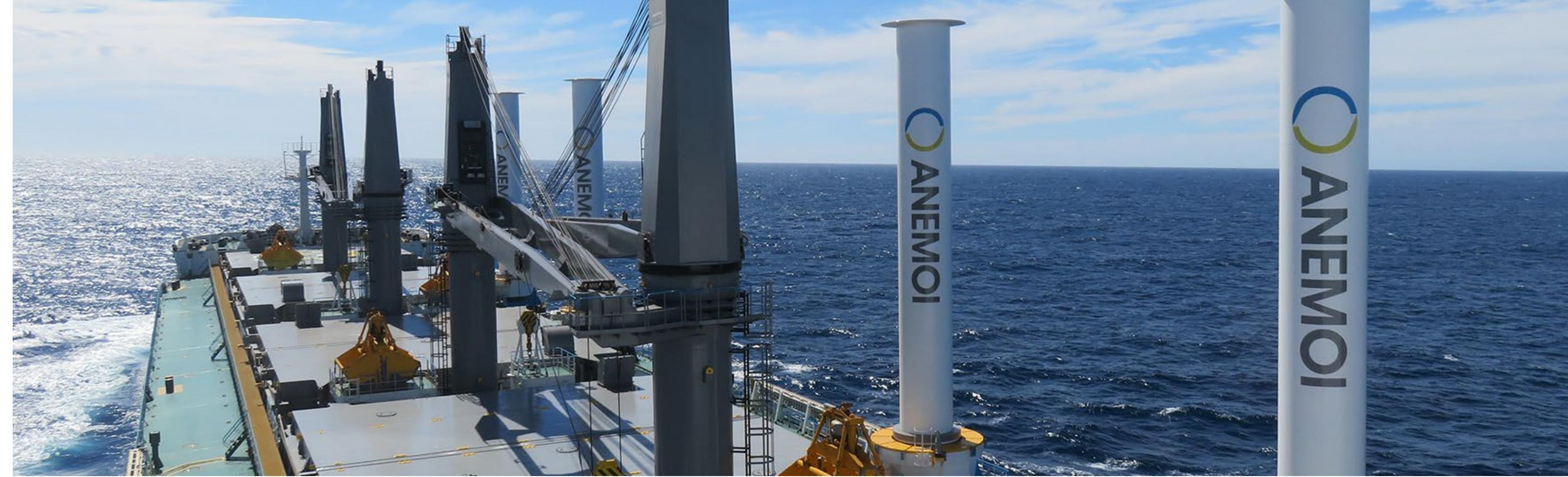
Newbuild vs retrofit? Exploring the grey areas

Regulatory developments

The constant in this quandary is the regulatory drive. The International Maritime Organisation (IMO), the European Union and many states and corporations are driving international trade to decarbonise. The regulations on sulphur, NOx and carbon keep their downward trajectory in terms of upper limits and market-based carbon pricing measures levies and credits are just around the corner.

The Energy Efficiency Design Index (EEDI) was the ticket to the game until recently. New ships must comply with the indices for their type and size – posing a technical challenge to designers and machinery manufacturers. Existing ships will receive their yardstick with the Energy Efficiency Existing Ship Index (EEXI) beginning next year. Once compliant, in principle, the vessel has the right to trade.

However, to keep trading, operational efficiency must be demonstrated. The Carbon Intensity Index (CII) is the next compliance challenge, and this index has the potential to disrupt the status quo. Two identical sister ships, both equally technically efficient, can have wildly different CII performance – where poor performance could risk penalties or make an asset commercially unattractive. Operational efficiency is key.



The rail-mounted system, which consists of four rotors, was installed on the geared 64,000 dwt ultramax bulk carrier, MV Afros.

Ship technology and specification

Technology offers solutions when we consider the upcoming disruption and the necessary preparatory steps to mitigate the impact. Reducing total energy consumption and hence the total carbon emitted can be achieved by integrating a variety of technology solutions. Before making the big bet on alternative fuels, optimising the hydrodynamic, aerodynamic or propulsive efficiency, reducing hotel loads or capturing benefits from wind or solar energy and heat recovery, can all play an important role in improving technical and operational efficiency.

This is much easier to do at the newbuilding stage. Most designs today are offered with compliance to EEDI Phase 3. This provides an element of future proofing as this tier does not yet apply to all ship types, but engagement at the design stage means that the integration of technologies can be done more economically – with a clear understanding of the impacts and challenges of interconnectivity. This is a major positive factor when considering the future viability of vessels.



In the face of uncertainty on fuel choices and the volatility of newbuild prices, many shipowners are watching and waiting on the technology choices made by innovators and industry leaders to avoid miscalculating any investment decisions.“

Nikos Kakalis
Global Bulk Carrier Segment Director

Of course, the same alterations can be applied to an existing ship, but there are some limits on economic viability given the need to deconstruct parts of the vessel and spend prolonged periods off-hire in drydock. It also may be more difficult to understand the true benefits and challenges of integrating some of the technology solutions, the real-life gains and the impacts of the selected technologies in combination.

Major retrofits on cargo ships are not a common occurrence. The last time the industry saw mass conversion was during the phase-out of the single hull tankers in the early 2000's, but really, jumboisation is only viable in the container and cruise segments. We have seen limited fuel type conversions to LNG dual-fuel and methanol, with good reason. Retrofitting may not be feasible for some ship types due to the uncertainties, and the potential for time and cost overruns is an ever-present risk, swinging the balance back in favour of newbuild.

Another factor to consider with newbuilds is the specification. Standard designs are a major feature of the newbuilding industry as they provide the yards with an opportunity for standardised production and supply chain efficiencies. In turn, these are passed to the owner, who gets a known quantity regarding vessel quality and performance.

The difficulty in a standard design is that there are limited opportunities to optimise the vessel to meet the needs of the owner or the charterer. Improving the specification to be more competitive is possible, however, there is an implication on CapEx – with a potential uplift of 10–15% for an alternative fuel option. In some cases, the price of not making this investment, however, may lead to a stranded asset mid-way through the typical life of the vessel. Such risks need to be evaluated on a techno-economic basis.



LR has awarded Approval in Principle (AiP) to Norwegian shipowner Egil Ulvan Rederi AS for its zero-emission self-discharging hydrogen-fuelled bulk carrier, With Orca.

Digitalisation

The goal of digitalisation is to extract information or data that you did not have before and generate useful insights. Doing it well means providing the right information at the right time to make the right decision. The other upside of operational information is that data is a single source of truth, providing a fair and transparent baseline for collaborative decision making.

Although digitalisation needs to start being embraced at all levels, this is an easier task for a newbuild. Imagine upgrading the engine control unit on a 15- or 20-year-old automobile, or an obsolete smartphone, to provide the same capability as a new one. It is a matter of economics and the same holds true for ships.

What does it all mean?

For major operators in the industry, the decisions are a bit easier. A large scale shipowner can affect the fuel transition by creating demand. Currently, methanol supply is insufficient to support the maritime transition to a lower carbon-intensive fuel. A shipowner with large ships can simply place an order to create that demand.

As we saw in the early days of LNG as a fuel, the supply caught up quickly. Smaller owners lack the bargaining power or access to funds to have the same impact, so they must pay close attention to follow the innovators at the right time and not get left behind.

Although the market conditions for newbuild may look unfavourable, doing nothing may pose a greater financial risk. Timing the market in a holistic manner is always the golden rule.



De-risk every stage of new construction

Newbuilding or retrofitting must be included in long-term strategies today. Both have a role to play in the energy transition, both have risks and opportunities and both will produce winners and losers.

That is why, at LR, we have been working in partnership with stakeholders across the industry to drive the necessary innovation – and to de-risk every stage of new vessel construction for our clients.

We have led commercial trade agreements to drive decarbonised shipping routes, such as the 'Silk Alliance' Green Corridor Project. These initiatives build momentum behind innovations, helping them become a commercial reality.

Much of this success is achieved through the work of our Maritime Decarbonisation Hub, which is focused on the delivery and operation of safe, technically feasible and commercially viable zero-emission vessels by 2030.

With more than two centuries of experience and pioneering innovations behind us, plus long-standing relationships with shipyards, we help build resilience into your fleet upgrade strategy – whichever approach you take – to protect your investments and future-proof your business.

Speak to an expert at LR

