

Rising to the challenge

The LNG shipping market and the technologies associated with it are evolving, offering traders a greater ability to capture optionality and arbitrage opportunities.



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The global LNG shipping fleet plays a vital role in the evolution of the LNG industry by allowing market participants to capture optionality and arbitrage opportunities, the cornerstones of commoditization. In the next decade, the commercial and technological aspects of LNG shipping will develop further to make LNG trading more flexible.

The availability of LNG carriers on the spot market has been rising in recent years, and when spot rates teared the \$200,000/day mark in 2018, it triggered renewed interest in shipowners to make speculative LNG vessel orders not linked to long-term supply contracts.

LNG newbuilds are seeing shorter time-charters of around seven years compared with up to 15 years previously, according to shipbrokers. A

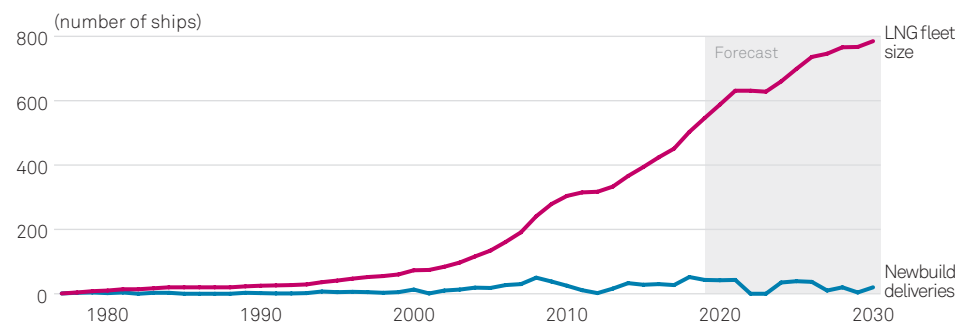
couple of decades ago, LNG carriers would not be built unless tied to specific projects.

According to the International Gas Union, only around 52% of the orderbook was tied to a specific project or charterer at the end of 2018, leaving 56 carriers available for the spot market or to be chartered out on term business.

When LNG spot rates were languishing at under \$25,000/day in 2017, as much as 15% of the global LNG fleet was laid up, more than most shipping segments, as day rates were below the break-even level. An increase in day rates has pulled most of these LNG carriers back into the spot market.

Additionally, the large number of LNG carriers rolling off long-term contracts between 2020 and 2030 will

GLOBAL LNG CARRIER FLEET TO HIT 800 SHIPS BY THE END OF NEXT DECADE, AFTER CROSSING THE 500-VESSEL MARK IN 2018



Source: S&P Global Platts Analytics

be prime candidates for spot trades — if day rates are attractive — before they get scrapped due to old propulsion systems.

DNB Bank estimates that cumulative long-term contracts rolling off could reach 36% by 2025.

Ownership fragments, diversifies

Even LNG vessel ownership structures are changing fundamentally. New fleet owners range from Greek investors diversifying into LNG to oil majors, portfolio players and trading houses controlling more LNG tankers for trading purposes.

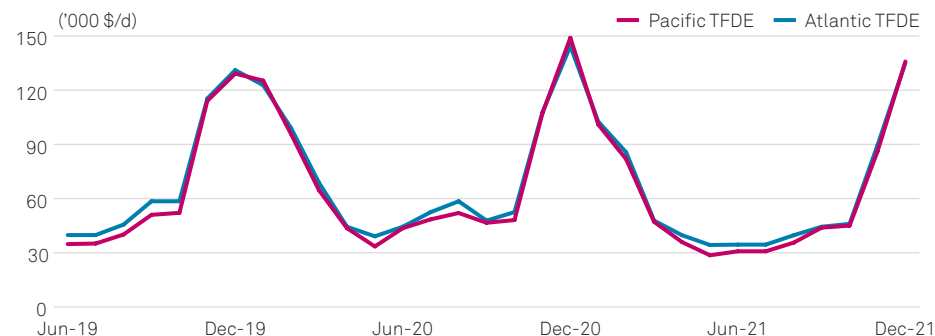
Data company VesselsValue estimates that Greek shipowners now own the highest valued LNG fleet in the world, worth \$18.4 billion by 2019, up from \$13 billion at the start of 2018, putting them ahead of Japanese shipowners, whose fleet value of \$15.2 billion was largely dedicated to project commitments.

These Greek shipowners include Marinakis Group, Minerva Maritime, TMS Cardiff, Alpha Gas and Thenamaris.

South Korea's Sinokor dominates the second-hand LNG carrier market, mostly for steam turbine vessels, and is among the top LNG fleet owners, while US LNG producer Cheniere has emerged as one of the largest LNG vessel charterers with as many as 25 ships on the water at the same time, according to company presentations.

Oil majors, portfolio players and commodity traders have become some of the most active short-term charterers of LNG vessels. For instance, Shell Trading & Shipping

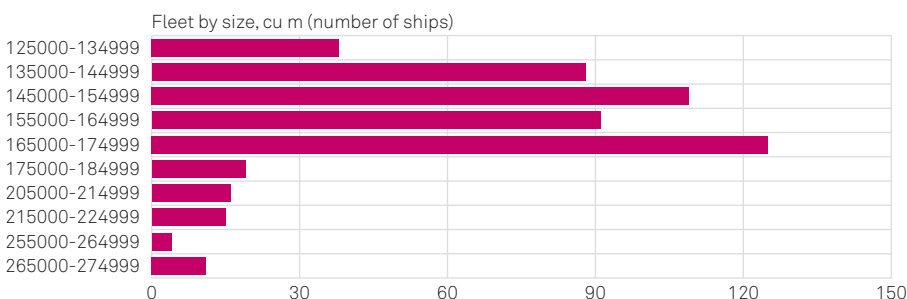
SPOT FREIGHT RATES FOR TFDE LNG CARRIERS TO REFLECT SEASONALITY AS VESSEL AVAILABILITY GROWS ALONGSIDE LNG VOLUMES



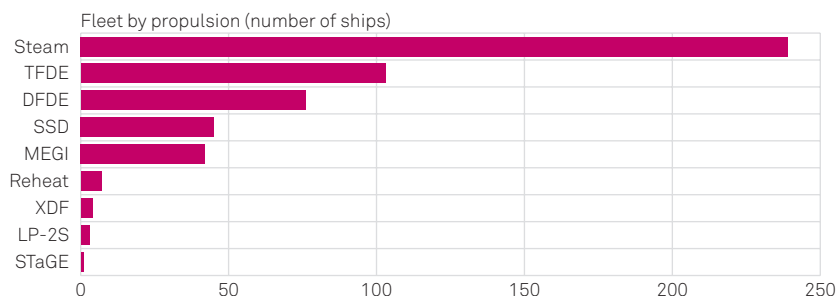
Source: S&P Global Platts Analytics

TFDE: Tri-fuel diesel electric propulsion

FLEET SIZE STANDARDIZES AT 135,000-175,000 cu m AFTER SEVERAL YEARS OF GROWTH, REFLECTING CAPACITY CONSTRAINTS AT PORTS



NEW LNG CARRIER PROPULSION TECHNOLOGIES LIKE MEGI AND TFDE ARE HELPING REDUCE BOIL OFF AND INCREASE FUEL EFFICIENCY



Source: S&P Global Platts Analytics

controlled nearly 52 LNG carriers between its time-chartered fleet, full-owned and partly owned vessels, accounting for nearly 10% of the current global fleet, VesselsValue data shows.

LNG role in global fleet

The size of the global LNG fleet crossed the 500 vessel mark in 2018 and is set to reach almost 800 ships by 2030, according to S&P Global Platts Analytics. As such,

Evolving fleet

LNG ships will account for an increasing portion of the global shipping fleet.

Gas carriers accounted for 8.8% of the world fleet in 2018 by dollar value of ships, and at 7.2% posted the fastest growth that year, according to the UNCTAD Review of Maritime Transport 2018. Between 2000 and 2018, world seaborne trade for gas more than tripled to 1.77 billion ton-miles from just 576 million ton-miles. Oil grew by less than 44% in the same period.

LNG ships are now evolving to also provide time arbitrage opportunities, in addition to the geographic arbitrage, by acting as floating storage. This is enabled by advances in LNG technologies.

A growing number of new LNG vessel orders and deliveries are shifting to

advanced MEGI (M-type Electronically controlled Gas Injection) and XDF ships, which have minimal boil off, allowing for longer storage without cargo losses.

On the spot market, the MEGI and XDF ships can command a premium of \$20,000/day over TFDE/DFDE vessels, which are in turn more fuel efficient than the old steam turbine LNG vessels. Spot charters of TFDE/DFDE vessels averaged \$85,500/day in 2018, compared with \$53,400/day for steam LNG vessels, according to the IGU.

Qatari expansion

LNG powerhouse Qatar is helping to drive the expansion of the global LNG shipping fleet. In April 2019, Qatar Petroleum kicked off a construction

plan for more than 100 new LNG carriers – with 60 to be delivered initially.

The investment is designed to support Qatar’s liquefaction capacity expansion to 110 million mt/year by 2024 from 77 million mt/year now and the development of its Golden Pass terminal in the US.

While the bulk of these ships will be to support Qatar’s long-term contracts on time charters, Qatar Petroleum has been increasingly active on the short-term market to remain competitive, and the fleet will find itself meeting flexible trading arrangements over time.

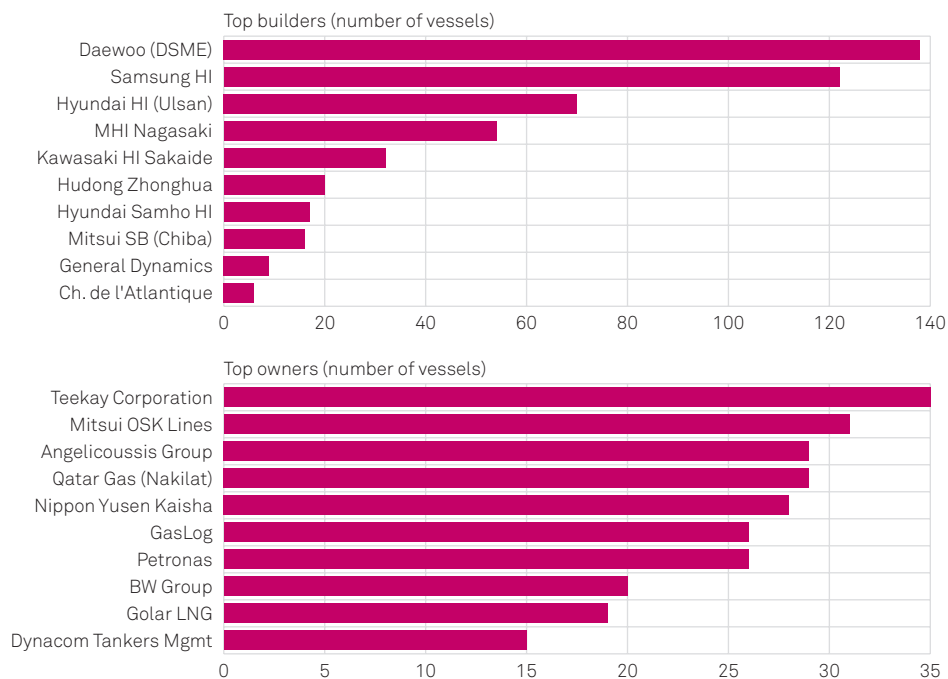
The shipping tender includes options for replacing Qatar Petroleum’s existing LNG fleet. Nakilat, Qatar’s national shipping company, has a fleet of 69 LNG ships comprising 24 conventional LNG ships, 31 Q-Flex and 14 Q-Max vessels, owned wholly or in joint venture, according to shipping consultancy Drewry.

The average age of these ships is 10 years, but by 2030 the average age of this fleet will be approximately 21 years, so some replacement is likely, Drewry said.

Older vessels are typically redeployed to the spot market or are converted to storage and floating terminals, before being scrapped, all of which adds to trading infrastructure. Moreover, Qatar’s shipping fleet has set new standards for global LNG receiving infrastructure and ports, and innovations in its next fleet expansion will be critical for future LNG trading.

LNG shipping continues to evolve to accommodate Arctic shipping routes, expansions and limitations of the Panama Canal, reloads and diversions between the Atlantic and Pacific basins, and the use of LNG as a marine fuel, all of which will be critical to LNG commoditization in the next decade.

LNG VESSEL OWNERSHIP BECOMING MORE DIVERSIFIED, SOUTH KOREAN YARDS LEADING SHIPPING PRODUCTION AND TECHNOLOGY INNOVATION



Source: : S&P Global Platts Analytics

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