Owners like Angelicoussis Shipping Group have invested significantly in their LNG fleets in recent years Source: Maran Gas

Greek owners take command of new-age global gas trades

LNG FLEET Now in control of the world's most valuable LNG fleet, Greek owners have spent recent years aligning themselves with long-term LNG project-related shipping requirements as well as short-term business. As Russia's war with Ukraine disrupts global gas supplies as never before, with European consumers at particular risk, LNG owners with tonnage available will be well-placed as new projects come on stream and the sector faces unprecedented supply constraints, writes freelance journalist Paul Bartlett.

Global LNG trades have undergone a fundamental transformation this century and, in shipping terms, a remarkably quick one. From a global supply chain in which there were virtually no spot- or short-term business opportunities, with ships tied into projects on very long-term supply contracts, today's LNG shipping market is almost unrecognisable. Just like other shipping sectors – it is now made up of a mixture of long- and medium-term business with plenty of short period and spot opportunities, too.

Meanwhile, as new discoveries of gas have fuelled a rapid increase in LNG shipping demand, many new export trades have become established, most notably out of the United States. A significant importer of LNG for many years, fracking altered the American backdrop entirely and new terminals being constructed to handle growing import demand were rapidly switched into export facilities to make United States gas available elsewhere.

Greek heavyweights

Entrepreneurial Greek owners were amongst the first to recognise the opportunities available in new United States LNG export trades, amongst others. Many of the country's best-known shipping names have invested billions of dollars in LNG assets over the last decade. Livanos (GasLog),

Angelicoussis (Maran Gas Maritime), Prokopiou (Dynagas), Marinakis (Capital Gas) and Tsakos (TEN LNG), are amongst them.

There are about 620 ships of more than 40,000m³ in the deep-sea fleet today of which Greek owners control about 140 vessels. According to a VesselsValue analysis late last year, the Greek-controlled LNG fleet is now the world's most valuable, partly because of its low age profile, and is the third largest in the world after China and Japan.

Last November, the consultancy valued Greece's LNG fleet at more than USD 19 billion compared with Japan's (USD 18.1 billion) and China's (USD 10.4 billion). Higher newbuilding prices and rising vessel values are likely to mean that Greek owners are sitting comfortably on appreciating assets.

In absolute numbers, the LNG carrier order book is now larger than it has ever been, with a total of more than 200 ships contracted, of which about 180 are large deep-sea vessels. It now represents 31% of the existing LNG fleet in capacity terms, according to Clarkson Research statistics, which is not as high as the 40% clocked late in 2015. However, at that time, the fleet's total capacity was only about 63 million m³, compared with 103 million m³ today.

The months ahead

Despite the broadly positive outlook, however, LNG rates took a serious tumble in the early weeks of this year. Clarkson estimated the 2021 average for a 160,000m³ tri-fuel diesel-electric vessel working spot, at almost USD 90,000 a day. This had fallen to less than USD 30,000 in February but, by early April, had recovered somewhat to about USD 48,000.

Sector fundamentals, however, are sound. Analysts believe that the impact of Russia's war are likely to be broadly positive for the maritime gas business as consuming nations seek new supplies, where possible. Estimates of 2022 global trade volumes have risen – from a projected increase of 4.5% in February to 6.6% in March.

Europe is expected to account for about 75% of global import growth this year, with much of this extra gas being shipped by sea. However, a significant volume is likely to be American gas that would otherwise have been shipped to consuming nations in Asia. So there may be more cargoes, but LNG carrier demand in the form of tonne-miles out of the United States could remain fairly constant or even decline a little.

Longer-term tonnage demand

In the balance of this decade, there are more than 20 LNG liquefaction projects already under construction and 45 others where front end engineering design (FEED) projects are in progress, according to Clarkson data. There are another 55 liquefaction projects that are proposed, but which have not yet begun the FEED process.

However, with Russian gas imports likely to be phased out by many western consuming nations, the heat is definitely on for these projects to go ahead as quickly as possible. They are likely to create unprecedented demand for new ships.

According to Clarkson figures, around 175 ships of the sector's popular 174,000m³ size are estimated to be required for liquefaction projects that are already under construction. Add in the other group where FEED projects are being undertaken and/or agreements signed and that creates estimated demand for more than 400 more ships of the same size.

These projects, though many have been delayed, are all expected to come on stream this decade. So the demand for shipping capacity – about 580 ships – is not far short of the existing fleet today. If all the projects were to go ahead as expected, then today's fleet of LNG carriers would have to almost double.

Supply constraints

There are some wild cards in the pack, however. The first one – and possibly the hardest to gauge – is the impact of the global energy transition on these projects. Some analysts expect that at least some of them could get spiked as the drive to decarbonise becomes more urgent. Other experts insist that LNG should be viewed as a transition fuel, preparing the way for other forms of low- or even zero-carbon gas in the future.

They point out that synthetic natural gas (SNG), for example, can be manufactured using renewable energy and, depending on its source, can be a carbon-free substitute for fossil fuels. It can be mixed with natural gas or used as an alternative. MAN Energy Solutions has recently completed successful trials of a mixture of SNG and LNG as fuel on a feeder container vessel (see page 20).

The second imponderable is the availability of LNG carrier construction capacity. There are only six specialist builders of these vessels today, a number that is relatively inflexible because of the expertise that is required. The four traditional builders – South Korea's Daewoo, Hyundai, Samsung and China's Hudong – have been joined recently by two more Chinese yards, Dalian and Jiangnan, but analysts estimate that the yards are full until at least 2025. This corresponds with industry background suggesting that shipyards are now negotiating 2026 building slots at significantly higher prices.

Greek owners are well-placed. Confirmed contracts total 26 vessels (see table) but the real number, where the owner is not yet identified, could be much higher. Clarkson statistics reveal that there are close to 50 vessels of 174,000m³ where the contracting party is not yet known.

There may be scope for some or all of these six LNG carrier shipyards to increase production capacity, but probably not ›

LNG vessels are waiting for bunkering in the Corinthian Gulf in Greece Source: Shutterstock

A large number of new LNG carriers will be needed between now and 2030 Source: Shipaat

by much. Past output suggests that, between them, the builders have capacity for about 30 ships a year, a huge shortfall on the number of vessels that could be required this decade. So, if all of the proposed LNG projects were to go ahead, there would have to be substantial investment not only in assets, but in new shipyard capacity to build them.

Impact of IMO regulations

There is one more looming tonnage supply constraint. According to Athens-based Panos Mitrou, Lloyd's Register's Global Gas Segment director, as many as 400 existing LNG carriers are unlikely to comply or could become non-compliant with new IMO regulations over the coming years when the measures enter force next January. Whereas the Energy Efficiency Existing Ship Index (EEXI) is a one-off measure relating to a ship's Energy Efficiency Design Index (EEDI), introduced in 2013, the Carbon Intensity Indicator (CII) will not only assess existing ships from next year onwards, but is a measure that will become steadily stricter over the second half of the decade.

Mitrou recently revealed that as many as 250 steam turbine-powered LNG carriers, as well as about 150 older ships with four-stroke engines, could fall into the lowest CII categories, D and E, because they have poor fuel consumption figures. Much of the existing fleet of older ships, therefore, might require significant capital investment that might not prove viable.

Mitrou also pointed out that LNG carriers initially rated in one of the three top categories – A, B, or C – could subsequently become non-compliant as CII requirements tighten later in the decade. The scale of the necessary investment could limit owners' options to a recycling sale, or conversion to floating storage or a floating storage regasification unit.

The poor carbon performance of these vessels is largely related to their treatment of boil-off gas. Both groups have relatively high boil-off rates – typically around 0.15% of cargo volume for steam turbine vessels, and about 0.1% for older four-stroke units. Ships powered by steam turbines cannot use boil-off gas as fuel and other older vessels do not have the reliquefaction plant on board required to convert boil-off gas back into cargo.

Modern ships, on the other hand, use boil-off gas as fuel or use liquefaction equipment to convert it back into cargo. This explains the substantial difference in day rates between modern LNG carriers and steam-turbine vessels, for example. The differential varies depending on the relative strength of the charter market but rates for steam-turbine ships are often 25-40% less than latest generation vessels such as those operated by Greek owners.

Whether there is scope to overcome these supply constraints or not, existing owners of LNG carriers can view their sector with considerable confidence. Few, however, can do so as confidently as the long-established shipping dynasties in Greece.

LNG CARRIERS (>40,000m³) CURRENTLY ON ORDER FOR GREEK OWNERS

	No.	Size (m³)	Builder		Delivery		
				2022	2023	2024	2025
Capital Gas	3	174,000	Hyundai HI	1	2		
Dynagas	9	200,000	Hyundai HI	2	2	2	3
GasLog	4	174,000	Daewoo SME			2	2
Maran Gas	9	174,000	Samsung HI		1	3	
		174,000	Daewoo SME			2	
		174,000	Daewoo SME				4
Minerva Marine	1	174,000	Samsung HI	1			

Source: Clarkson Research

List of known contracts for LNG carrier newbuildings of Greek owners. There are more on order at various shipyards in Asia; however, the owners are not disclosed.

Greek shipowners veer away from China

COVID RESTRICTIONS | Greek owners have adapted to China's zero-tolerance Covid strategy by switching to repair yards in other locations, according to analysis carried out by Greek ship repair broker, Antonis Kalofonos. However, Chinese repair yards still booked more than half of Greek ship repair demand last year, he said.

Through most of 2021, it was generally thought that Covid-related problems would be over by 2022 and the repair market would revert to better days. However, the Omicron variant resulted in more lockdowns and continued disruption in China's ship repair sector, Kalofonos' noted.

In his analysis, he examined repair trends amongst Greek owners during 2021, embracing not only ocean-going vessels under the Greek flag, but also deep-sea vessels under Greek management. For many of these companies, China has been the repair location of choice for some years. But Covid restrictions there have driven some Greek owners to use repair services in other regions.

In China, significant delays have resulted from restrictions imposed by local authorities obliging vessels to stay at anchor, quarantined for many days prior to docking. The situation was made worse by the requirement for technical personnel – superintendents and other engineering specialists – to obtain special permission to travel to China, and then to stay quarantined at dedicated hotels for 14 days. This was increased to 21 days during the second half of 2021.

This meant that many Greek owners had to postpone drydockings and other routine repairs, with classification societies' approval, in the hope that restrictions would soon be eased. The upside was that in many sectors, they were able to take advantage of firm freight markets. Initially, the repair dockings were postponed for three months, but this later turned into six or even nine months, Kalofonos said.

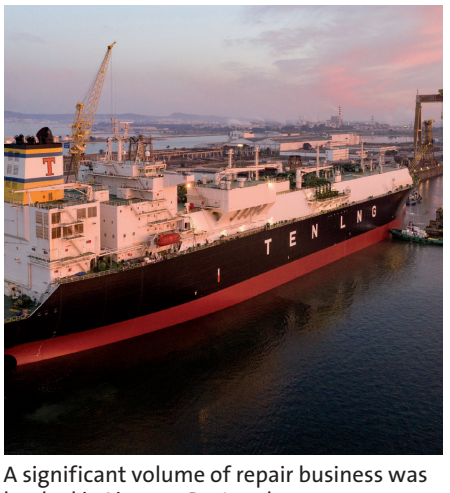
Inevitably, therefore, Greek owners began to seek other repair options. Yards elsewhere in Asia were not an easy option, however, because they could not replace Chinese capacity or match pricing. Some Greek vessels were repaired at yards in South Korea, Vietnam, Philippines, and Thailand, but most of these facilities are relatively small compared to Chinese yards, lacking the same level of expertise, and with higher prices.

In any case, many of the yards were fully occupied with local vessels and little appetite for spot business. Yards in Singapore, where there is usually plenty of capacity, had an opportunity to book Greek business but also faced Covid-related manpower problems, requiring them to reduce repair volumes during 2021. However, outside of China, most Greek repairs were still carried out at Sembcorp Marine and Keppel.

Repair yards in the Middle East were also amongst the beneficiaries of the Chinese situation. The number of Greek vessels repaired at Gulf yards increased significantly in 2021 as Covid restrictions there were not as strict. Kalofonos' analysis revealed that most repairs were carried out in Dubai and Oman, with yards in Bahrain and Qatar following in third and fourth place respectively.

Elsewhere, Greek repair business was successfully booked in parts of Europe. In the Black Sea, for example, most repairs were completed at Constanta and Mydia in Romania, followed by Odessos Shipyard in Bulgaria. Portugal also proved popular amongst Greek owners, with a significant volume of repair business booked at Lisnave in Portugal.

In Greece itself, repair yards won a significant volume of repair business from domestic owners, taking about 10% of Greek repairs overall, Kalofonos said. These were carried out principally at Onex Syros, Chalkis and OLP shipyards. Whether Elefsis and Skaramanga will open again providing Greek owners with more capacity to repair at home remains an open question.



A significant volume of repair business was booked in Lisnave, Portugal Source: Shipaat

GREEK VESSEL REPAIRS – 2021

Zhoushan Area - Central China	15.4%
Shanghai Area - Central China	14.6%
North China	13.7%
Persian Gulf	11.5%
Turkey	11.0%
Greece	10.05%
South China	8.6%
Black Sea	6.1%
Singapore and Far East except China	5.6%
Rest of Europe	2.4%
Others	1.2%

Source: Kalofonos

Turkey ranks number one for Greeks repairing in Europe, the analysis revealed. Most projects were undertaken at Kuzey, Beskitas, Desan, Tuzla, Gemak, and Sefine. However, there is growing concern about the country's future political and financial stability amongst Greek owners.

The lack of repair facilities in Africa and the United States meant that these regions attracted little business. Africa's most successful facility relating to Greek business was Nigerdock in Nigeria.

Analysing China, where Kalofonos estimates 52% of Greek repair business still took place, many owners opted for yards in the south, notably Fujian Huangdong, followed by Yiulian, Wenchong, and Cosco Guangdong. In the Zhoushan region, Cosco Zhoushan, Changhong, Huafeng, Jinhao, and Xinha, completed a range of Greek repair projects, while in the Shanghai area, most Greek repairs were carried out by Chengxi, Cosco Nantong, Chanxing and Huarun Dadong.

To the north of the country, Shanhaiguan Shipyard proved remarkably successful, coming out top in the Chinese league for Greek business, with 11% of all repair contracts. Other notable yards in the north were CUD Weihai and Cosco Dalian, Kalofonos noted.

Apart from routine repairs and survey requirements, the analysis revealed that Greek owners booked fewer scrubber retrofits in 2021, with a relatively small number of installations. Meanwhile, ballast water systems were a priority for many owners, a line of business that is set to peak this year, according to some industry projections.

MoU on repair and modernisation

The signing of the MoU took place virtually

Source: ASRY

ASRY/ONEX | Bahrain-based Arab Shipbuilding and Repair Yard (ASRY) has signed a Memorandum of Understanding (Mou) with ONEX Shipyards Greece to jointly collaborate in the fields of maritime repair, technology, optimisation, modernisation and to explore future business opportunities.

The signing ceremony took place virtually between the two companies in the presence of H.E. Kyriakos Mitsotakis, the Greek Prime Minister who was visiting ONEX shipyards at that time. The MoU was signed by Mazen Matar, managing director and board member of ASRY, and Panos Xenokostas, president and CEO of ONEX Group.

"We are looking forward to the positive results of this MoU, which opens up a new horizon for the development of ASRY's business on an international scale," Mazen Matar said. "For decades now, ASRY has been working with and providing its services to major Greek shipowners. The signing of this MoU today only strengthens these relations and take them to broader dimensions not only for the repair and maintenance of Greek ships, but for entering partnerships with the Greek shipyards. The ONEX Group is one of the leading Greek business groups with a wide range of specialised companies such as ONEX Shipyards whom we look forward to seriously working with soon"

Panos Xenokostas added: "We are very pleased to join forces with the Arabian Gulf's leading maritime and industrial optimisation yard ASRY. Together we can implement the best practices and exchange valuable know-how for the benefit of our shared clientele. Our alliance will leverage our competitiveness to address the global market, so we look forward to start unfolding all this great potential of our cooperation the soonest possible."

Damen cements Greek ties

CORVETTE PROGRAMME | Damen Shipyards Group has signed a Declaration of Intent with the Hellenic Marine Equipment Manufacturers and Exporters (HEMEXPO) group to work more closely in the shipbuilding, marine equipment, and technology sectors. The agreement was signed recently during a visit by HEMEXPO to Damen's headquarters in Gorinchem, Netherlands.

Damen explained in a statement that the declaration involves sharing of information about new marine equipment and shipbuilding technologies, the organisation of networking events to promote cooperation between Damen and Greek suppliers in various projects and, where possible, the inclusion of Greek suppliers in Damen's supply chain.

The shipyard group is currently competing to win the Hellenic Navy's corvette programme, part of a wider naval vessel upgrade that will factor in the involvement of the country's defence and shipbuilding sectors. In a statement, Damen pointed out that it has "unparalleled experience" in working with local industries and workforces and noted that "its relationship with HEMEXPO [is] of crucial importance".

The Damen package is based on the supply of its Sigma 10514 corvettes.

Representatives from Damen Shipyards Group and the Hellenic Marine Equipment Manufacturers and Exports signed the agreement

Source: Damen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