

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

7 July 2022

Drewry paints a bullish picture

LNG shipping stocks have proved resilient, despite global GDP growth uncertainties, high inflation and the ongoing geopolitical crisis, caused by the Russia/Ukraine conflict.

Drewry's LNG shipping equity index increased by 12.7% year-to-date as of 28th June, 2022, outperforming S&P 500, which declined by 19.8% during the same period.

Golar LNG stock price firmed the most (up 87.9%), while Flex LNG increased by 24.8% and Nakilat by 18.2%. Stocks mainly benefited from the rising European LNG demand, as the region tries to switch away from Russian natural gas.

Companies with FSRUs have particularly benefited, as European countries opted for these units over their land-based counterparts. FSRU terminals can be installed in one to two years, compared to three years for LNG import terminals on average.

For example, Golar LNG's share price profited from its exposure to FSRUs, the company's stake in New Fortress Energy (NFE) - a leading FSRU player and high crude oil prices. NFE, which has a fleet of seven FSRUs and in which Golar LNG has a 6% stake, gained 68.5% YTD.

Europe is looking for at least 16 units to replace most of the Russian gas imports, Drewry said,

adding that it believed countries, such as Germany, France and Italy, were willing to pay a high premium to acquire these assets. However, with only 50 FSRUs (as of March, 2022) operating globally, demand strengthened.

The forthcoming IMO EEXI and CII regulations and charterers' desire to secure LNGCs amid the geopolitical tensions, were other factors driving LNG shipping demand.

For example, Flex LNG's latest charters announced last month (see page 10) were for between seven and 10 years, longer than most of the company's existing charters. This suggested an increased preference by charterers to opt for longer term business to cover volatility in a tight supply market.

More FIDs

In the coming years, more FIDs for LNG liquefaction projects should be seen, leading to higher demand for LNGCs. As a result, Drewry said that it expected spot and long-term LNG shipping rates to firm.

In addition, tight LNG supply forecasts and European geopolitical tensions accelerated sale and

purchase agreements (SPAs) for LNG and in turn, FIDs for new LNG projects.

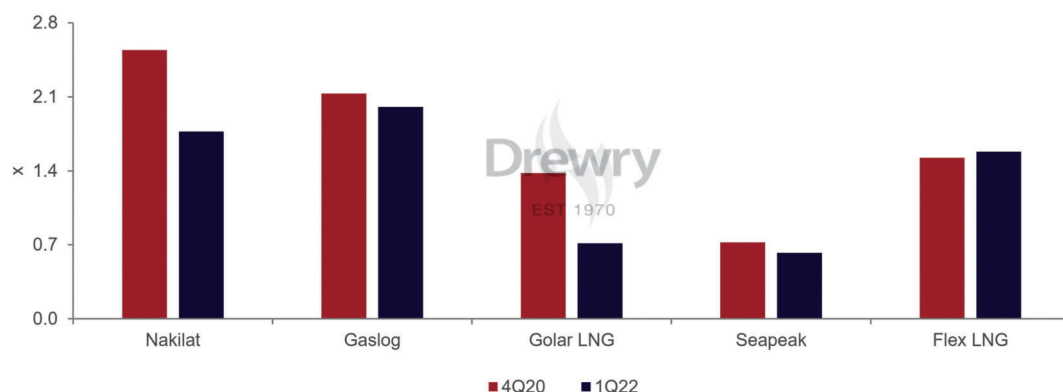
While new ordering momentum was high thus far this year, LNG shipping rates were still predicted to firm, as most of these new orders have firm charters attached.

On the back of the EEXI and CII regulations coming into effect from 1st January, 2023, an increase in conversions of older stream turbine vessels into FSUs for import projects was expected.

While these vessels would need to reduce their speed to comply with the regulations, the very old LNGCs will become uneconomic thus exiting the fleet, affecting capacity and consequently, supporting higher freight rates.

LNG shipping companies reported healthier balance sheets at the end of 1Q22, compared to 4Q20. Furthermore, an increase in LNGC prices since mid-2020 indicated higher borrowings potential, which could be used to acquire new vessels.

Given the strong prospects, it was comparatively easier today to win long-term charters, compared to the previous two years, Drewry said.



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German Government takes over Dynagas LNGC charters

Dynagas has switched three LNGC charters to German interests to avoid falling foul of the various sanctions in place against Russian companies.

The company explained in its first quarter 2022 results roundup (see page 6) that due to the ongoing Russian conflict with Ukraine, the US, European Union (EU), Canada and other Western countries and organisations have announced and enacted numerous sanctions against Russia.

As a result, from 4th April, the 'Amur River', 'Ob River' and 'Clean Energy' were effectively operated by the German Government for an indefinite period of time, having been operated by Gazprom under charter.

This was due to Gazprom Germania (and all of its subsidiaries), the indirect parent of Gazprom Marketing and Trading (GMT Singapore), being placed under the control of the German Federal

Network Agency. Gazprom Germania operates critical energy infrastructure in Germany.

As of 27th June, the Partnership said that to its knowledge, current US and EU sanctions regimes do not materially affect its business, operations or financial condition or of its counterparties.

The LNGCs are currently performing under their obligations under their respective timecharters in compliance with applicable US and EU rules and regulations.

In addition, EU sanctions legislation continued to exclude LNG.

Sanctions legislation was changing and the Partnership said that it continued to monitor the changes applicable to it and its counterparties. ■



Dynagas' 'Clean Energy' is one of three LNGCs taken over by Gazprom Germania

Nong Fab terminal handles first LNG cargo

On 18th June, the Nong Fab LNG regasification terminal, located in Thailand's Mueang Rayong district began offloading its first cargo from an LNGC.

The terminal was developed by Saipem in joint venture with partner CTCL Corp.

The JV, which kicked off on 18th July, 2018, organised an EPC, which involved two 250,000 cu m LNG storage tanks, a gasification facility of 7.5 mill tonnes of LNG per year, a 6 km trestle unloading facility, plus an eco-friendly administrative building.

Its tank capacity is the largest in Thailand and the trestle is claimed to be the world's largest

in the LNG sector.

Saipem said that the offloading of the first LNG was achieved thanks to the expertise, quality and efforts of its team in Thailand, as well as the strong support from the client, PTT LNG.

Full commissioning and start-up are expected this year, thus providing the country with a stable and reliable energy supply, in response to the increasing power demand in Thailand. ■

Chart's technology for Corpus Christi

Project developer, Bechtel has given Chart Industries full notice to proceed (FNTF) on the IPSMR® process and equipment delivery for Cheniere's Corpus Christi Stage III LNG export terminal project.

Simultaneously with the FNTF, Chart booked an order valued at over \$260 mill, which is in addition to the around \$50 mill backlog already agreed, as of 31st March, 2022, for this project.

Chart said that it will begin to receive revenue this year with a multi-year staggered delivery schedule.

The company claimed that its

IPSMR® process technology provided significantly better efficiency and superior performance over other comparable technologies and makes it possible to optimise liquefaction systems over a wide range of site conditions.

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Planned German LNG terminals receive boost

Two of Germany's three planned LNG import terminals have announced significant progress in their development.

For example, the German Federal Network Agency (Bundesnetzagentur, BNetzA) recently issued Stade's Hanseatic Energy Hub (HEH) LNG terminal with an exemption from tariff and network access regulation for 25 years.

This exemption applies to an annual throughput capacity of 13.3 bill cu m of LNG at the River Elbe terminal.

During the review, the regulator did not identify any adverse effects on competition. In addition, BNetzA claimed that HEH strengthened the security of supply and competition in Germany and Europe by increasing supply flexibility through the variety of transport routes to a wide range of gas sources worldwide.

Johann Killinger, HEH Managing Director and co-shareholder, said: "The exemption from regulation gives our customers additional regulatory planning security. Stade will become an energy hub for Germany and Europe."

As part of the binding open season currently underway, parties can register their interest until 15th July, 2022 and submit binding booking requests by 29th July. HEH's capacity available for long term marketing is 12 bill cu m per year.

The company was the first German LNG project to achieve this ruling, which was also agreed with the Federal Network Agency.

In the weeks before the decision, the German regulator took into account the significant increase in LNG demand in Germany and reduced the feed-in tariffs for LNG terminals by 40%. This significantly increased the competitiveness of direct access to the single German gas marketplace.

The decision is still subject to a review by the European Commission.

Wilhelmshaven

Meanwhile, Uniper's Wilhelmshaven LNG terminal's construction work, including the onshore and seaward port infrastructure, can begin.

German State Trade Supervisory Authority Oldenburg had given its approval for an early start, the company explained.

The official construction commencement date of the FSRU-based LNG terminal was 4th July, 2022. Up to 7.5 bill cu m of natural gas per year will be handled through this terminal, as quickly as possible, Uniper added.

This amounts to about 8.5% of Germany's current gas demand per year. Commissioning is earmarked for the winter 2022/2023.

Klaus-Dieter Maubach, Uniper CEO said: "The rapid approval for the early start of construction

shows the importance of the LNG terminal in Wilhelmshaven for the country's security of supply. This cannot be taken for granted - above all, it shows what is possible when society, industry and politics pull together.

"We are proud to be able to make a significant contribution to Germany's independence in natural gas supplies at our site in Wilhelmshaven, hopefully before the end of the winter 2022/2023. In the medium and long term, our Green Wilhelmshaven hydrogen project will set the course for an even more climate-friendly energy supply," he added. ■



An impression of the Wilhelmshaven FSRU

Asia to lead world regasification capacity

Asia is set to continue to dominate the global LNG regasification capacity additions.

According to GlobalData, the region will contribute around 75% of the total LNG liquefaction capacity additions between 2022 and 2026.

GlobalData's latest regasification industry report, 'LNG Regasification Terminals Capacity and Capital Expenditure (CapEx) Forecast by Region, Countries and Companies including details of New Build and Expansion (Announcements and Cancellations)

Projects, 2022-2026', revealed that Asia is expected to contribute the highest capacity additions from newbuild and expansion projects during the forecast period, amounting to 17.7 trill cu ft.

Himani Pant Pandey, GlobalData Oil & Gas Analyst, commented: "China is expected to drive the LNG regasification additions in Asia through 2026, due to the ever-growing demand for natural gas from both industrial and

residential sectors.

"A total of 27 newbuild and expansion projects are expected to start operations during the forecast period in China. Tangshan II is the largest upcoming project in the country, with a capacity of 584.4 bill cu ft by 2026."

GlobalData identified Europe as the second highest contributor to the global regasification capacity additions, accounting for around 16% by 2026.

The German Stade project will drive European newbuild LNG regasification capacity contributing 469.5 bill cu ft by 2026.

Africa ranked third globally, contributing roughly 3% of the global LNG regasification capacity additions during the forecast period.

Morocco's Jorf Lasfar is the largest forthcoming regasification terminal in the region, with 247.1 bill cu ft capacity by 2026. ■



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Marubeni to join South Australian LNG import project

Venice Energy, the company behind the proposed South Australian LNG import terminal, has signed an MoU with Japanese trading and investment house, Marubeni.

Under the agreement, a joint venture partnership will be created for the A\$260 mill project.

Venice Energy Managing Director, Kym Winter-Dewhirst said the company remains on track to begin on-ground works in the second half of this calendar year.

"Through this agreement, Marubeni will bring significant skills and expertise to the project and ensure a more secure pathway forward as the energy infrastructure is brought into operation.

"At the same time, we will work with Marubeni to develop a long-term partnership that will extend over the next decade, as we open up southeast Australia to international gas supplies and ensure this piece of critical state infrastructure plays its part in securing some of our future energy needs.

"Importantly this is a project that has not required tax payer funding," he explained.

The planned facility will in-

clude two berths to be located in the outer harbour channel at Port Adelaide, along with an FSRU, cryogenic piping and associated infrastructure. LNG will be supplied via ship with the gas flowing to both the South Australian and Victorian grid networks.

The project will take an estimated 12 months to complete and operate for the next 10 years in support of Australia's transition to a renewable energy landscape, the company said.



Venice Energy CEO, Kym Winter-Dewhirst

NextDecade agrees SPA with China Gas

NextDecade Corp has signed a 20-year sale and purchase agreement (SPA) with China Gas Hongda Energy Trading.

This calls for the supply of 1 mill tonnes per annum of LNG from NextDecade's Rio Grande LNG export project's (RGLNG) second train located in Brownsville, Texas.

The LNG will be indexed to Henry Hub and delivered on a free-on-board (FOB) basis. RGLNG's second train is expected to start commercial operations in 2027.

"We are pleased to announce

the signing of this long-term SPA with China Gas, one of China's largest natural gas distribution companies supplying approximately 43 mill households across China," said Matt Schatzman, NextDecade's Chairman and CEO. "This SPA demonstrates the continued acceleration of RGLNG's commercial momentum and highlights our successful strategy of offering customers flexible, competitive and low carbon-intensive

LNG."

"The signing of this long-term SPA with NextDecade will further optimise China Gas's portfolio, expand resource supply channels, and ensure that we can meet our customers' growing demand for quality, reliable and low carbon content energy. This SPA demonstrates China Gas's determination to unswervingly implement China's national low-carbon energy development strategy,"

added Yalong Qi, General Manager of China Gas Hongda Energy Trading.

Based on current expected demand for LNG and assuming the gaining of further LNG contracting and financing, NextDecade said that it anticipated making a positive final investment decision (FID) on up to three trains of the export project in the second half of this year, with FIDs of its remaining trains to follow.

Gunvor to expand Pertamina's LNG portfolio

PT PGN Tbk, as Pertamina Subholding Gas (PGN), has signed a partnership agreement with Gunvor Singapore.

Under the agreement, PGN and Gunvor will execute sales and purchase of LNG in international markets and expand their co-operation in other businesses.

Specifically, PGN has entered into a Master Sales and Purchase Agreement (MSPA) and Confirmation Notice (CN) with Gunvor to supply LNG.

The supplies will complement Gunvor's LNG portfolio, which is the largest amongst independent trading companies, the company claimed.

"This collaboration is part of

Pertamina's strategy to monetise its LNG portfolio, and our companies' co-operation holds considerable potential for other areas of collaboration. We already look forward to opening up other business opportunities," said Pertamina Subholding Gas PT PGN Tbk CEO, M Haryo Yudianto.

PGN's Director of Strategy and Business Development, Heru Setiawan, said that synergy with Gunvor opens up opportunities to pursue LNG business in both emerging and developed LNG markets, building on the traditional

destinations to which Pertamina has access.

"Partnering with Gunvor enables us to enter new markets where we previously had limited access. This collaboration is unique, and has the potential to become a solution in providing energy for regional and even other international destinations," he said.

"We are pleased to enter into our first LNG transaction with PGN, which will come in addition to our existing relationship with the Pertamina Group. We look for-

ward to further co-operation with PGN to enable competitive and reliable LNG deliveries to the global market. This transaction will establish a new chapter between our companies and enable wider co-operation worldwide," said Ksenia Alleyne, Gunvor's Co-Head of LNG Trading.

While PGN's business portfolio is dominant in Indonesia, to enter international market, PGN required strategic partners to accelerate penetration and commercialisation, the company explained.

Dynagas LNG Partners reports increased income

Dynagas LNG Partners has been boosted by an \$8 mill increase in net income to \$23.9 mill for the first quarter of this year, compared to \$15.9 mill for the corresponding quarter of 2021.

This rise was mainly attributable to the increase in the gain on an interest rate swap transaction, but was partly offset by an increase in the vessels' operating expenses and drydocking and special survey costs, due to the scheduled docking of the 'Clean Energy', which commenced on 16th March, 2022.

Adjusted net income for 1Q22 was \$10 mill, compared to \$10.6 mill for 1Q21, which represents a net decrease of \$0.6 mill. This was mainly due to the increase in the vessels' operating expenses.

Dynagas also reported that average daily hire gross of commissions rose to around \$63,130 per day per vessel during the period, compared to about \$62,250 per day per vessel for 1Q21. During both periods, the Partnership's vessels operated at 100% utilisation.

Vessel operating expenses were \$7.6 mill, which corresponded to a daily rate per vessel of \$13,998 in

1Q22, compared to \$6.9 mill, or a daily rate per vessel of \$12,739 in 1Q21.

Rising costs

This increase was mainly attributable to a rise in planned technical maintenance and vessels' supply costs in 1Q22.

Adjusted EBITDA for the period was \$22.9 mill, compared to \$23.9 mill for 1Q21.

For 1Q22, the Partnership reported basic and diluted earnings per common unit and adjusted earnings per common unit, of \$0.57 and \$0.19, respectively, after taking into account the distributions relating to the Series A preferred units and the Series B preferred units on its net income/adjusted net income. Net income and earnings per common unit (basic and diluted) were \$23.9 mill and \$0.57, respectively.

CEO, Tony Lauritzen, said: "All six LNG carriers in our fleet are operating under their respective

long-term charters with international gas producers with an average remaining contract term of 6.6 years. As of 27th June, 2022, our estimated contracted revenue backlog was \$0.98 bill.

"The earliest contracted re-delivery date for any of our six LNG carriers is in the third quarter of 2023 ('Arctic Aurora'), with the second earliest contracted re-delivery date in the first quarter of 2026 ('Clean Energy'), both subject to the terms of the applicable charter.

"For the first quarter of 2022, we reported net income of \$23.9 mill, earnings per common unit of \$0.57, adjusted net income of \$10 mill and adjusted EBITDA of \$22.9 mill. While future results may vary, we are pleased to report 100% utilisation for our fleet for the eighth quarter in a row.

"We are in a period of high demand for LNG shipping, which we believe will benefit the Partnership.

"We continue our strategy of using our cash flow generation to deleverage our balance sheet and reinforce our liquidity so as to build equity value. This, we believe, will enhance our ability to pursue future growth initiatives," he concluded.

As of 31st March, 2022, the Partnership reported total cash of \$106.6 mill, including \$50 mill of restricted cash.

Outstanding debt under its \$675 mill credit facility amounted to \$555 mill, gross of unamortised deferred loan fees and including \$48 mill, which was repayable within a year.

As of the same date, the Partnership had unused availability of \$30 mill under its interest free \$30 mill revolving credit facility with its sponsor, or the \$30 mill revolving facility, which was extended on 14th November, 2018, and is available to the Partnership at any time until November, 2023. ■

FLNG finance MoU signed

Nigerian offshore interest UTM Offshore has signed a Memorandum of Understanding (MoU) to develop West African sub-Sahara's first FLNG production unit.

The MoU was signed with the African Export-Import Bank (Afreximbank) to raise an initial \$2 bill with a commitment for another \$3 bill.

This will go towards UTM taking a final investment decision (FID) on the project, the company explained and follows a pre-FEED agreement signed by the developer in May.

UTM said that it intends to reduce gas flaring, attract major investments and also create trade and economic markets for natural gas exports.

The company also explained that it plans to acquire and finance a 1.2 mill tonnes per annum FLNG with a capacity to process

176 mill cu ft per day of natural gas and condensate.

The block for which the FLNG is earmarked is located in the Yoho Field, operated by a joint venture involving the operator ExxonMobil (40% equity stake) and Nigerian National Petroleum Corp (NNPC) with 60%.

It was estimated that the FLNG will be completed by 2026 and will be fully equipped with a turret and mooring systems, gas pre-treatment modules, LNG production modules, living quarters, a self-contained power generation system and utilities, as well as capacity for LNG storage and offloading. ■

Chevron opts for Venture Global LNG

Venture Global has executed two long-term Sales and Purchase Agreements (SPAs) with Chevron USA.

They are for the purchase of a total of 2 mill tonnes per annum of LNG for 20 years.

Under the agreements, Chevron will purchase 1 mill tonnes each from the Plaquemines LNG facility and from CP2 LNG.

Plaquemines LNG has been under full construction since August, 2021 and CP2 LNG's construction is scheduled to start next year.

"Venture Global is delighted to begin a long-term LNG agreement with Chevron, one of the world's premier integrated energy companies," said Venture Global's CEO, Mike Sabel. "This is an outstanding addition to our growing customer portfolio at CP2. Our innovative and proven approach for the de-

ployment of LNG trains enables us to deliver energy to our customers faster and at the lowest cost.

"As we prepare to roll out trains number 55 through 90 at CP2, we are honoured that this competitive advantage has been recognised by Chevron," he added.

"Our agreements with Venture Global allow Chevron to deliver affordable, reliable, and ever cleaner energy to meet long-term demand," said Colin Parfitt, Chevron Vice President, Midstream. "This is part of Chevron's strategy to connect and strengthen relationships across the value chain - from natural gas production and lower carbon initiatives, to transportation, marketing and delivery to the customers who need it most." ■

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LNGC to be used in carbon capture study

A study into carbon capture and the global supply chain is to be carried out by ABS and Texas A&M University at Qatar (TAMUQ) in a joint venture using an LNGC.

This project will research the potential of carbon capture technology at sea, exploring CO₂ reduction strategies, as well as emerging on-shore CO₂ reduction technology and establish a model for effective CO₂ capture on an LNGC.

The study will also examine the effect of the energy transition toward a hydrogen-based economy on processing, emissions and shipping across Qatar as an energy exporter.

"Carbon capture is a technology with significant potential to contribute toward the marine and offshore industries' sustainability goals. ABS is committed to supporting its safe adoption by the industry. This work with leading research universities in Texas and Qatar is an important step toward making this technology a viable strategy for operators," said Pantelis Skinitis, ABS Director, Qatar Business Development.

Dr César Oc-tavio Malavé, Dean of TAMUQ, added, "Texas A&M is proud to partner with local, regional and international collaborators from various industries and sectors to help realise sustainable solutions to real-world challenges in Qatar and around the world.

"These interdisciplinary collaborations are vital and allow us to innovate to meet emerging needs and grand challenges, and we are grateful to our friends at ABS for working with us on this important project," he said.



Left to right - HE Dr Mohammed Bin Saleh Al-Sada, Texas A&M University at Qatar Adjunct Professor and Chairman, Joint Advisory Board; Dr César Malavé, Texas A&M University at Qatar Dean and Pantelis Skinitis, ABS Director, Business Development Qatar

It will capitalise on research performed by the Chemical Engineering Programme at TAMUQ over the past decade and is led by Dr Mamoun Al-Rawashdeh, Dr Dhabia Al-Mohannadi and Dr Patrick Linke.

The project's advisory board will be chaired by HE Dr Mohammed bin Saleh Al-Sada. ■

Wood wins Cameron LNG contract

Aberdeen, UK-based John Wood Group has won a contract to perform owner's engineering services for the Cameron LNG expansion project.

This contract will cover activities relating to the development of a fourth LNG train, with a planned production capacity of around 6.75 mill tonnes per annum and improved production from the first three trains, which currently deliver 12 mill tonnes per annum of LNG export capacity.

John Day, Wood's Senior Vice President of Conventional Energy, Americas, said: "LNG has come into sharp focus as countries look to ensure energy security, particularly with the disruption to European energy supplies. The US is positioned to become the largest LNG producer in the world and projects such as this one will enable the rapid and much-needed increase in the supply of cleaner natural gas.

"We are proud to continue our involvement with such a strategic project in terms of increasing the supply of cleaner, reliable, and more affordable energy to the world. Our knowledge of the facility, combined with our wealth of gas monetisation expertise and experience in delivering world-class LNG projects, will enable us to successfully execute the scope entrusted to us," he said.

Located about 25 km north of the Gulf of Mexico, Cameron LNG was initially envisaged as a regasification terminal before evolving into natural gas liquefaction. ■

GTT wins smart shipping contract and more design orders

GTT has signed a contract for its smart shipping solutions, GTT Digital, to be fitted to more than 30 vessels in two years.

The undisclosed buyer was said to be a major player in the shipment of liquefied gases.

Under the contract, the fitting of sensors, automatic data collection systems and intelligent software to manage and optimise the energy and environmental performance of the vessels will be installed on each ship.

Also included will be periodic consulting support by GTT Digital's experts who will perform customised data analysis and produce dedicated operational reporting.

Philippe Berterottière, GTT Chairman and CEO, said: "We are delighted to sign this significant contract for our Smart Shipping technology, GTT Digital, which contributes to making maritime transport greener. This partnership underlines GTT's ability to provide

innovative turnkey solutions that adapt to the needs of each shipowner and operator, including real-time decision support for crews on board and ashore."

GTT has also reported orders from two Chinese shipyards.

First, Dalian Shipbuilding Industry Co (DSIC) ordered the tank design for two 175,000 cu m ships on behalf of CMES LNG Carrier Investment.

They represent DSIC's first LNGC orders.

The two ships will each be fitted with the Mark III Flex membrane containment system and their deliveries are scheduled for the third quarter of 2025 and the first quarter of 2026, respectively.

The second order came from Jiangnan for the tank design of three new LNGCs.

They will also have a cargo capacity of 175,000 cu m each and will be fitted with the Mark III Flex membrane containment system.

Deliveries of these vessel are scheduled for the third quarter of 2025 and the second quarter of 2026.

In addition, GTT received an order from Samsung Heavy Industries for the tank design of two new LNGCs, ordered by an European shipowner.

These two LNGCs will have a tank capacity of 174,000 cu m per ship and will similarly be fitted with the Mark III Flex membrane containment system.

Deliveries of these vessels are scheduled for the last quarter of 2024 and the first quarter of 2026, respectively. ■

More Wärtsilä systems for Knutsen LNGCs

Wärtsilä is to supply three more Compact Reliq reliquefaction plants to Haugesund-based Knutsen OAS Shipping, bringing the total to eight.

Two were originally ordered in 2020 and another three in 2021.

One system is being installed on each of the eight LNGCs being built at Hyundai Heavy Industries (HHI).

Compact Reliq is based on the reversed nitrogen Brayton cycle refrigeration technology. The solution is designed to reliquefy the boil-off gas (BOG) from gas carriers and LNG bunker vessels, and for keeping the cargo cool under all operating conditions.

It also allows a portion of the BOG to be used as fuel for the ships' engines, with the excess able to be sold as part of the LNG cargo.

"We are expanding our fleet of LNG carriers and having them fitted with Wärtsilä Compact Reliq, nitrogen as cooling medium is safe and simplifies the operation. In

addition we expect less maintenance, due to the oil free magnetic bearing compressors," said Jarle Østenstad, Newbuilding Director, Knutsen OAS Group.

"These orders strengthen even more our relationship with both Knutsen OAS and HHI. The Compact Reliq is a system that perfectly meets the needs of the market, and these orders are a clear endorsement of that fact," claimed Lasse Bergerud-Wichstrøm, Wärtsilä Gas Solutions' Sales Manager.

The solution uses safe and easily obtainable commercial grade nitrogen. It is instrumented for remote monitoring and online operational support as part of Wärtsilä's Operational Performance Improvement and Monitoring (OPERIM) programme.



A unit seen coming out of the factory ready for shipment

NEWS NUDGE

Freeport LNG eyes end of year return

Last week, Freeport LNG Development estimated that the resumption of partial liquefaction operations would occur in early October, 2022, following the shutdown caused by a fire.

With the commencement of partial operations, the company added that it expected to be able to deliver substantially all baseload production volumes.

Freeport LNG also said that it had targeted the year-end for a return to full production.

At the same time, the company responded to a 'Notice of Proposed Safety Order' issued by the US Pipeline Hazardous Materials Safety Administration (PHMSA) against the operator.

In response, the company said that safety has always been, and will continue to be, the highest priority for Freeport LNG.

Since the 8th June incident,

the company has worked in co-operation with all local, state and federal officials regarding the incident response, investigation, and safe resumption of liquefaction operations.

This will continue, particularly with PHMSA, the US Federal Energy Regulatory Commission (FERC) and the United States Coast Guard (USCG), to obtain the necessary approvals to safely restart operations, the company stressed.

Golar sells management arm to CoolCo

Golar LNG has finally sold the LNGC management organisation responsible for the technical and commercial management and third party service provider to Cool Company (CoolCo).

CoolCo paid the agreed purchase price of \$5 mill in cash for the shares, plus \$1.5 mill in working capital.

As part of the deal, around 600 maritime and office-based personnel have become CoolCo employees.

In addition, Richard Tyrrell took over as CEO of CoolCo, replacing interim CEO, Karl Fredrik Staubo.

PLL still seeking cargoes

State-controlled Pakistan LNG Ltd (PLL) has tendered for 10 LNG cargo bids for delivery from July through September.

Suppliers were asked to bid by 7th July on a delivered ex-ship (DES) basis for 140,000 cu m cargoes.

The first cargo should be delivered on 25-26th July and the last on 19th-20th September.

According to local media, Pakistan is currently suffering from fuel shortages, particularly in the power sector, as electricity use spikes during the hot summer months, leading to power outages.

The Pakistani Government is to set up a commission to examine the cause of the energy crisis.

Last month, PLL reportedly received a single bid from

QatarEnergy following an import tender for a cargo during the 30th-31st July window at \$39.80 per MMBtu.

This was part of a four cargo tender, which was later cancelled to protect the country's foreign exchange reserves.

Enagas to co-operate with Albargaz

At the end of last month, a Memorandum of Understanding (MoU) was signed in Madrid between Albanian energy company Albargaz and Spanish LNG terminal and energy giant Enagas.

This agreement outlines the opportunities for co-operation on a number of projects, including the Vlora LNG terminal and the small scale LNG distribution programme, plus other initiatives.

Enagas will also analyse the projects' feasibility.

In short, Enagas will become involved in the Albanian Government's energy projects, which will help the country in its quest to become a regional energy hub.

SENER to upgrade Gate

Spanish engineering group SENER has won another contract to upgrade Rotterdam's LNG Gate Terminal.

SENER was one of the original companies responsible for Gate's turnkey construction in 2011 and will further participate in an extra send-out (ESO) project.

This consists of increasing the plant's natural gas send-out capacity by another 1.5 bill cu m per year, bringing the total nameplate capacity to 13.5 bill cu m from the current 12 bill.

SENER will carry out engineering services, as well as the procurement and construction

management (EPCM) of the expansion work, which consists of the installation of a vaporiser and a high-pressure LNG pump, together with its associated facilities, such as equipment foundations, inter-connection of piping and racks, power supply and process control.

In addition, a new seawater pump will be fitted.

As part of the EPCM, SENER will develop the detailed engineering programme, as well as taking care of the procurement

management for all of the supplies, plus overseeing construction supervision.

This new agreement follows another contract signed in 2020 to carry out engineering services, as well as procurement and construction management (EPCM) of the turnaround, completed in 2021.

SENER's Director of Engineering Services, Arturo Olivé, said: "Gate terminal is a key LNG hub located in Rotterdam, in which SENER has

been closely involved since its inception, as it was part of the construction consortium and, since its commissioning, has continued to be a supplier of successive improvements services to the plant.

"This new project, for which the client Gate Terminal BV once again relies on SENER, will increase the import capacity of natural gas via LNG to northwest Europe and, therefore, advance on the path to energy independence," he said. ■

NEWS NUDGE

'Prelude' cargo loadings hit again

LNG cargoes from Shell's 'Prelude' FLNG are being disrupted once again, this time by a strike.

Shell has confirmed to newswires that while 'Prelude' will remain in production, LNG shipments will be delayed until at least mid-July.

'Prelude' restarted shipping LNG following a four-month shutdown just over three months ago, due to a major power failure.

The FLNG's workers started 12 days of industrial action on 10th June over a pay dispute. They are due to vote on a new offer from Shell on 7th July, local media said.

Ships - Charters and newbuildings

Flex LNG has announced new timecharter agreements for 'Flex Rainbow', 'Flex Enterprise' and 'Flex Amber'.

The company explained that these vessels were the three open positions being marketed.

Flex LNG and the charterer of 'Flex Enterprise' and 'Flex Amber' have agreed to replace the existing variable timecharters, which were due October, 2023 and March, 2024 with new

fixed hire agreements with a duration of seven years.

Their commencement will be in the third quarter of 2022 with expiry in 3Q29.

In addition, Flex LNG and the charterer of 'Flex Rainbow', a global trading company, have agreed a new 10-year fixed rate charter. This timecharter will start in direct continuation of the existing charter, due to expire in January, 2023 and will terminate in early 2033.

Each of the new agreements remain subject to final documentation and customary closing conditions.

Øystein Kalleklev, Flex LNG Management CEO, commented: "We are today happy to announce that we have agreed three timecharters for 'Flex Rainbow', 'Flex Enterprise' and 'Flex Amber'. Altogether, this adds about \$750 mill of fixed backlog, reflecting the strong period market today.

"Not only are we agreeing long term employment for these three ships, but we are also pleased that we are doing so with the existing charterers, which have been repeat customers. This demonstrates the attractiveness of not only of the ships, but also the high service level of professionalism of the entire organisation from seafarers to the people onshore.

"With these new contracts,

we have substantially increased our earnings backlog. After these new contracts, our firm minimum backlog is 54 years with another 28 years of possible extension options. The high degree of earnings backlog will further strengthen our ability to continue to pay attractive dividends, making Flex LNG an attractive investment and a place to work at," he said.

Meanwhile, Höegh LNG Holdings has confirmed that Australian Industrial Energy (AIE) has lifted its final subjects for the FSRU contract signed last year.

The FSRU charter is for 15 years with AIE having early termination options after year five and 10.

In addition, AIE is entitled to time the start-up of the contract for between 2023 and 2025, depending on the com-

pany's requirements.

In the newbuilding sector, at the end of last month, Daewoo Shipbuilding & Marine Engineering (DSME) announced that it has cancelled a second LNGC contract out of three originally ordered.

This vessel was believed to be under construction for the Arctic LNG 2 project and the European shipowner, said to be attached to Sovcomflot, failed to make the interim payment by the due date.

DSME also said that it would revise the number of vessels it is contracted to deliver under the contract signed on 9th October, 2020 from two down to one LNGC.

On 18th May, the company, which ordered the ships, did not make the interim payment for the first vessel, leading to the cancellation of this contract. ■



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Tianjin to benefit from Trelleborg's systems

Trelleborg Marine and Infrastructure has supplied docking and mooring equipment, plus the ship/shore links, for phase two of the expansion of Sinopec's Tianjin LNG receiving terminal.

Shun OuYang, Director of the Material Department at Sinopec's Tianjin LNG, commented: "Our expanded terminal, which is the first Chinese LNG terminal with two berths in operation, will increase its annual LNG import and regasification capacity from six to 10.8 mill tonnes per annum.

After supplying phase one of the development of the terminal in 2016 with a range of docking and mooring equipment, we had no hesitation in turning to Trelleborg once again. Trelleborg's vast experience and track record in supplying high-performance solutions to high-profile, demanding projects across the globe, meant that we had no doubt that they would deliver," he said.

Expansion phase

Trelleborg has supplied quick release hooks (QRH), docking aid system, ship/shore links and environmental monitoring system for Tianjin LNG's latest expansion phase.

Richard Hepworth, Trelleborg Marine and Infrastructure President, said: "We are extremely proud to have been selected to further strengthen our relationship with Sinopec's Tianjin LNG receiving terminal and continue to play an important part in a landmark project that will serve the increased natural gas demand in the Beijing/Tianjin/Hebei region, helping to support the transition to cleaner energy and a more sustainable future for northern China."

QRHs are the foundation for



Trelleborg has seen significant success in China

today's modern mooring systems. Installed since 1972 worldwide, they enable mooring lines to be safely secured, and quickly and easily released even when loaded to their safe working load limit.

With sizes and configurations to suit all applications, they feature enhance safety, reliability and ease of use, while ensuring compliance to international standards, the company claimed.

Trelleborg's docking aid system greatly increases situational awareness, providing vital information such as distances, angles and speeds to pilots and jetty operators to ensure the vessel is safely docked, significantly reduc-

ing the risk of damage from a collision between the ship and jetty.

A typical system consists of two laser sensors, a controller, a central computer and several data display options that the pilot and master can use to monitor and adjust the approach during the push-up phase of the docking.

Trelleborg has supplied ship/shore link systems since 1996 and with over 1,000 contracted, is the leading supplier of these systems worldwide. The latest system, which provides a significant improvement over previous operator interfaces and simplifies control and set-up, is just one of a range of systems that can be sup-

plied as a stand-alone unit for existing tonnage or for integration with other key safety and monitoring systems, the company said.

Terminals are typically designed and operated with set limits for MetOcean conditions to ensure the safety of the vessel and the terminal. Real-time MetOcean data and trends assist operators to maximise their berth's operating window by providing measurements at the berth.

Trelleborg's environmental monitoring systems are claimed to ensure weather, tide, current and wave information can be provided to the staff at the berth, at the operations centre, or to the vessel. ■

Monthly Large LNGC Values*

Newbuildings (174,000 cu m)	\$225.78 mill
Five years old (174,000 cu m)	\$176.75 mill
Total Fleet (546 ships)	\$69.80 bill
Orderbook (228 ships)	\$53.09 bill

*Source: VesselsValue (22/06/22)

*The above is updated each month courtesy of VesselsValue

LNG rate assessments

Spot market (155,000-165,000 cu m)

Region	This week	Change*
East of Suez	\$55,000	-\$5,000
West of Suez	\$46,000	-\$14,000
12 mos T/C	\$135,000	-

*Since last report (23/06/22)

Source: Fearnleys (06/07/22)

WORLD LNG CARRIER ORDERBOOK

Name	Owners	Yard	Ordered	Capacity	Propulsion	Delivery
Minerva Amorgos	Minerva Marine	Samsung	1/1/2019	174,000	XDF	Q4, 2022
Clean Cajun	Dynagas	Hyundai Heavy	5/22/2019	200,000	XDF	Q2, 2022
Clean Copano	Dynagas	Hyundai Heavy	5/22/2019	200,000	XDF	Q3, 2022
Orion Star	JP Morgan	Samsung	6/1/2019	174,000	XDF	Q2, 2022
Orion Sun	JP Morgan	Samsung	6/1/2019	174,000	XDF	Q2, 2022
Prism Diversity	SK Shipping	Hyundai Heavy	6/29/2019	180,000	XDF	Q3, 2022
Asterix I	Capital Gas	Hyundai Heavy	8/1/2019	174,000	XDF	Q1, 2023
Hudong-zhonghua H1829a	CSSC	Hudong-Zhonghua	8/1/2019	174,000	XDF	Q1, 2024
Hudong-zhonghua H1830a	CSSC	Hudong-Zhonghua	8/1/2019	174,000	XDF	Q2, 2024
Alexey Kosygin	Smart LNG	Zvezda SSK	9/1/2019	172,600	TFDE - Azipod	Q1, 2023
Pyotr Stolypin	Smart LNG	Zvezda SSK	9/1/2019	172,600	TFDE - Azipod	Q3, 2023
Sergei Witte	Smart LNG	Zvezda SSK	9/1/2019	172,600	TFDE - Azipod	Q4, 2023
Zvezda 044	Smart LNG	Zvezda SSK	9/1/2019	172,600	TFDE - Azipod	Q4, 2023
Zvezda 045	Smart LNG	Zvezda SSK	9/1/2019	172,600	TFDE - Azipod	Q4, 2023
Bw Cassia	BWGas	DSME	10/1/2019	174,000	MEGI	Q3, 2022
Bw Iris	BWGas	DSME	10/1/2019	174,000	MEGI	Q3, 2022
Samsung 2364	MISC	Samsung	10/10/2019	174,000	XDF	Q1, 2023
Samsung 2365	MISC	Samsung	10/10/2019	174,000	XDF	Q1, 2023
Vivit Arabia Lng	H-Line	Hyundai Samho	12/1/2019	174,000	XDF	Q2, 2022
Alicante Knutsen	Knutsen	Hyundai Samho	12/18/2019	174,000	XDF	Q4, 2022
Huelva Knutsen	Knutsen	Hyundai Samho	12/18/2019	174,000	XDF	Q4, 2022
Malaga Knutsen	Knutsen	Hyundai Samho	12/18/2019	174,000	XDF	Q3, 2022
Santander Knutsen	Knutsen	Hyundai Samho	12/18/2019	174,000	XDF	Q2, 2022
Sm Albatross	Korea Line	Hyundai Heavy	12/18/2019	174,000	XDF	Q3, 2022
Sm Bluebird	Korea Line	Hyundai Heavy	12/18/2019	174,000	XDF	Q4, 2022
Lng Prosperity	JP Morgan	Hyundai Heavy	12/19/2019	174,000	XDF	Q4, 2022
Orion Song	JP Morgan	Hyundai Heavy	12/19/2019	174,000	XDF	Q4, 2022
Grace Freesia	NYK	Hyundai Samho	12/27/2019	173,000	XDF	Q2, 2022
Lagenda Serenity	K-Line	Hudong-Zhonghua	1/1/2020	79,960	XDF	Q2, 2022
Lagenda Suria	K-Line	Hudong-Zhonghua	1/1/2020	79,960	XDF	Q2, 2022
Hudong-zhonghua H1831a	ULT	Hudong-Zhonghua	6/30/2020	174,000	XDF	Q3, 2022
Hudong-zhonghua H1832a	ULT	Hudong-Zhonghua	6/30/2020	174,000	XDF	Q1, 2023
Hudong-zhonghua H1833a	ULT	Hudong-Zhonghua	6/30/2020	174,000	XDF	Q2, 2023
Lng Harmony	JP Morgan	Hyundai Heavy	7/20/2020	174,000	XDF	Q3, 2023
Orion Sage	JP Morgan	Hyundai Heavy	7/20/2020	174,000	XDF	Q3, 2023
El Ferrol Knutsen	Knutsen	Hyundai Samho	7/30/2020	174,000	XDF	Q4, 2022
Extremadura Knutsen	Knutsen	Hyundai Samho	7/30/2020	174,000	XDF	Q1, 2023
Daewoo 2514	Sovcomflot	DSME	8/1/2020	172,500	TFDE - Azipod	Q1, 2023
Daewoo 2515	Sovcomflot	DSME	8/1/2020	172,500	TFDE - Azipod	Q2, 2023
Daewoo 2516	Sovcomflot	DSME	8/1/2020	172,500	TFDE - Azipod	Q3, 2023
Daewoo 2517	MOL, COSCO	DSME	8/1/2020	172,500	TFDE - Azipod	Q3, 2023
Daewoo 2518	MOL, COSCO	DSME	8/1/2020	172,500	TFDE - Azipod	Q4, 2023
Daewoo 2519	MOL, COSCO	DSME	8/1/2020	172,500	TFDE - Azipod	Q4, 2023
Zvezda 046	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q3, 2024
Zvezda 047	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q3, 2024
Zvezda 048	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2024
Zvezda 049	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2024
Zvezda 050	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2024

Name	Owners	Yard	Ordered	Capacity	Propulsion	Delivery
Zvezda 051	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q3, 2025
Zvezda 052	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q3, 2025
Zvezda 053	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2025
Zvezda 054	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2025
Zvezda 055	Smart LNG	Zvezda SSK	8/1/2020	172,600	TFDE - Azipod	Q4, 2025
Sm Golden Eagle	Korea Line	Hyundai Heavy	8/12/2020	174,000	XDF	Q3, 2023
Sm Kestrel	Korea Line	Hyundai Heavy	8/12/2020	174,000	XDF	Q4, 2023
Grazyna Gesicka	Knutsen	Hyundai Heavy	10/30/2020	174,000	XDF	Q2, 2023
Lech Kaczynski	Knutsen	Hyundai Heavy	10/30/2020	174,000	XDF	Q1, 2023
Samsung 2425	Maran Gas Maritime	Samsung	11/1/2020	174,000	XDF	Q3, 2023
Hyundai Samho 8100	Knutsen	Hyundai Samho	12/14/2020	174,000	XDF	Q3, 2024
Orion Sky	JP Morgan	Hyundai Heavy	12/14/2020	174,000	XDF	Q4, 2024
Hyundai Ulsan 3221	Pan Ocean	Hyundai Heavy	12/15/2020	174,000	XDF	Q3, 2024
Hyundai Ulsan 3222	Pan Ocean	Hyundai Heavy	12/15/2020	174,000	XDF	Q4, 2024
Samsung 2426	Pan Ocean	Samsung	1/1/2021	174,000	XDF	Q2, 2023
Jules Verne	Sovcomflot	Hyundai Samho	1/8/2021	174,000	XDF	Q2, 2023
Hudong-zhonghua H1837a	Shenzhen Gas	Hudong-Zhonghua	3/21/2021	79,960	XDF	Q1, 2023
Hyundai Ulsan 3294	Hyundai LNG Shipping	Hyundai Heavy	4/15/2021	174,000	XDF	Q1, 2024
Hyundai Ulsan 3295	Hyundai LNG Shipping	Hyundai Heavy	4/29/2021	174,000	XDF	Q2, 2024
Hyundai Ulsan 3296	Hyundai LNG Shipping	Hyundai Heavy	4/29/2021	174,000	XDF	Q3, 2024
Hyundai Samho 8139	Knutsen	Hyundai Samho	4/30/2021	174,000	XDF	Q4, 2023
Jiangnan H2637	Jovo Energy	Jiangnan	5/1/2021	79,800	XDF	Q4, 2023
Samsung 2473	Maran Gas Maritime	Samsung	5/1/2021	174,000	XDF	Q3, 2024
Samsung 2474	Maran Gas Maritime	Samsung	5/1/2021	174,000	XDF	Q3, 2024
Daewoo 2521	Hyundai LNG Shipping	DSME	5/28/2021	174,000	MEGI	Q3, 2023
Hyundai Ulsan 3290	Dynagas	Hyundai Heavy	5/31/2021	200,000	ME-GA	Q4, 2023
Hyundai Ulsan 3291	Dynagas	Hyundai Heavy	5/31/2021	200,000	ME-GA	Q4, 2023
Hyundai Ulsan 3292	Dynagas	Hyundai Heavy	5/31/2021	200,000	ME-GA	Q1, 2024
Hyundai Ulsan 3293	Dynagas	Hyundai Heavy	5/31/2021	200,000	ME-GA	Q3, 2023
Daewoo 2520	MOL	DSME	6/1/2021	174,000	MEGI	Q4, 2023
Amore Mio I	Capital Gas	Hyundai Heavy	6/18/2021	174,000	ME-GA	Q4, 2023
Axios II	Capital Gas	Hyundai Heavy	6/18/2021	174,000	ME-GA	Q4, 2023
Alexandre Dumas	Sovcomflot	Hyundai Samho	7/1/2021	170,520	XDF	Q1, 2024
Hyundai Samho 8147	H-Line	Hyundai Samho	7/1/2021	174,000	XDF	Q3, 2023
Samsung 2459	Celsius Shipping	Samsung	7/1/2021	180,000	ME-GA	Q2, 2023
Samsung 2460	Celsius Shipping	Samsung	7/1/2021	180,000	ME-GA	Q3, 2023
Samsung 2461	Celsius Shipping	Samsung	7/1/2021	180,000	ME-GA	Q4, 2023
Victor Hugo	Sovcomflot	Hyundai Samho	7/1/2021	170,520	XDF	Q3, 2024
Hyundai Samho 8101	Knutsen	Hyundai Samho	7/13/2021	174,000	XDF	Q4, 2023
Hyundai Samho 8102	Knutsen	Hyundai Samho	7/13/2021	174,000	ME-GA	Q3, 2025
Hyundai Ulsan 3320	JP Morgan	Hyundai Heavy	7/13/2021	174,000	ME-GA	Q3, 2025
Hyundai Ulsan 3321	JP Morgan	Hyundai Heavy	7/13/2021	174,000	ME-GA	Q3, 2025
Hyundai Ulsan 3224	Pan Ocean	Hyundai Heavy	7/14/2021	174,000	ME-GA	Q4, 2024
Hyundai Ulsan 3225	Pan Ocean	Hyundai Heavy	7/14/2021	174,000	ME-GA	Q4, 2024
Daewoo 2522	Hyundai LNG Shipping	DSME	7/15/2021	174,000	MEGI	Q2, 2024
Hyundai Samho 8148	Knutsen	Hyundai Samho	7/22/2021	174,000	XDF	Q1, 2024
Hyundai Samho 8149	Knutsen	Hyundai Samho	7/22/2021	174,000	ME-GA	Q1, 2024
Hyundai Ulsan 3297	Hyundai LNG Shipping	Hyundai Heavy	7/22/2021	174,000	XDF	Q2, 2024
Hyundai Ulsan 3298	Hyundai LNG Shipping	Hyundai Heavy	7/22/2021	174,000	XDF	Q4, 2024
Hyundai Ulsan 3299	Hyundai LNG Shipping	Hyundai Heavy	7/22/2021	174,000	XDF	Q1, 2025

Name	Owners	Yard	Ordered	Capacity	Propulsion	Delivery
Samsung 2579	Celsius Shipping	Samsung	7/26/2021	180,000	ME-GA	Q1, 2024
Samsung 2584	Celsius Shipping	Samsung	8/1/2021	180,000	ME-GA	Q3, 2024
Samsung 2585	Celsius Shipping	Samsung	8/1/2021	180,000	ME-GA	Q3, 2024
Hudong-zhonghua H1838a	K-Line	Hudong-Zhonghua	9/1/2021	79,960	XDF	Q3, 2023
Hyundai Samho 8140	Capital Gas	Hyundai Samho	9/1/2021	174,000	ME-GA	Q3, 2024
Daewoo 2523	MOL	DSME	9/14/2021	174,000	ME-GA	Q1, 2024
Daewoo 2524	MOL	DSME	9/14/2021	174,000	ME-GA	Q2, 2024
Daewoo 2525	MOL	DSME	9/14/2021	174,000	ME-GA	Q3, 2024
Daewoo 2526	MOL	DSME	9/14/2021	174,000	ME-GA	Q4, 2024
Daewoo 2527	MOL	DSME	10/1/2021	174,000	ME-GA	Q3, 2024
Hudong-Zhonghua QP #1	Qatar Petroleum	Hudong-Zhonghua	10/1/2021	175,000	XDF	Q3, 2024
Hudong-Zhonghua QP #2	Qatar Petroleum	Hudong-Zhonghua	10/1/2021	175,000	XDF	Q1, 2024
Hudong-Zhonghua QP #3	Qatar Petroleum	Hudong-Zhonghua	10/1/2021	175,000	XDF	Q4, 2024
Hudong-Zhonghua QP #4	Qatar Petroleum	Hudong-Zhonghua	10/1/2021	175,000	XDF	Q1, 2025
MOL 23	MOL	DSME	10/1/2021	174,000	ME-GA	Q3, 2023
MOL 25	MOL	DSME	10/1/2021	174,000	ME-GA	Q3, 2025
MOL 26	MOL	DSME	10/1/2021	174,000	ME-GA	Q3, 2026
Samsung 2580	NYK	Samsung	10/1/2021	174,000	XDF	Q3, 2023
Samsung 2581	NYK	Samsung	10/1/2021	174,000	XDF	Q4, 2023
Samsung 2582	NYK	Samsung	10/1/2021	174,000	XDF	Q4, 2023
Samsung 2583	NYK	Samsung	10/1/2021	174,000	XDF	Q1, 2024
Samsung 2592	JP Morgan	Samsung	10/1/2021	174,000		Q2, 2024
Samsung 2593	JP Morgan	Samsung	10/1/2021	174,000		Q3, 2024
Samsung 2594	JP Morgan	Samsung	10/1/2021	174,000		Q4, 2024
Samsung 2595	JP Morgan	Samsung	10/1/2021	174,000		Q1, 2025
Hyundai Ulsan 3341	Capital Gas	Hyundai Heavy	11/4/2021	174,000	ME-GA	Q2, 2024
Hyundai Ulsan 3342	Capital Gas	Hyundai Heavy	11/4/2021	174,000	ME-GA	Q2, 2024
Qatar DSME 1/4	Qatar Petroleum	DSME	11/7/2021	174,000	MEGI	Q1, 2025
Qatar DSME 2/4	Qatar Petroleum	DSME	11/7/2021	174,000	MEGI	Q3, 2025
Qatar DSME 3/4	Qatar Petroleum	DSME	11/7/2021	174,000	MEGI	Q2, 2025
Qatar DSME 4/4	Qatar Petroleum	DSME	11/7/2021	174,000	MEGI	Q4, 2025
Qatar SHI 1/2	Qatar Petroleum	Samsung	11/7/2021	174,000	ME-GA	Q1, 2025
Qatar SHI 2/2	Qatar Petroleum	Samsung	11/7/2021	174,000	ME-GA	Q1, 2025
Daewoo 2528	Maran Gas Maritime	DSME	11/10/2021	174,000	MEGI	Q3, 2024
Daewoo 2529	Maran Gas Maritime	DSME	11/10/2021	174,000	MEGI	Q4, 2024
Daewoo 2530	BWGas	DSME	11/25/2021	174,000	MEGI	Q1, 2025
Daewoo 2531	BWGas	DSME	11/25/2021	174,000	MEGI	Q2, 2025
Qatar HHI 1	Qatar Petroleum	Hyundai Heavy	11/29/2021	174,000		Q1, 2025
Qatar HHI 2	Qatar Petroleum	Hyundai Heavy	11/29/2021	174,000		Q1, 2025
Qatar HHI 3	Qatar Petroleum	Hyundai Heavy	11/29/2021	174,000		Q2, 2025
Qatar HHI 4	Qatar Petroleum	Hyundai Heavy	11/29/2021	174,000		Q3, 2025
Samsung 2600	JP Morgan	Samsung	12/1/2021	174,000		Q3, 2024
Samsung 2601	JP Morgan	Samsung	12/1/2021	174,000		Q1, 2025
Samsung 2598	Celsius Shipping	Samsung	12/7/2021	180,000	ME-GA	Q1, 2025
Samsung 2599	Celsius Shipping	Samsung	12/7/2021	180,000	ME-GA	Q2, 2025
Hudong-zhonghua H1834a	ULT	Hudong-Zhonghua	12/8/2021	174,000	XDF	Q3, 2024
Hudong-zhonghua H1835a	ULT	Hudong-Zhonghua	12/8/2021	174,000	XDF	Q4, 2024
Hudong-zhonghua H1836a	ULT	Hudong-Zhonghua	12/8/2021	174,000	XDF	Q1, 2025
Samsung 2604	NYK	Samsung	12/27/2021	174,000	XDF	Q4, 2024
Daewoo 2532	GasLog	DSME	1/1/2022	174,000	MEGI	Q2, 2024

Name	Owners	Yard	Ordered	Capacity	Propulsion	Delivery
Daewoo 2533	GasLog	DSME	1/1/2022	174,000	MEGI	Q3, 2024
Daewoo 2534	GasLog	DSME	1/1/2022	174,000	MEGI	Q2, 2025
Daewoo 2535	GasLog	DSME	1/1/2022	174,000	MEGI	Q3, 2025
NYK 2	NYK	Hyundai Samho	1/1/2022	174,000	XDF	Q1, 2025
Qatar SHI 3	Qatar Petroleum	Samsung	1/1/2022	174,000	ME-GA	Q1, 2025
Qatar SHI 4	Qatar Petroleum	Samsung	1/1/2022	174,000	ME-GA	Q2, 2025
Hyundai Samho 8173	SK Shipping	Hyundai Samho	1/4/2022	174,000	ME-GA	Q3, 2024
Daewoo 2537	Maran Gas Maritime	DSME	1/6/2022	174,000	MEGI	Q3, 2025
Daewoo 2538	Maran Gas Maritime	DSME	1/6/2022	174,000	MEGI	Q4, 2025
Hudong-zhonghua H1880a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q4, 2024
Hudong-zhonghua H1881a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q3, 2025
Hudong-zhonghua H1882a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q4, 2025
Hudong-zhonghua H1883a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q1, 2026
Hudong-zhonghua H1884a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q2, 2026
Hudong-zhonghua H1885a	MOL	Hudong-Zhonghua	1/7/2022	174,000	XDF	Q3, 2026
Samho Jan		Hyundai Samho	1/10/2022	174,000	ME-GA	Q1, 2025
Daewoo	MOL	DSME	1/17/2022	174,000	ME-GA	Q4, 2024
Daewoo 2539	Maran Gas Maritime	DSME	2/7/2022	174,000	MEGI	Q4, 2025
Daewoo 2540	Maran Gas Maritime	DSME	2/7/2022	174,000	MEGI	Q4, 2025
Bono Samho 1	Bono Energy	Hyundai Samho	2/10/2022	174,000	ME-GA	Q1, 2025
Bono Samho 2	Bono Energy	Hyundai Samho	2/10/2022	174,000	ME-GA	Q1, 2025
Qatar DSME 5	Qatar Petroleum	DSME	2/15/2022	174,000	MEGI	Q2, 2025
Qatar HHI 5	Qatar Petroleum	Hyundai Heavy	2/15/2022	174,000		Q3, 2025
Qatar HHI 6	Qatar Petroleum	Hyundai Heavy	2/15/2022	174,000		Q4, 2025
Qatar SHI 5	Qatar Petroleum	Samsung	2/15/2022	174,000	ME-GA	Q2, 2025
HL 1	H-Line	Samsung	2/16/2022	174,000		Q1, 2025
HL 2	H-Line	Samsung	2/16/2022	174,000		Q2, 2025
HL 3	H-Line	Samsung	2/16/2022	174,000		Q3, 2025
HL 4	H-Line	Samsung	2/16/2022	174,000		Q3, 2025
Glovis Samho	Hyundai Glovis	Hyundai Samho	2/21/2022	174,000		Q4, 2024
Samsung 1		Samsung	2/24/2022	174,000		Q2, 2025
Samsung 2		Samsung	2/24/2022	174,000		Q2, 2025
Samsung 3		Samsung	2/24/2022	174,000		Q3, 2025
Samsung 4		Samsung	2/24/2022	174,000		Q3, 2025
Jiangnan ADNOC 1	ADNOC	Jiangnan	3/1/2022	175,000	XDF	Q1, 2025
Jiangnan ADNOC 2	ADNOC	Jiangnan	3/1/2022	175,000	XDF	Q2, 2025
HHI 1	Dynagas	Hyundai Heavy	3/3/2022	200,000	ME-GA	Q1, 2025
HHI 2	Dynagas	Hyundai Heavy	3/3/2022	200,000	ME-GA	Q2, 2025
HHI 3	Dynagas	Hyundai Heavy	3/3/2022	200,000	ME-GA	Q4, 2025
BW DSME 3	BWGas	DSME	3/18/2022	174,000	MEGI	Q4, 2025
BW DSME 4	BWGas	DSME	3/18/2022	174,000	MEGI	Q4, 2025
VG DSME 1	Venture Global LNG	DSME	3/24/2022	200,000		Q3, 2025
VG DSME 2	Venture Global LNG	DSME	3/24/2022	200,000		Q4, 2025
VG DSME 3	Venture Global LNG	DSME	3/24/2022	200,000		Q4, 2025
Dalian Merchant 1	China Merchant	Dalian Shipbuilding	3/31/2022	175,000	XDF	Q3, 2025
Dalian Merchant 2	China Merchant	Dalian Shipbuilding	3/31/2022	175,000	XDF	Q2, 2026
Samho 1	Knutzen	Hyundai Samho	3/31/2022	174,000	ME-GA	Q1, 2026
Samho 2	Knutzen	Hyundai Samho	3/31/2022	174,000	ME-GA	Q2, 2025
Samsung Apr	Celsius Shipping	Samsung	3/31/2022	180,000	ME-GA	Q4, 2025

WORLD SMALL SCALE LNG FLEET*

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1998	Pelita Energy	18,800	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
2000	Triputra	23,096	LNG	Indonesia - Japan	Yes	MCGC
2003	Pioneer Knutsen	1,100	LNG	Norway	Yes	Knutsen
2003	Shinju Maru No.1	2,540	LNG	Japan	Yes	Shinwa
2005	North Pioneer	2,500	LNG	Japan	Yes	Japan Liquid Gas
2007	Sun Arrows	19,531	LNG	Malaysia - Russia - Japan	Yes	Mitsui
2008	Kakurei Maru	2,536	LNG	Japan	Yes	Hogaki Zosen
2008	Shinju Maru No.2	2,540	LNG	Japan	Yes	Shinwa
2009	Coral Methane	7,551	LNG/LPG/Ethylene	Northwest Europe/Baltics	Yes, sometimes	Anthony Veder
2010	Coral Favia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2010	Coral Fraseri	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Furcata	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Fungia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
2011	Vision Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2011	Unikum Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2015	JS Ineos Ingenuity	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Insight	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Intrepid	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
2015	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	JS Ineos Indepence	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Innvovation	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Inspiration	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	Coral Encanto	30,000	LNG	China	Yes	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	Oizmendi	600	LNG	Spain	Yes	Itsas Gas
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Green Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	New Frontier 1	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	LNG London	3,000	LNG	Northwest Europe	Yes	Shell

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2018	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2018	Bunker Breeze	1,200	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2019	SM Jeju LNG1	7,500	LNG	Korea	Yes	Korea Line
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	Avenir Advantage	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Accolade	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Aspiration	7,500	LNG		Yes	Avenir LNG
2020	Kaguya	3,500	LNG	Japan	Yes	CLS
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Ecobunker Tokyo Bay	2,500	LMG	Japan	Yes	Ecobunkers
2020	Optimus	6,000	LNG	NWE	Yes	Elenger
2020	FueLNG Bellina	7,500	LNG	Singapore	Yes	FueLNG
2020	SM Jeju LNG2	7,500	LNG	Korea	Yes	Korea Line
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2021	Xin Ao Pu Tuo Hao	8,500	LNG	China	Yes	ENN
2021	Avenir Ascension	7,500	LNG		Yes	Avenir LNG
2021	Hai Gang Wei Lai	20,000	LNG	China	Yes	SSES
2021	Bergen LNG	850	LNG	Norway	Yes	Bergen Tankers
2021	Dmitry Mendeleev	5,800	LNG	Russia	Yes	Gazprom Neft
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	Ravenna Knutsen	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	Brassavola	12,000	LNG	Singapore	Yes	MOL
2021	Gas Vitality	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2021	Titan Hyperion	8,000	LNG	Benelux	Yes	Titan LNG
2022	Coral Nordic	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Haugesund Knutsen	5,000	LNG	Spain	Yes	Knutsen OAS
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
2022	K.Lotus	18,000	LNG	Korea	Yes	K Line
2023	Cryopeak TBA	4,000	LNG	West Canada	Yes	Cryopeak
2023	Knutsen TBN	12,500	LNG	Spain	Yes	Knutsen OAS
2023	SM Jeju LNG3	7,500	LNG	Korea	Yes	Korea Line
2023	Pan Ocean TBN	18,000	LNG	USG	Yes	Pan Ocean Co
2023	Krios	4,200	LNG	Benelux	Yes	Titan LNG
2023	Fratelli Cosulich TBN	8,000	LNG	Mediterranean	Yes	Fratelli Cosulich
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	PNE TBN	5,500	LNG	USG	Yes	PNE
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	TBN	30,000	LNG	Australia	Yes	Anthony Veder ?
2024	Crowley TBN	12,000	LNG	US Coast	Yes	Crowley Maritime
2024	CNOOC TBN	12,000	LNG	China	Yes	CNOOC
2024	TBN	12,500	LNG	Worldwide	Yes	???
2024	Keys TBN	3,500	LNG	Japan	Yes	Keys Bunkering West Japan Co
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG