

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

6 January 2022

Mild weather forecasts affect inter-basin spreads

Inter-basin spreads have returned to positive territory, signalling better economics for delivering LNG into Asia, as European prices fell more quickly, due to mild weather forecasts through January.

Market dynamics moved fast, as most Atlantic Basin cargoes were still heading for Europe on 31st December, according to S&P Global Platts' vessel-tracking software tool cFlow data.

Assuming the positive trend in the spreads is maintained, it probably won't shift the direction of trade flows for several weeks, according to sources, talking with the newswire. This spread change also characterised the LNG markets' volatility last year.

At the end of December, the JKM/TTF March derivatives finished in positive territory for the first time since 13th December, trading at 45 cents per MMBtu before the close of the holiday-shortened London session.

The latest weather forecasts

suggest that most of Europe is set for warmer-than-usual temperatures in January, following mild weather during the second-half of December. This could result in bearish conditions in the European gas markets, which have retreated sharply from a record high recorded on the 21st of last month.

Market sources in Asia reported some latent purchasing interest from Japanese buyers, although most did not commit, preferring to re-evaluate demand and inventory status after 1st January.

US Gulf Coast FOB cargoes were closer to a toss-up from a netback standpoint when combined with the dramatic declines in shipping rates over the past month, Platts said. Maximum wait-

ing days for unreserved LNGCs transiting the Panama Canal were in the low single digits in both directions, although the numbers have slightly risen recently.

Platts assessed the February US FOB Gulf Coast marker at \$21 per MMBtu at the end of last month, down \$5 per MMBtu day-on-day and almost \$34 per MMBtu from the record high set on 21st December.

The US Gulf Coast versus Northwest Europe differential for February stood at \$1.613 per MMBtu. The arbitrage was effectively closed, when factoring in the Platts-assessed USGC/NWE freight rate of around \$1.57 per MMBtu, plus the loading terminal lifting and destination terminal regasification costs. ■

NFE to aid Mauritania's LNG production

New Fortress Energy (NFE) has signed a Memorandum of Understanding (MOU) with Mauritania to develop an energy hub.

The hub will include natural gas, power, LNG and blue ammonia and will utilise existing offshore gas reserves off the Mauritanian coast.

Under the MOU, NFE will deploy its 'Fast LNG' liquefaction technology to produce LNG in the Atlantic coastal basin offshore Mauritania for local gas and power markets, as well as international exports.

NFE will supply natural gas to both an existing and a new power plant that will

be developed.

"The production of LNG from these fields with our innovative Fast LNG liquefiers will help accelerate the global transition to cleaner fuels," said Wes Edens, NFE Chairman and CEO. "Supply of natural gas and modern power infrastructure will also help bring more affordable, reliable and cleaner power to support industrial development and sustainable economic growth in Mauritania and, at the same time, unlock the country's potential to be a top exporter of clean LNG and blue ammonia."

NFE's 'Fast LNG' liquefaction design brings together the latest

advancements in modular, mid-size liquefaction technology with jack up rigs, or similar floating infrastructure, to enable a much lower cost and faster deployment schedule than today's floating liquefaction vessels.

The company also claimed it was in advanced discussions for the deployment of this technology in several other markets around the world, including offshore US.

The agreement is non-binding on the parties and actual terms of any future definitive agreement may differ from the terms of the MOU, the company said. ■

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Long term contracts favoured last year

Long-term LNG contracts increased last year, following a drop in 2020 when short-term spot contracts were favoured, GlobalData said in a note.

The data and analytics company calculated that 23 long-term contracts were signed by major purchasing companies in 2021, compared with 10 in 2020.

Bhargavi Gandham, GlobalData's Oil and Gas Analyst, said: "Buyers are, once again, looking towards long-term contracts to hedge price volatility and ensure guaranteed supply. The trend is expected to continue in 2022 as LNG prices in key markets, such as Asia and Europe, continue to be very high."

GlobalData's report, 'Long-Term LNG Contracts Review, 2021', revealed that the biggest long-term LNG contract signed last year was between QatarEnergy and CNOOC in September, 2021.

According to the contract, QatarEnergy will supply 3.5 mill tonnes per annum of LNG from 2022 to 2036 from the Ras Laffan

III liquefaction terminal. The report also revealed that another Chinese player, Sinopec signed the most long-term LNG contracts last year, totalling 5 mill tonnes per annum.

Bhargavi added: "In terms of LNG purchase, the majority of long-term LNG contracts completed by Sinopec were signed with Venture Global LNG as part of China's efforts to reduce the country's carbon emissions. The country needs to substantially increase natural gas share in its energy mix in order to achieve its goal of becoming carbon neutral by the year 2060."

After Sinopec, Vitol was responsible for the second-highest number of long-term LNG contracts, amounting to 4.3 mill tonnes, while Shell was third with 4 mill tonnes.

Among the LNG sellers, Tel-



Driftwood tops the long term contracts list

lurian Investments sold the largest total volume of LNG, at 9 mill tonnes per annum, in three contracts with Gunvor Group, Shell, and Vitol, respectively. The LNG will be supplied from the Driftwood terminal in Louisiana.

Following Tellurian, Qatargas Operating Company sold the second most LNG volumes, at 7.3 mill tonnes with agreements signed with Pakistan State Oil Co, China

Petroleum & Chemical Corp, CPC Corp and Shell.

Bhargavi concluded: "State-owned companies in Qatar have mostly signed long-term LNG contracts in 2021 to supply key demand centres in Asia, such as China and South Korea. These companies can sign more contracts in 2022, as the global economy recovers driving further LNG demand."

Eagle to supply Aruba plant with LNG

Last month, US-based Eagle LNG Partners completed a long-term supply contract to establish an LNG receiving and regasification terminal in Aruba.

This was undertaken in co-operation with local power and water utility WEB Aruba.

The Aruba LNG Terminal will serve as WEB's LNG receiving and regasification terminal for its Balashi power plant. It will be located at Refineria di Aruba, an industrial location, in San Nicolas, Aruba, where LNG will be received from Eagle, stored and re-gasified with natural gas delivered to the WEB power plant in a \$100 mill investment programme.

"LNG fits in WEB Aruba's vision

of cleaner, greener and fuel oil free production and we are working towards sustainable water desalination and energy production and supply. We welcome LNG as a transition fuel that eventually should lead to a mix of 50% renewable energy sources and 50% alternative fuels," said WEB Aruba AI. CEO, Serapio (Latty) Weber.

Sean Lalani, President of Eagle LNG, said, "We are committed to investing in the Caribbean basin and are honoured to have signed an agreement for another major

LNG project, this time in Aruba. Together with recent agreements elsewhere in the Caribbean basin, including the new terminal in Antigua, this further confirms Eagle LNG as the reliable partner of choice for natural gas in the region.

"The LNG import terminal will result in more environmentally responsible energy supporting the addition of more renewable generation, lower operating and maintenance costs and a stable, historically low-cost, fuel supply.

Alongside the economic and environmental benefits, the transition to LNG powered generation will function as a catalyst for new economic pillars in Aruba. We look forward to being a part of Aruba for many years," he said.

The US Curacao Embassy provided early support for the Aruba project through the US Commerce Department's advocacy programme, which encourages US exports, while offering advice on undertaking business in a foreign country.

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Golar to separate TFDE LNGCs into new company

Golar has formed Cool Company Ltd (CoolCo) to separate its fleet of modern TFDE LNGCs in co-operation with Singapore-based Eastern Pacific (EPS).

The company explained that CoolCo is planned to be a growth vehicle and consolidator of modern LNGCs to provide investors with direct market exposure to an expected continued strength in the LNG freight market.

As part of a terms agreement, CoolCo would acquire Golar's eight TFDE LNGCs, raise equity and separately list on Euronext Growth in Oslo during the first quarter of this year.

CoolCo is also expected to takeover the commercial and technical departments, which manage the operation of Golar's owned and operated LNGCs and FSRUs to become a fully integrated operating platform with a capacity for fleet growth.

The proceeds from a planned IPO will, together with a planned debt refinancing, be used to acquire the eight vessels from Golar, secure attractive financing and provide CoolCo with working capital to position the company for further growth.

Outstanding contractual debt associated with the eight vessels was \$858 mill as of 30th September, 2021. In addition to a cash release, Golar said that it intended to retain about one third of CoolCo.

As part of the agreement, EPS has pre-subscribed for \$150 mill in CoolCo equity based on an average TFDE ship valuation of \$145 mill, making EPS the new company's largest shareholder.

Active role

Alongside Golar, EPS will take an active role in the further development of CoolCo and will chair the Board.

Karl Fredrik Staubo, Golar CEO, explained: "We are encouraged by the strong underlying market fundamentals for LNG carriers. The Cool Company transaction will allow Golar to separate its shipping business and simplify its corporate structure, while maintaining significant and attractive exposure to the LNG carrier business.

"We are excited to develop Cool Company with Eastern Pacific Shipping. EPS is one of the world's leading shipping companies and a first mover and global trendsetter in ordering LNG-fuelled tonnage in traditional shipping sectors like container, drybulk, car carriers and tankers.

"The terms agreement is consistent with the planned business separation of Golar's shipping activities and previously announced strategy to focus activities and

growth on our market leading FLNG business.

"Recent increases in global LNG prices have further increased the attractiveness of potential new liquefaction projects. Before considering growth projects, Adjusted EBITDA generated by the FLNG segment is expected to quadruple from current levels over the next two to three years, supported by additional production and commodity exposure on 'Hilli' and contracted earnings from 'Gimi'," he said.

Cyril Ducau, EPS CEO, added: "EPS is pleased to be adding LNG shipping to our diverse shipping portfolio. LNG will play an essential role as a commodity and marine fuel as the world transitions to cleaner energy solutions.

"Golar's solid track record, mature platform, and like-minded vision made this investment an easy decision. As a provider of dual-fuel LNG tonnage across all our segments, EPS looks forward to taking a leading role in making CoolCo a world-class leader in LNG shipping, combining our complementary skills and expertise with Golar's," he concluded.

Clarksons Platou Securities acted as advisor to EPS and Golar. ■

Venice Energy gets Adelaide LNG project nod

The South Australian Government has approved Venice Energy's plans to build a \$250 mill LNG import terminal at Port Adelaide.

The terminal, to be built in the outer harbour, will become the only LNG import facility in South Australia and the world's first to be powered by renewable energy.

Venice Energy's Managing Director, Kym Winter-De-whirst, said: "Venice is an integrated energy company and one that aims to bring a range of projects to fruition that enable the growing renewables sector in South Australia - this terminal marks our first project and we are thrilled to receive the green light to proceed.

"Through this terminal, we will open the state to the international gas market and diversify local gas supplies, especially during peak periods," he said.

Construction is expected begin in mid-2022 and will take 12-14 months to complete and commission following financial close. The first shipment of LNG into the terminal and connection to the South Australian gas network is anticipated around late 2023, or early 2024.

The development approvals go ahead opens the way for the company to undertake a feasibility study into enhancing the 680 km Seagas pipeline from Victoria to South Australia to a bi-directional facility to enable the terminal to supply gas to two states. ■



Golar is to spin off its TFDE fleet into a separate company

Recent long term SPA agreements

A China Suntien Green Energy subsidiary is due to sign an LNG sale and purchase agreement (SPA) with Qatar Liquefied Gas for 1 mill tonnes per year for 15 years, according to a company listing.

The contract is between S&T International Natural Gas Trading and Qatargas -- a subsidiary of QatarEnergy and will commence around the end of 2022/beginning of 2023 with prices linked to international crude levels.

This deal comes after QatarEnergy signed a 10-year, 1 mill tonnes per year LNG SPA with China's Guangdong Energy Group Natural Gas in early December. Deliveries will start in 2024.

China Suntien Green Energy is a Hebei provincial government-controlled natural gas distributor and wind power producer, which is building an LNG receiving terminal at Caofeidian in Tangshan city, in northern Hebei province, according to newswires.

This project, which will be divided into three phases and has a total LNG handling capacity of 12 mill tonnes per year, includes the construction of two berths capable of receiving Q-Max LNGCs and 20 LNG storage tanks with a capacity of 200,000 cu m each.

Caofeidian LNG project's first phase will have an LNG handling capacity of 5 mill tonnes per year and will comprise of one LNG receiving berth and four LNG storage tanks. It is scheduled to commence operations by the end of this year.

In addition, just before the holiday break, Venture Global LNG and CNOOC Gas & Power Group announced the signing of a 20-year SPA.

This marked the first LNG supply agreement signed by a US exporter with CNOOC, China's largest LNG importer.

Under the terms of the deal, Venture Global will supply 2 mill tonnes per annum of LNG on a free on board (FOB) basis from its Plaquemines LNG export facility.

CNOOC Gas & Power will also purchase 1.5 mill tonnes of LNG from Venture Global's Calcasieu Pass LNG facility for a shorter duration.

"Venture Global is pleased to announce the expansion of our footprint in Asia through two new deals to supply the Chinese market with clean, low-cost US LNG," said Mike Sabel, Venture Global LNG CEO. "China is critical to global climate efforts, and LNG supplied by Venture Global will serve as an important addition to their low carbon energy mix for decades. This new long-term partnership with CNOOC builds on our company's continued momentum in a very active 2021."

Small-scale deal

Meanwhile, Singapore-based Pavilion Energy Trading & Supply has signed a term deal to supply small-scale LNG to Zhejiang Hangjiixin Clean Energy.

Under the terms of the agreement, from 2023, up to 0.5 mill tonnes per year of LNG will be supplied to Hangjiixin.

Pavilion will deliver the LNG to the 1 mill tonnes per annum Jiaying LNG Terminal in Zhejiang, China. This terminal will be operated by Hangjiixin, a joint venture between city gas distributors Jiaying Gas, the largest pipeline natural gas operator in Jiaying, and Hangzhou Gas, the largest



Ras Laffan will be supplying China with more LNG

natural gas distributor in Zhejiang province.

"Pavilion Energy is very pleased to strengthen our partnership with Hangjiixin with the supply of LNG from our portfolio of diverse global sources. We look forward to working closely with each other on the successful implementation of this deal," said Alan Heng, Pavilion Energy's Interim Group CEO. "Supplying small-scale LNG reinforces our commitment to enhance Singapore's position as a regional LNG hub and support growing demand for small-scale LNG in Asia."

Sun Lianqing, Hangjiixin Clean Energy CEO, said, "Hangjiixin is pleased to enter this sale and purchase agreement with Pavilion Energy. The execution of this agreement will provide Hangjiixin's own terminal, the Jiaying LNG Terminal, with stable LNG resources, offer Hangjiixin's end-users with more clean energy options in the long run, and contribute to Hangjiixin's dedication to the reduction of carbon dioxide emissions and achievement of carbon neutrality. We look forward to closer collaborations between the two parties, a smooth performance of the agreement, and multi-dimensional in-depth cooperation in the near future." ■

First FLNG for Nigeria

Nigeria's UTM Group has signed a Memorandum of Understanding (MOU) to develop the first FLNG production unit in West Africa's sub-Saharan region.

In partnership with the African Export-Import Bank (AFREXIMBANK), the project has raised \$2 bill for the first phase with an added commitment of \$3 bill for the second phase.

This is in line with UTM's strategic partnership to support a future final investment decision (FID), the company said.

This MOU follows a Pre-FEED agreement signed last May.

UTM aims to develop and finance a 1.2 mill tonnes per annum FLNG with a capacity to process 176 MMscfd of natural gas and condensate.

The FLNG will be moored in a block located in the Yoho Field, which is operated by a joint venture involving Exxon-Mobil (40%) and NNPC (60%).

UTM's CEO Julius Rone said that the unit could be in place by 2026 and will consist of a turret mooring system, gas pre-treatment modules, LNG production modules, living accommodation, self-contained power generation and utilities, as well as LNG storage and offloading facilities. ■

NEWS NUDGE

'Prelude' shut down

As a result of a fire on board, the Australian offshore regulator, National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA),

ordered Shell to stop production at the FLNG 'Prelude'.

This order will be in place until the energy major can demonstrate the giant FLNG's ability to recover power and services safely.

Following the fire, repeated attempts to establish stable

electricity supply on the unit was jeopardising the health and safety of staff on board. "The failure to restore reliable power was seen to represent an ongoing impact and risk to the health and safety of the personnel on the facility," NOPSEMA said. ■

MOL joins Vopak to operate Hong Kong terminal

Vopak is to acquire 49.99% of the shares in the vessel owning company of 'MOL FSRU Challenger', which will be renamed 'Bauhinia Spirit'.

This new joint venture company, involving Vopak and Mitsui OSK (MOL), will own the world's largest FSRU, which will be operated on a long-term contract to Hong Kong LNG Terminal Limited. The FSRU has a storage and regasification capacity of 263,000 cu m and 800 mmscfd, respectively.

Under the terms of the contract, the joint venture will provide the FSRU, plus the jetty

operations and maintenance and port services.

An offshore jetty platform for the FSRU and the LNGCs delivering gas, currently under construction, is owned by the terminal company. It is expected to be operational around the middle of this year.

The terminal will be located offshore about 25 km southwest of Hong Kong Island and will provide natural gas feedstock to the cus-

tomers' dedicated power plants.

It is being developed to support the Hong Kong Special Administrative Region (HKSAR) Government's target to improve air quality and environmental conditions by increasing the percentage of power generation by natural gas.

"An ideal complementary relationship works by combining Vopak's many years of experience as a terminal operator for oils, chemicals and liquefied gas with MOL's know-how of LNG carrier and FSRU operation. MOL looks forward to further working with Vopak on this promising project.

"Hong Kong LNG Terminal Limited is a joint venture between the two utility companies in Hong Kong, the Castle Peak Power Company Limited (CAPCO) and The Hongkong Electric Company, Lim-

ited. CAPCO is a joint venture between CLP Power Hong Kong Limited and China Southern Power Grid International (HK) Co. Limited and feels confident that with our joint forces, we will be able to establish a safe and reliable operation structure for the Hong Kong FSRU project," said Takeshi Hashimoto, MOL President & CEO.

Eelco Hoekstra, Vopak's Chairman of the Executive Board & CEO, added "We very much look forward to further strengthening our partnership with MOL and to actively contribute together to the energy transition policy of the government in Hong Kong. This co-operation gives Vopak an excellent entry in the growing LNG market in Hong Kong and fits our ambition to diversify our service offering in LNG by investing in FSRUs." ■



MOL has joined Vopak to manage the world's largest FSRU in Hong Kong

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Woodside joins Geelong regas project

In mid-December, Australian utility Viva Energy announced that it had signed a Memorandum of Understanding (MOU) with Woodside for its planned LNG regasification terminal at Geelong.

This agreement is in addition to its existing partnerships with ENGIE Australia and New Zealand, Mitsui, Vitol and VTTI.

The MOU outlines the terms for ongoing discussions regarding a capacity rights agreement at the Geelong project, subject to definitive agreements and approvals, which will enable Woodside to supply and regasify LNG for the Australian east coast market.

It also provides a framework and timeline to negotiate binding regasification capacity commitments, which are planned to be executed following Woodside and Viva Energy approvals, which are subject to a final investment decision (FID), planned for the third quarter of this year.

Viva Energy CEO, Scott Wyatt, said: "We are very pleased to be progressing this opportunity with Woodside, a leading LNG producer. Woodside's experience and capability in LNG supply, shipping, terminals and international gas markets will assist us in progressing the gas terminal project to a final investment decision.

"Woodside's participation in the Gas Terminal Project highlights the value of LNG terminals as 'virtual pipelines' to deliver LNG from

Australia and other sources into the east coast domestic gas market. This can be achieved more efficiently and with lower environmental impact than building new pipeline infrastructure to transport gas from other domestic gas sources to the east coast Australian gas market," he said.

Woodside CEO, Meg O'Neill, added "Our MOU with Viva Energy presents an opportunity for Woodside to supply reliable, cost-competitive LNG from our Western

Australian projects and global portfolio into the east coast gas market, which is predicted to face a shortfall in coming years.

"Working to secure regasification capacity at Viva Energy's proposed import terminal aligns with Woodside's future production profile and the ongoing needs of east coast Australian customers for reliable, lower-carbon energy sources," she said.

In addition, Viva Energy has signed a Heads of Agreement (HoA)

with Höegh LNG to charter an FSRU for the proposed Geelong terminal.

Wyatt confirmed: "We are very pleased to confirm Höegh LNG as our partner for the FSRU, and this is an important step in the project's development. Höegh LNG will bring its significant breadth and depth of experience in the FSRU market to the project, and we look forward to finalising the timecharter agreement, and working with them towards our final investment decision in 2022." ■



Woodside is set to join the consortium to develop the Geelong regas terminal

Construction contracts signed

QatarEnergy has awarded the engineering, procurement, construction and installation (EPCI) contract for the offshore scope of its North Field expansion project to McDermott Middle East.

This project will increase Qatar's LNG production capacity from 77 mill tonnes per annum to 126 mill tonnes, through the North Field East (NFE) and North Field South (NFS) projects, with first LNG expected in 2025.

Qatar's Minister of State for Energy Affairs, and QatarEnergy President and CEO, Saad Sherida Al Kaabi, said: "The award of this major EPCI contract is a momentous milestone that demonstrates QatarEnergy's commitment to delivering our LNG expansion projects

on time and to ensure the significant additional global LNG demand is catered for in a timely manner.

"This contract also reinforces our excellent relationship with McDermott. We are confident that the effective collaboration between QatarEnergy, Qatargas and McDermott will result in the safe and successful delivery of the project according to plan," he added.

Qatargas will execute this project for QatarEnergy.

Elsewhere, Sembcorp Marine subsidiary, Sembcorp Marine Off-

shore Platforms (SMOP), has signed a contract with Bechtel Overseas Corp for the module assembly of the second LNG train to be built at Woodside's Pluto LNG project.

Bechtel and SMOP will form an integrated management team to manage the Pluto Train 2 programme, scheduled to be completed in 2024.

Pluto LNG is a single onshore LNG processing train located on the Burrup Peninsula near Karratha in Western Australia.

Train 2 will expand Pluto's

existing processing capacity by around 5 mill tonnes per annum and allow for the processing of third-party gas resources.

Finally, Gazprom has signed a MOU with Linde and RusKhimAllyans to build a third train at its Ust-Luga LNG export plant.

This plant is a part of a gas chemical complex that will include an LNG facility with an annual capacity to process 45 bill cu m of gas per year.

The complex is expected to start production in 2024/2025. ■

Höegh refinances debt facilities

Höegh LNG Partners completed the refinancing of the commercial tranche of the 'PGN FSRU Lampung' debt facility and the refinancing of the 'Neptune' debt facility, just before the holiday break.

The company had come under pressure from US law firms who were trying to organise class actions on behalf of shareholders against the company giving a deadline of 28th December.

On 24th December, the Partnership closed a refinancing of the commercial tranche's outstanding amount of \$15.5 mill in full. The refinanced 'PGN FSRU Lampung' debt facility's commercial tranche will be amortised with equal quarterly instalments to zero by June, 2026, subject to a cash sweep mechanism.

This facility included certain restrictions on the use of cash generated by the FSRU, as well as the cash sweep mechanism. Until the pending arbitration with the FSRU's charterer has been terminated, cancelled or favourably resolved, no shareholder loans will be serviced and no dividends will be paid to the Partnership by the subsidiary borrowing under the Lampung facility, PT Hoegh LNG Lampung.

Furthermore, each quarter, 50% of the 'PGN FSRU Lampung's' generated cash flow after debt service must be applied to pre-pay outstanding loan amounts under the refinanced facility, applied pro rata across the commercial and export credit tranches.

The remaining 50% will be retained by PT Hoegh LNG Lampung and pledged in favour of the

lenders until the pending arbitration has been determined one way or another.

As a consequence, no cash flow from the FSRU will be available for the Partnership until the arbitration has been resolved. However, this limitation does not prohibit the Partnership from paying distributions to preferred and common unitholders, the company stressed.

The refinanced commercial tranche bears interest at a rate equal to three months LIBOR plus a margin of 3.75%, whereas the export credit tranche continues to bear interest at a rate equal to three months LIBOR plus a margin of 2.3%. Borrowings under the export credit tranche continue to be hedged with interest rate swaps, while the refinanced commercial tranche is unhedged.

Höegh has provided a guarantee in favour of the interest rate swap providers and the lenders of the commercial tranche and the export credit tranche.

'Neptune' loan replacement

Meanwhile, the 'Neptune' is owned by SRV Joint Gas Ltd, a joint venture owned 50% by the Partnership. The new 'Neptune' facility, which closed on 30th November, 2021, has an initial loan amount of \$154 mill, which is scheduled to be fully amortised



Höegh has refinanced at least three assets, including the 'Neptune'

with quarterly debt service for eight years based on an annuity repayment profile.

This facility replaces the balloon amount of \$169 mill that was repaid under the previous debt facility secured by the 'Neptune'. The loan amount's difference was mainly financed by cash held by the joint venture and subordinated shareholder loans from the shareholders, including a new subordinated shareholder loan of \$3 mill from Höegh.

It bears interest at a rate equal to three months LIBOR plus a margin of 1.75%. The interest rate swaps entered into under the previous 'Neptune' debt facility have a remaining tenor of eight years and have been novated from the previous group of swap providers to the new lenders and restructured to match the new facility's loan amount and amortisation plan.

Höegh and the other SRV Joint

Gas shareholders have provided guarantees for the facility in favour of the lenders and swap providers. These guarantees are capped at \$15 mill in total, of which the Partnership is liable for up to \$7.5 mill.

The Partnership and the other shareholders have also pledged their shares in the joint venture as security for the facility.

Höegh also issued an update on the 'Cape Ann', which is owned by SRV Joint Gas Two Ltd, another 50% owned joint venture. The existing debt facility matures on 1st June, 2022 and the documentation for the refinancing of this facility is ongoing, the Partnership said.

On 15th December, 2021, the new loan agreement was signed for its refinancing. Subject to customary closing conditions, the closing and the drawdown under the new facility are expected to occur on or about the maturity date of the existing facility this year. ■

NEWS NUDGE

Minerva joins Maersk zero carbon centre

Athens-based LNGC owner and manager Maran Gas, part of the Angelicoussis Group, has joined the Maersk McKinney Moller Centre for Zero Carbon Shipping.

As a result, Minerva Gas will become part of the centre's network and information flow and will also have access to its R&D activities.

Rio Grande LNG delayed again

US LNG developer NextDecade Corp confirmed at the beginning of this week that its Rio Grande LNG final investment decision (FID) would be put back again until the second half of this year.

The \$15.7 bill project, which would produce 27 mill tonnes per year at full capacity, has been delayed twice since 2020. It was originally expected to start producing LNG in 2023, Reuters said.

NextDecade disclosed the lat-

est delay in a presentation to investors on Monday but did not give a reason.

NOVATEK reshuffles Board

PAO NOVATEK Directors have passed a resolution to change the composition of the company's management board.

As a result, the Board terminated the membership of Evgeny Kot.

Sergey Solovyov who previously held the position of Deputy

Chairman of the Management Board - Director for Geology was appointed Deputy Chairman of the Management Board and a Director for Prospective Projects with authority over LNG, de-carbonisation and gas chemical projects.

Also elected was Vladimir Kudrin as Deputy Chairman and Director for Geology. Kudrin had worked for 20 years in the company's subsidiaries and joint ventures.

He has been General Director of Arcticgas for the last seven years. ■

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Burckhardt completes Teekay LNGC service

Late last year, Burckhardt Compression undertook a comprehensive overhaul service for Teekay LNG.

As part of a long-term service agreement (L TSA), extensive planning and project management ensured the time-critical project was completed on time, despite the extraordinary challenges of the COVID pandemic, and with a perfect safety record, the company claimed.

Part of Teekay's LNG fleet is equipped with dual-fuel propulsion systems that use boil-off gas (BOG) for fuel. Each of these vessels is equipped with a patented Laby-GI BOG compressor that supplies fuel to the main and auxiliary engines, as well as a reliquefaction system and gas combustion unit.

After five years in operation, the compressor fitted on the 'Creole Spirit' was due for a scheduled maintenance inspection during drydocking in Singapore.

Drydock maintenance projects are planned years in advance, Burckhardt explained. With hundreds of specialist technicians and engineers working for dozens of suppliers, precision co-ordination by all those involved is essential.

Burckhardt's team planned and co-ordinated the many contractor

groups working on the compressor skid in the confines of the compressor machinery room (CMR) to ensure optimum working safety and efficiency.

As the only BOG compressor on board, it is a crucial piece of equipment and the maintenance project was essential for its continued availability, the company explained.

Thanks to over a year's planning, the service was undertaken within the 13 days time scale, ensuring the complete drydocking programme was also accomplished on time and without any safety incidents.

Preparations included tailor-made packing cases to hold all of the parts that were shipped to the Singapore Service Centre to ensure safe transportation.

Burckhardt's on-site engineers were also able to quickly provide a solution to additional control system's components that needed replacing.

The combination of the company's Singapore centre of excellence and a tailored maintenance plan will deliver improved life-cycle costs and operational effi-



Burckhardt's team seen working on the compressor skid in the confines of the compressor machinery room (CMR)

ciency, resulting in the LNGCs equipped with the Laby-GI BOG compressors continuing to deliver

reliable service and contribute to reduced sulphur and CO₂ levels, the company said. ■

Fred Venner

It is with great regret that I have to report the passing of LNG stalwart Fred Venner in October last year.

He was well known to me down the years as a large affable 'Geordie' living across the River Tyne in Gateshead.

I last bumped into him in August, 2019 on board the Fred.Olsen cruise ship 'Balmoral' in which he was cruising with his wife.

Venner was a strong supporter of SIGTTO* throughout his long career, as both a member of the General Purposes Committee (GPC) for many years and a regular attendee at and contributor to Panel Meetings. He was also a

great character with strong views, honed on years of experience with the gas shipping industry.

Always good company, he was well liked by everyone he met. Chris Clucas, a fellow former GPC member, said: "Fred had a great early career as an engineer, including on P&O's 'LNG Challenger' as a second and then as the Chief on the 1969-built 'David Gas' with Atlantic Marine. His recall of the machinery on the latter ship was encyclopaedic!

"Latterly with Bureau Veritas (BV) and E.ON/Uniper, Fred was a powerful advocate for the LNG sector. We will really miss him," Clucas added.

Venner qualified as a marine engineer at South Shields Marine & Technical College in 1980. Following his seagoing career, he spent four years with Kuwait Oil Tanker Co as a fleet superintendent before joining BV in 1990. He was with the class society for 18 years, latterly as manager tankers & gas carriers and based in Paris.

During the mid-1990s, he was seconded to Abu Dhabi National Oil Co to help supervise the construction of the four 135,000 cu m spherical tank LNGC newbuildings at Turku's Masa Yards. He was also closely involved in BV classing the first LNGCs to be powered by dual-fuel diesel-electric

(DFDE) propulsion systems, in the early 2000s.

Venner ended his gas shipping career with the E.ON in Germany, joining the group as Vice President LNG marine operations, first with E.ON Ruhrgas and then E.ON New Build & Technology.

Latterly he returned to Tyne-side and served as a consultant for Uniper, a company established in 2016 to undertake E.ON's LNG activities. ■

*Much of the information contained in this obituary was taken from the Autumn, 2021 edition of SIGTTO News.

Ian Cochran

GTT enjoys order rush

During December, GTT won another 12 orders to design tanks for newbuilding LNGCs.

For example, the latest order was received from Samsung Heavy Industries (SHI) at the end of last month.

GTT will design the tanks of the 174,000 cu m vessel, which will be fitted with the GTT Mark III Flex membrane containment system.

Delivery of the vessel is scheduled for the last quarter of 2024.

Earlier in the month, an order was received from SHI for the tank design of a new LNGC, believed to be on behalf of Celsius, for delivery in 2024.

GTT will design the tanks for the 180,000 cu m vessel, which will also be fitted with the GTT Mark III Flex membrane contain-

ment system.

In addition, SHI ordered the tank design of another two new 174,000 cu m LNGCs.

These tanks will also be fitted with the GTT Mark III Flex membrane containment system.

Deliveries of the vessels will take place between late 2024 and early 2025.

Daewoo Shipbuilding & Marine Engineering (DSME) was also active, ordering tank designs for two new LNGCs.

GTT will design the tanks of the 174,000 cu m vessels, which will each be fitted with the GTT NO96 GW membrane containment system.

Deliveries of the vessels are scheduled for the first half 2025.

In addition, DSME ordered another four tank designs for 174,000 cu m newbuildings.

They will be fitted with the GTT NO96 L03 membrane containment system and will be delivered in 2024 and 2025.

In addition, DSME was responsible for ordering the tank design for two new 174,000 cu m LNGCs building for Maran Gas Maritime.

These vessels tanks will be fitted with the GTT NO96 GW membrane containment system.

Deliveries of the LNGCs are scheduled during the second half of 2024. ■

Svanehøj sees record order intake

Danish-based pump specialist Svanehøj has quadrupled its fuel pump solutions sales in 2021.

Last year was a record for new LNG dual-fuel shipbuilding contracts, which had a very positive impact on the company's orderbook.

Svanehøj said that it was heading for a total order intake for the year of between DKK750 and DKK800 mill - 50% more than the previous record set in 2014.

Its patented DW fuel pump solution was one of the main growth drivers. This system was unveiled in 2015 and will account for almost 30% of total orders in 2021. According to CEO, Søren Kringelholt Nielsen, the many new orders were spread widely across sectors.

"We see a significant increase in orders of fuel pump systems for LNG-fuelled box-ships, cruise ships and PCTC vessels. Furthermore, we have received a very large number of orders for LPG carriers, where we supply pump systems for both cargo and fuel," Kringelholt Nielsen said.

Svanehøj enters 2022 with a new strategy and a target of doubling its turnover to DKK1 bill by 2026, the company said. ■

She was also said to contain a large non-ferrous content. ■

NEWS NUDGE

Ships - newbuildings, deliveries, charters and recyclings

China Merchants Energy Shipping (CMES) has signed a letter of intent (LoI) with Dalian Shipbuilding (DSIC) for one, option one, 174,000 cu m LNGCs costing around \$190 mill each.

Jiangnan was also reported to have signed an LoI with CSSC Leasing for one, option one, 174,000 cu m LNGC for delivery in 2025.

Samsung has confirmed that it has received a Won240 bill order for an LNGC for an undisclosed Latin America interest.

She is due to be delivered in 2024.

Capital Product Partners has taken delivery of the 174,000 cu m, X-DF powered 'Aristidis I' from Hyundai Heavy Industries.

She is the last of six LNGCs to be acquired by the company and was financed with \$82 mill cash at hand and the assumption of \$123 mill of debt.

Höegh LNG Holdings confirmed that it had completed and signed all documentation for a 10-year FSRU charter with Terminal de Regaseificação de GNL de São Paulo (TSRP).

TSRP is a subsidiary of Compass Gás & Energia, a Cosan Group company, that via its distribution subsidiary, Comgás, is Brazil's largest gas distributor.

'Höegh Gannet' was assigned to the charter and operations are expected to start in late 2022, or

early 2023, Höegh said.

NYK has signed a multi-year contract with GAIL (India) to timecharter the 174,000 cu m LNGC 'Grace Emilia'.

'Grace Emilia' is fitted with a WinGD X-DF diesel engine that has superior fuel-consumption efficiency and can operate on marine gas oil or boil-off gas stored in the cargo tank, NYK said.

She also features a re-liquefaction system that can use re-liquefied excess boil-off gas and return it to the cargo tank.

Finally, the 1981-built 126,190 cu m LNGC 'Madame' arrived at Chattogram, Bangladesh for recycling on 27th December.

She was the former Hyproc-managed 'Ramdane Abani' and brokers reported that the price agreed was \$670 per ldt.

Monthly Large LNGC Values*

Newbuildings (174,000 cu m)	\$197.45 mill
Five years old (160,000 cu m)	\$150.11 mill
Total Fleet (536 ships)	\$63.75 bill
Orderbook (137 ships)	\$28.70 bill

*Source: VesselsValue (22/10/21)

*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	\$60,000	-\$190,000
West of Suez	\$55,000	-\$140,000
12 mos T/C	\$94,000	-\$8,000

*Since last report (07/12/21)

Source: Fearnleys (05/01/22)

WORLD LNG CARRIER ORDERBOOK

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Clean Cajun	Unknown	XDF	Hyundai Heavy	Q1, 2022	200000	Dynagas
Elisa Aquila	Gtt Mkiii Flex	XDF	Hyundai Samho	Q1, 2022	174000	NYK
Global Sealine	Gtt96 Gw	XDF	DSME	Q1, 2022	173400	Nakilat
Maran Gas Kythira	Gtt96 Gw	XDF	DSME	Q1, 2022	174000	Maran Gas Maritime
Orion Sea	Gtt Mkiii Flex	XDF	Samsung	Q1, 2022	174000	JP Morgan
Orion Star	Gtt Mkiii Flex	XDF	Samsung	Q1, 2022	174000	JP Morgan
Alexey Kosygin	Gtt Mkiii	TFDE - Azipod	Zvezda SSK	Q1, 2023	172600	Smart LNG
Asterix I	Gtt Mkiii Flex	XDF	Hyundai Heavy	Q1, 2023	174000	Capital Gas
Hudong-zhonghua H1837a	Gtt96 L03+	XDF	Hudong-Zhonghua	Q1, 2023	79960	Shenzhen Gas
Hyundai Ulsan 3243	Unknown	XDF	Hyundai Heavy	Q1, 2023	174000	Knutzen
Samsung 2364	Gtt Mkiii Flex+	XDF	Samsung	Q1, 2023	174000	MISC
Samsung 2365	Gtt Mkiii Flex+	XDF	Samsung	Q1, 2023	174000	MISC
United Glory	Unknown	XDF	Hudong-Zhonghua	Q1, 2023	174000	ULT
DSME 1/4	Unknown	ME-GA	DSME	Q1, 2024	174000	MOL
Hudong-zhonghua H1829a	Gtt96 L03+	XDF	Hudong-Zhonghua	Q1, 2024	170520	CSSC
Hyundai Samho 8148	Unknown	XDF	Hyundai Heavy	Q1, 2024	174000	Knutzen
Hyundai Samho 8149	Unknown	ME-GA	Hyundai Samho	Q1, 2024	174000	Knutzen
Hyundai Ulsan 3244	Unknown	XDF	Hyundai Heavy	Q1, 2024	174000	Knutzen
Hyundai Ulsan 3292	Unknown	ME-GA	Hyundai Heavy	Q1, 2024	200000	Dynagas
Hyundai Ulsan 3293	Unknown	ME-GA	Hyundai Heavy	Q1, 2024	200000	Dynagas
Hyundai Ulsan 3294	Unknown	XDF	Hyundai Heavy	Q1, 2024	174000	Hyundai LNG Shipping
Hyundai Ulsan 3297	Unknown	XDF	Hyundai Heavy	Q1, 2024	174000	Hyundai LNG Shipping
Samsung 2461	Gtt Mkiii Flex	ME-GA	Samsung	Q1, 2024	180000	Celsius Shipping
Samsung Sovcomflot 4/4	Gtt Mkiii Flex	XDF	Samsung	Q1, 2024	174000	NYK
SHI Oct 1/4		Other/unknown	Samsung	Q1, 2024	174000	JP Morgan
ULT #5	Gtt96 L03+	XDF	Hudong-Zhonghua	Q1, 2024	174000	ULT
ULT #6	Gtt96 L03+	XDF	Hudong-Zhonghua	Q1, 2024	174000	ULT
BW DSME 1/2		ME-GA	DSME	Q1, 2025	174000	BWGas
Hudong-Zhonghua QP #3	Unknown	Other/unknown	Hudong-Zhonghua	Q1, 2025	175000	Qatar Petroleum
Qatar DSME 1/4	Unknown	MEGI	DSME	Q1, 2025	174000	Qatar Petroleum
Qatar HHI 1		Other/unknown	Hyundai Heavy	Q1, 2025	174000	Qatar Petroleum
Qatar HHI 2		Other/unknown	Hyundai Heavy	Q1, 2025	174000	Qatar Petroleum
Qatar SHI 1/2		ME-GA	Samsung	Q1, 2025	174000	Qatar Petroleum
Qatar SHI 2/2		ME-GA	Samsung	Q1, 2025	174000	Qatar Petroleum
Clean Copano	Unknown	XDF	Hyundai Heavy	Q2, 2022	200000	Dynagas
Grace Freesia	Gtt Mkiii Flex	XDF	Hyundai Samho	Q2, 2022	173000	NYK
Hudong-zhonghua H1788a	Gtt96	XDF	Hudong-Zhonghua	Q2, 2022	79960	K-Line
Lagenda Serenity	Gtt96 L03+	XDF	Hudong-Zhonghua	Q2, 2022	79960	K-Line
Samsung 2337	Gtt Mkiii Flex	XDF	Samsung	Q2, 2022	174000	JP Morgan
Vivit Arabia Lng	Gtt Mkiii Flex	XDF	Hyundai Samho	Q2, 2022	174000	H-Line
Daewoo 2515	Unknown	TFDE - Azipod	DSME	Q2, 2023	172500	Sovcomflot
El Ferrol Knutsen	Unknown	XDF	Hyundai Heavy	Q2, 2023	174000	Knutzen
Extremadura Knutsen	Unknown	XDF	Hyundai Heavy	Q2, 2023	174000	Knutzen
Hudong-zhonghua H1833a	Unknown	XDF	Hudong-Zhonghua	Q2, 2023	174000	ULT
Samsung 2426	Unknown	XDF	Samsung	Q2, 2023	174000	Pan Ocean
Daewoo 2522	Unknown	MEGI	DSME	Q2, 2024	174000	Hyundai LNG Shipping
DSME 2/4	Unknown	ME-GA	DSME	Q2, 2024	174000	MOL
Hudong-zhonghua H1830a	Gtt96 L03+	XDF	Hudong-Zhonghua	Q2, 2024	170520	CSSC

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Hyundai Ulsan 3295	Unknown	XDF	Hyundai Heavy	Q2, 2024	174000	Hyundai LNG Shipping
Samsung 2579	Gtt Mkiii Flex	ME-GA	Samsung	Q2, 2024	180000	Celsius Shipping
SHI Oct 2/4		Other/unknown	Samsung	Q2, 2024	174000	JP Morgan
BW DSME 2/2		ME-GA	DSME	Q2, 2025	174000	BWGas
Hudong-Zhonghua QP #4	Unknown	Other/unknown	Hudong-Zhonghua	Q2, 2025	175000	Qatar Petroleum
Hyundai Ulsan 3320	Unknown	ME-GA	Hyundai Heavy	Q2, 2025	174000	JP Morgan
Qatar DSME 3/4		MEGI	DSME	Q2, 2025	174000	Qatar Petroleum
Qatar HHI 3		Other/unknown	Hyundai Heavy	Q2, 2025	174000	Qatar Petroleum
Samho Capital 1/3	Mark III Flex	ME-GA	Hyundai Samho	Q2, 2025	174000	Capital Gas
Samho Capital 2/3	Mark III Flex	ME-GA	Hyundai Samho	Q2, 2025	174000	Capital Gas
Bw Cassia	Gtt96 Gw	MEGI	DSME	Q3, 2022	174000	BWGas
Bw Iris	Gtt96 Gw	MEGI	DSME	Q3, 2022	174000	BWGas
Prism Diversity	Unknown	XDF	Hyundai Heavy	Q3, 2022	180000	SK Shipping
Santander Knutsen	Unknown	XDF	Hyundai Heavy	Q3, 2022	174000	Knutsen
Sm Albatross		XDF	Hyundai Heavy	Q3, 2022	174000	Korea Line
Sm Bluebird		XDF	Hyundai Heavy	Q3, 2022	174000	Korea Line
Daewoo 2516	Unknown	TFDE - Azipod	DSME	Q3, 2023	172500	Sovcomflot
Daewoo 2517	Unknown	TFDE - Azipod	DSME	Q3, 2023	172500	MOL
H-line #3	Gtt Mkiii Flex	XDF	Hyundai Samho	Q3, 2023	174000	H-Line
Hudong-zhonghua H1838a		XDF	Hudong-Zhonghua	Q3, 2023	79960	K-Line
Hyundai Samho 8105	Gtt Mkiii Flex	XDF	Hyundai Samho	Q3, 2023	174000	Sovcomflot
Hyundai Ulsan 3290	Unknown	ME-GA	Hyundai Heavy	Q3, 2023	200000	Dynagas
Lng Harmony	Unknown	XDF	Hyundai Heavy	Q3, 2023	174000	JP Morgan
Orion Sage	Unknown	XDF	Hyundai Heavy	Q3, 2023	174000	JP Morgan
Samsung 2425	Unknown	XDF	Samsung	Q3, 2023	174000	Maran Gas Maritime
Samsung 2459	Gtt Mkiii Flex	ME-GA	Samsung	Q3, 2023	180000	Celsius Shipping
Samsung Sovcomflot 1/4	Gtt Mkiii Flex	XDF	Samsung	Q3, 2023	174000	NYK
Sm Golden Eagle	Unknown	XDF	Hyundai Heavy	Q3, 2023	174000	Korea Line
Zvezda 042	Gtt Mkiii	TFDE - Azipod	Zvezda SSK	Q3, 2023	172600	Smart LNG
DSME 3/4	Unknown	ME-GA	DSME	Q3, 2024	174000	MOL
DSME 4/4	Unknown	ME-GA	DSME	Q3, 2024	174000	MOL
DSME MOL	Unknown	ME-GA	DSME	Q3, 2024	174000	MOL
Hyundai Ulsan 3221	Unknown	XDF	Hyundai Heavy	Q3, 2024	174000	Pan Ocean
Hyundai Ulsan 3224	Unknown	ME-GA	Hyundai Heavy	Q3, 2024	174000	Pan Ocean
Hyundai Ulsan 3296	Unknown	XDF	Hyundai Heavy	Q3, 2024	174000	Hyundai LNG Shipping
Hyundai Ulsan 3298	Unknown	XDF	Hyundai Heavy	Q3, 2024	174000	Hyundai LNG Shipping
Maran DSME	Gtt96 Gw	MEGI	DSME	Q3, 2024	174000	Maran Gas Maritime
Samsung 2473	Unknown	XDF	Samsung	Q3, 2024	174000	Maran Gas Maritime
Samsung 2474	GTT Mark III Flex	XDF	Samsung	Q3, 2024	174000	Maran Gas Maritime
Samsung 2584	Gtt Mkiii Flex	ME-GA	Samsung	Q3, 2024	180000	Celsius Shipping
Samsung 2585	Gtt Mkiii Flex	ME-GA	Samsung	Q3, 2024	180000	Celsius Shipping
SHI Oct 3/4		Other/unknown	Samsung	Q3, 2024	174000	JP Morgan
Sovcomflot #1	Gtt Mkiii Flex	XDF	Hyundai Samho	Q3, 2024	170520	Sovcomflot
Sovcomflot #2	Gtt Mkiii Flex	XDF	Hyundai Samho	Q3, 2024	170520	Sovcomflot
Zvezda 046	Unknown	TFDE - Azipod	Zvezda SSK	Q3, 2024	172600	Smart LNG
Zvezda 047	Unknown	TFDE - Azipod	Zvezda SSK	Q3, 2024	172600	Smart LNG
Hyundai Samho 8102	Unknown	ME-GA	Hyundai Heavy	Q3, 2025	174000	Knutsen
Hyundai Ulsan 3321	Unknown	ME-GA	Hyundai Heavy	Q3, 2025	174000	JP Morgan
Qatar DSME 2/4		MEGI	DSME	Q3, 2025	174000	Qatar Petroleum
Qatar HHI 4		Other/unknown	Hyundai Heavy	Q3, 2025	174000	Qatar Petroleum

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Samho Capital 3/3	Mark III Flex	ME-GA	Hyundai Samho	Q3, 2025	174000	Capital Gas
Zvezda 051	Unknown	TFDE - Azipod	Zvezda SSK	Q3, 2025	172600	Smart LNG
Zvezda 052	Unknown	TFDE - Azipod	Zvezda SSK	Q3, 2025	172600	Smart LNG
Tenergy	Gtt Mkiii Flex	XDF	Hyundai Heavy	Q4, 2021	174000	Tsakos Energy Navigation
Vivirt City Lng	Gtt Mkiii Flex	XDF	Hyundai Samho	Q4, 2021	174000	H-Line
Alicante Knutsen	Unknown	XDF	Hyundai Heavy	Q4, 2022	174000	Knutsen
Daewoo 2514	Unknown	TFDE - Azipod	DSME	Q4, 2022	172500	Sovcomflot
Hudong-zhonghua H1831a	Not Applicable	XDF	Hudong-Zhonghua	Q4, 2022	174000	ULT
Huelva Knutsen	Unknown	XDF	Hyundai Heavy	Q4, 2022	174000	Knutsen
Lng Prosperity		XDF	Hyundai Heavy	Q4, 2022	174000	JP Morgan
Malaga Knutsen	Unknown	XDF	Hyundai Heavy	Q4, 2022	174000	Knutsen
Minerva Amorgos	Gtt Mkiii Flex+	XDF	Samsung	Q4, 2022	174000	Minerva Marine
Orion Song		XDF	Hyundai Heavy	Q4, 2022	174000	JP Morgan
Amore Mio I	Gtt Mkiii Flex	ME-GA	Hyundai Heavy	Q4, 2023	174000	Capital Gas
Axios II	Gtt Mkiii Flex	ME-GA	Hyundai Heavy	Q4, 2023	174000	Capital Gas
Daewoo 2518	Unknown	TFDE - Azipod	DSME	Q4, 2023	172500	MOL
Daewoo 2519	Unknown	TFDE - Azipod	DSME	Q4, 2023	172500	MOL
Daewoo 2520	Unknown	MEGI	DSME	Q4, 2023	174000	MOL
Daewoo 2521	Unknown	MEGI	DSME	Q4, 2023	174000	Hyundai LNG Shipping
Hyundai Samho 8101	Unknown	XDF	Hyundai Heavy	Q4, 2023	174000	Knutsen
Hyundai Samho 8139	Unknown	XDF	Hyundai Samho	Q4, 2023	174000	Knutsen
Hyundai Ulsan 3291	Unknown	ME-GA	Hyundai Heavy	Q4, 2023	200000	Dynagas
Jiangnan H2637	Gtt Mkiii Flex	XDF	Jiangnan	Q4, 2023	79800	Jovo Energy
Samsung 2460	Gtt Mkiii	ME-GA	Samsung	Q4, 2023	180000	Celsius Shipping
Samsung Sovcomflot 2/4	Gtt Mkiii Flex	XDF	Samsung	Q4, 2023	174000	NYK
Samsung Sovcomflot 3/4	Gtt Mkiii Flex	XDF	Samsung	Q4, 2023	174000	NYK
Sm Kestrel	Unknown	XDF	Hyundai Heavy	Q4, 2023	174000	Korea Line
ULT #4	Gtt96 L03+	XDF	Hudong-Zhonghua	Q4, 2023	174000	ULT
Zvezda 043	Gtt Mkiii	TFDE - Azipod	Zvezda SSK	Q4, 2023	172600	Smart LNG
Zvezda 044	Gtt Mkiii	TFDE - Azipod	Zvezda SSK	Q4, 2023	172600	Smart LNG
Zvezda 045	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2023	172600	Smart LNG
DSME Gaslog 1/4		MEGI	DSME	Q4, 2024	174000	GasLog
DSME Gaslog 2/4		MEGI	DSME	Q4, 2024	174000	GasLog
Hudong-Zhonghua QP #1	Unknown	Other/unknown	Hudong-Zhonghua	Q4, 2024	175000	Qatar Petroleum
Hudong-Zhonghua QP #2	Unknown	Other/unknown	Hudong-Zhonghua	Q4, 2024	175000	Qatar Petroleum
Hyundai Samho 8100	Unknown	XDF	Hyundai Heavy	Q4, 2024	174000	Knutsen
Hyundai Ulsan 3222	Unknown	XDF	Hyundai Heavy	Q4, 2024	174000	Pan Ocean
Hyundai Ulsan 3225	Unknown	ME-GA	Hyundai Heavy	Q4, 2024	174000	Pan Ocean
Hyundai Ulsan 3299	Unknown	XDF	Hyundai Heavy	Q4, 2024	174000	Hyundai LNG Shipping
Maran DSME 2	Gtt96 Gw	MEGI	DSME	Q4, 2024	174000	Maran Gas Maritime
Orion Sky	Unknown	XDF	Hyundai Heavy	Q4, 2024	174000	JP Morgan
SHI Oct 4/4		Other/unknown	Samsung	Q4, 2024	174000	JP Morgan
Zvezda 048	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2024	172600	Smart LNG
Zvezda 049	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2024	172600	Smart LNG
Zvezda 050	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2024	172600	Smart LNG
DSME Gaslog 3/4		MEGI	DSME	Q4, 2025	174000	GasLog
DSME Gaslog 4/4		MEGI	DSME	Q4, 2025	174000	GasLog
Qatar DSME 4/4		MEGI	DSME	Q4, 2025	174000	Qatar Petroleum
Zvezda 053	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2025	172600	Smart LNG
Zvezda 054	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2025	172600	Smart LNG
Zvezda 055	Unknown	TFDE - Azipod	Zvezda SSK	Q4, 2025	172600	Smart LNG

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit
Data last updated = Data last updated = 9th December 2021

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 Innvation	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

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Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2018	LNG London	3,000	LNG	Northwest Europe	Yes	Shell
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	ENN TBN	8,500	LNG	China	Yes	ENN
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	Avenir Ascension	7,500	LNG		Yes	Avenir LNG
2021	Avenir Allegiance	20,000	LNG	Worldwide	Yes	Avenir LNG
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	PE TBN	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	Veder TBN	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Knutsen TBN	5,000	LNG	Spain	Yes	Knutsen OAS
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
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	K Line TBN	18,000	LNG	Korea	Yes	K Line
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 ?
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG

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