

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

9 July 2020

US LNG exports continue to slide

More than 40 US August cargoes have been cancelled thus far, which equates to about half the country's export capacity, Poten and Partners claimed in a recent webinar.

In a takeaway from the webinar outlining the state of the LNG market, Poten's Jason Feer said that floating storage was widespread, as there was evidence of cargoes at sea in Asia, Middle East and the Atlantic. In addition, there is not enough demand to lift freight rates at present.

Recent cargoes arriving in Asia were mainly used to fill Japanese and South Korean storage tanks.

As for Qatar, the major LNG supplier is playing the market by using its infrastructure system to move supplies to where they are needed. After discharging its floating storage capacity in Asia, Qatar is likely to turn to Europe.

Qatar was also competing in the global spot markets very aggressively to maintain its market share, but whether this strategy makes money, is doubtful, he said.

In the UK sector, reduced LNG imports lifted prices in line with Northwest Europe.

Feer also explained that demand tended to jump after a lockdown ends but Chinese demand has fallen after it satisfied its pent-up domestic demand. Elsewhere, Indian demand rose on the back of strong spot buying for its fertiliser industry.

Contract flexibility

Returning to US exports, Adrian Lara, GlobalData's Senior Oil & Gas



US exports have nearly halved

Analyst, said in an industry note that one of the reasons why the US is experiencing a high number of cargo cancellations was due to the flexibility embedded in the selling of contracts, which proved to be an advantage for LNG buyers.

"The US tolling scheme establishes a penalty generally equal to agreed liquefaction fixed costs of \$2 to \$3 per MMBtu, which is normally a lower penalty when compared to that in traditional LNG take-or-pay contracts. In addition, US LNG is currently less competitive worldwide, given the narrow differential between Henry Hub prices and the Northwest Europe TTF price, as well as LNG spot prices in Asia.

"Once a 15% premium on Henry Hub is added, as per contractual terms, plus transportation and regasification costs, the landed price for US LNG cargoes is currently uneconomical in both Europe and Asia.

"A possible recovery in exports towards the end of the year is still dependent on sustained gas demand worldwide. This challenging outlook will certainly delay invest-

ment decisions for announced LNG projects in the US.

"Before the COVID-19 pandemic, there were at least 10 billion cu ft per day of new capacity not yet under construction expected to come online by 2025. Most of this capacity required final investment decisions (FIDs) in 2020 and 2021 and several developers have already announced delaying their decisions.

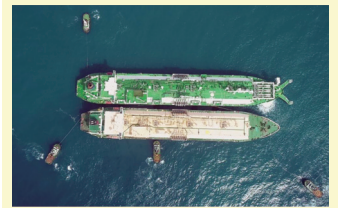
"Given the uncertainty on the growth of LNG demand it is possible that these projects, if sanctioned, add new capacity well after 2025 and perhaps even closer to 2030.

"Still, the US LNG sector will likely continue to be competitive given the non-integrated nature of its value chain and innovative contractual and pricing schemes.

"A cornerstone of this success will remain the low feedstock gas price reached by upstream producers, which are being forced to be competitive at current prices, and this will feedback into the pricing strength of LNG exports," he concluded. ■

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LNG power generation to boost LNGCs

Future LNG-to-Power projects could ease the pressure on the beleaguered LNG shipping market.

However, small-scale LNG project development for power generation has proved slow with only a few projects coming online, Drewry Maritime Research said.

The 2017 start up of the first gas-to-power project located in Malta successfully show-cased this technology and the subsequent fall in LNG prices resulted in many countries in Asia, Latin America and Africa investing in similar projects.

Global energy commodity price falls have increased the incentive to burn LNG for power generation, despite China and Japan retaining coal and oil as the preferred choice for base-load power generation, due to lower costs.

These projects can join the infrastructure for power generation and LNG imports to provide electricity in remote areas or to meet a sudden surge in power demand. Furthermore, they require less time and investment, compared with more conventional LNG infrastructure, Drewry said.

The comparative power gener-

ation cost between gas and coal has narrowed since 4Q19, with the expected slide in oil-linked LNG contract prices further shrinking the cost advantage that coal currently has over gas.

In terms of LNG infrastructure, many smaller Southeast Asian countries, such as Indonesia, the Philippines, Thailand and Myanmar, are now investing in LNG-to-power projects to meet power generation shortages and to provide reliable power to their remote islands.

Countries with vast LNG import infrastructures, such as India, China, Japan and Brazil, are also looking to invest in these type of projects to meet the sudden surge in power demand and to provide electricity to remote areas.

For example, specialists Golar Power, New Fortress Energy and VPower are investing in this segment. In addition, major energy companies, including ExxonMobil and Total, are also looking to invest, with proposed projects in Vietnam and Myanmar, respectively.

Globally, around 12 GW of LNG-

to-power generation capacity is either under construction or planned, which will come online by 2023, increasing LNG demand by 7-9 mill tonnes per annum. Another 14 GW capacity is proposed, which might further increase the global LNG demand by another 10-12 mill tonnes, Drewry said.

In Vietnam, Delta Offshore Energy's Bạc Liêu floating LNG import terminal project has signed an agreement with Magnolia LNG for the supply of 2 mill tonnes per annum of LNG and is currently in advanced stages of approval.

Myanmar joins the club

Myanmar became the latest to join the LNG importers club with Petronas supplying the first LNG cargo to the country last month following the completion of VPower's Thaketa LNG-to-power project.

While two more VPower projects are under construction in Myanmar, other companies have also proposed the setting up of LNG-to-power projects in

the country.

These projects will require robust small-scale LNG supply chains with additional investments in small-scale LNGCs and plants.

Drewry said that it expected this increasing interest to lead to more orders for small-scale LNGCs and to generate employment for FSRUs and FSUs.

Three 127,000 cu m LNGCs are currently under conversion into FSRUs by Karpower International and Mitsui OSK Lines (MOL) to provide LNG for floating power plants in Mozambique, Indonesia and Ghana. They are due to enter the service by the end of 2020.

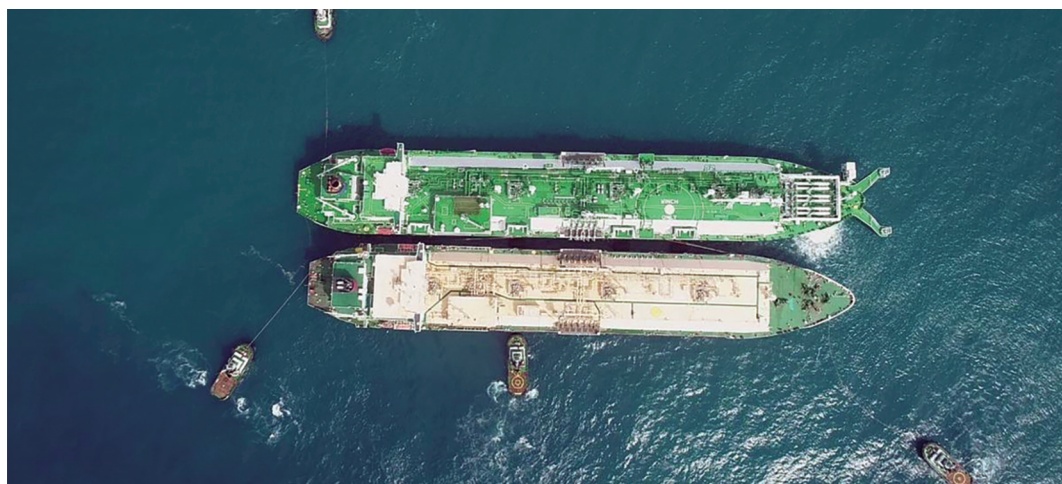
LNG-to-power projects are therefore expected to bring a ray of hope to an otherwise gloomy LNG market where production is being hampered by the lack of demand and issues related to storage.

Their fast implementation will also boost global LNG demand and are expected to account for 16% of global LNG consumption by 2030.

In addition, the fast-tracking of these projects will benefit LNGC shipbuilding and conversion yards, which are currently battling a significant fall in new vessel orders, Drewry concluded.

Later, Golar Power announced that it had signed an agreement with Galileo Technologies to provide LNG liquefaction solutions to support the development of its small-scale LNG distribution initiatives in Brazil.

This agreement includes the introduction of a new clean fuel source through the production of Biomethane liquefied natural gas (Bio-LNG).



Golar Power is increasing its Brazilian operations

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Swinoujscie terminal expansion

Poland has signed contracts worth Zlotys1.9 bill (\$483 mill) to expand the Swinoujscie LNG import terminal.

This project will see the terminal handle 8.3 bill cu m per year by 2023, up from the current 5 bill cu m.

An LNG subsidiary of Poland's gas infrastructure operator Gaz-System and the ports of Szczecin and Swinoujscie recently signed a contract with a consortium involving Porr and TGE Gas Engineering for the expansion project.

According to local sources, Poland sees this facility as a means of reducing the country's reliance on Russian gas, which still accounts for more than half of its total consumption.

"The terminal gives us the flexibility of receiving gas from different parts of the world," Piotr Naimski, a Minister responsible for energy infrastructure, told

a news conference.

Poland's state-run gas company PGNiG has already said that it does not plan to extend its long-term gas supply deal with Russia's Gazprom beyond 2022, when the contract expires.

It plans to replace Russian gas with LNG supplies plus pipeline gas from Norway via a planned gas link.

PGNiG said it expected gas consumption in Poland to increase in the coming years, as gas gradually replaces coal, with which the country uses to produce much of its electricity.

Meanwhile, the Swinoujscie terminal recently welcomed its 100th LNG cargo.

The 90,000 tonnes LNG shipment came from Qatargas on board the LNGC 'Al-Safliya'.

According to PGNiG CEO, Jerzy Kwiecinski, the 100th shipment was a "symbolic and historical moment", adding that while initially most LNGCs came from Qatar, now Poland will receive increasing volumes of imports under long-term contracts with US suppliers. ■



PGNiG's Swinoujscie terminal is to be expanded

Brunsbüttel EPC nears

German LNG Terminal has shortlisted a Spanish-German partnership for the final phase of the tender procedure for the engineering, procurement and construction (EPC) contract for its proposed Brunsbüttel LNG import terminal.

The consortium includes COBRA Instalaciones y Servicios, SENER Ingeniería y sistemas and TGE Gas Engineering.

This final phase will consist of a comprehensive value-improvement and detailed pricing exercise to make the project more cost efficient. The company said that it aimed to conclude a binding EPC contract by the end of this year.

It is expected that the detailed design and engineering work, necessary to develop purchase orders for long-lead products, can then be started after the contract's fi-

nalisation, German LNG added.

The company started the international pre-qualification process to select an EPC contractor in June, 2019.

At the same time, the permit application for the port infrastructure's planning, including the waterside facilities, is being completed.

Between them, the selected partners have been involved in a number of LNG terminal projects, such as Sines (Portugal), Sagunto and Bahía Bizcaya (Spain), Gate (The Netherlands), Dunkerque

(France) and Zeebrugge (Belgium).

German LNG Terminal is a joint venture between Dutch companies Gasunie LNG Holding, Vopak LNG Holding and Oiltanking, a subsidiary of Marquard & Bahls, Hamburg.

The company claimed that it had already concluded a number of heads of agreements. The multi-purpose terminal will provide a range of services - LNGC loading and unloading, temporary LNG storage, regasification, injection into the German natural gas grid and distribution by tank truck and LNG rail wagons. ■

Transborders brings in SBM

Australian energy engineering company, Transborders Energy has signed a partnership agreement with Single Buoy Moorings (SBM).

This agreement is aimed at jointly pursuing the deployment of Transborders' FLNG solution on a range of stranded offshore gas resource opportunities.

This solution is a pre-engineered 1.5 mill tonnes per annum floating LNG unit with a package of commercial arrangements, plus a regulatory approval execution plan for gas resource owners.

For future project opportunities, Transborders has designated SBM as its exclusive operation and maintenance services contractor for its FLNGs.

SBM will also be the exclusive contractor for the part of the FEED and the engineering, procurement, construction (EPC) services related to the turret mooring and hull scopes of the FLNG facilities.

Transborders' Managing Director, Daein Cha, said, "We are very pleased to welcome SBM Offshore as our strategic partner. SBM Offshore is the global leader for design, supply, installation, operations and leasing of floating production systems and is strategically committed to develop and operate our FLNG facilities."

Together with its partners SBM, Kyushu Electric Power, Mitsui OSK Lines, plus other LNG buyers, TechnipFMC and Add Energy, Transborders can convert a range of stranded gas resources into 'project sanction (FID) ready' state within 24 months after the FLNG solution's deployment, while also allowing LNG buyers access to competitive gas supply sources, it claimed. ■

Rosmorport issues tender for Kamchatka

Russia's FSUE Rosmorport has issued a competitive tender with limited participation to build a marine facility for LNG transshipments in Kamchatka.

According to the official website of the Russian Unified State Procurement Information System, the initial maximum contract price is RUB10.7 bill and the finance will come from the Russian federal budget.

The bidding period expires on 24th July, 2020.

The transshipment facility will be built in Bechevinskaya Bay together with the development of an adjacent plot of land.

Work is to be completed by 31st July 2021.

At the end of September, 2019, Mitsui OSK Lines (MOL), Japan Bank for International Co-operation (JBIC) and PAO NOVATEK signed a joint agreement for LNG transshipment projects in both Kamchatka and Murmansk.

The agreement provided for the partners to buy into the projects and also contribute to their finance.

The Kamchatka terminal will be used by Ice Class LNGCs arriving with Yamal cargoes for transfer to non-Ice Class LNGCs for onward delivery to the Asia/Pacific region.

The port infrastructure will include two floating LNG storage facilities, offshore points for ship-to-ship LNG transfers, a 6,580 m long access canal in Bechevinskaya Bay and a vessel traffic system.

At the beginning of June, 2020, Daewoo Shipbuilding & Marine Engineering (DSME) won an order to build two 360,000 cu m LNG barges for NOVATEK (see page 8) for use at Murmansk and Kamchatka. ■

Qataris to charter LNGC for Krk

POWERGLOBE (PG) plans to timecharter an LNGC for 10 years to support its newly booked capacity allocation at Croatia's floating terminal, to be located on the island of Krk.

PG has booked all the remaining capacity at the Croatian terminal equal to nearly 500,000 cu m per annum and said that it is looking

to secure more capacity across European LNG terminals.

POWERGLOBE Qatar is the energy arm of Optimised Holding (Al

Faisal), a company which activates energy solutions for Qatari and international corporations and governmental organisations.

Commercial operations are due to start on 1st January, 2021 and LNG Krk terminal's capacity is now fully booked for the next 15 years.

This project will achieve gas supply security for Croatia and the rest of the region, including Hungary, Slovenia, Slovakia, and the Czech Republic. In addition, it will contribute to the security of gas supply across the European Union, PG said.

Krk LNG terminal's total capacity will be about 2.5 bill cu m per year. From 2027 to 2030, LNG Croatia has already sold 1.14 bill cu m LNG capacity annually. ■



An LNGC has been chartered to serve Krk

SPHI and KOTUG to service Brunei LNG

KOTUG International is to support SPHI Marine with its long-term marine terminal service contract awarded by Brunei LNG.

This contract calls for the building of four LNGC handling tugs

KOTUG signed a technical partnership agreement with Brunei-based SPHI Marine, who was awarded a 10 + five year LNG terminal support contract to provide marine services for Brunei LNG.

This contract covers the provision of a complete marine package for the design, construction, and operation of three newbuilding patented Rotortugs and one newbuilding hybrid Rampage 4,500 Anchor Handling Tug Supply (AHTS) vessel. All of the units will be in the range of between 65 and 80 tonnes bollard pull.

The partnership goes back to 2014 when KOTUG started operations with three Rotortugs for Brunei Shell Petroleum Co. They are involved in the berthing and unberthing operations of LNGCs,

standby services during loading, oil spill response, SPM support, and firefighting duties.

The 'RT Champion', 'RT Leader' and 'RT Tasman' will continue to operate until the arrival of the new vessels.

The new tugs will be owned by SPHI Marine and technically managed by KOTUG for the first period of the contract. Based on a transition plan KOTUG will hand the management over to SPHI Marine during the second contractual phase. SPHI Marine will operate under its own Safety Management System (SMS) supported by KOTUG through a technical support service agreement.

Dzairenny Muslim, SPHI Marine's Executive Director, said: "We are delighted to build on our partnership with KOTUG, which will allow us to continue to develop local Bruneian offshore ma-

rine capability in support of the nation's programme to maximise in-country value in the oil and gas industry."

Ard-Jan Kooren, CEO KOTUG International, added: "We are proud to be able to support SPHI Marine based on our extensive knowledge and experience on providing marine services and are grateful for the confidence presented by BLNG. A special appreciation goes out to our seafarers and staff in Brunei who are on the basis of this success having an open attitude to continue learning while remaining committed to the goal zero safety standards. In the end, it is our mission to exceeding our client's expectations."

Sphi Marine is a fully 100% Bruneian-owned and managed company with a dedicated focus on offshore marine services. ■

YPF declares 'Tango' force majeure

EXMAR has received written notification of a *force majeure* from YPF under the charter and services agreement for the 'Tango FLNG'.

YPF claimed that the effects of the pandemic both worldwide and in Argentina hindered the energy company's ability to perform its obligations under the contracts, including but not limited to, its ability to pay the invoices due for services performed from the second half of March, 2020.

EBITDA from the 'Tango FLNG' contributed 36% to EXMAR's total amount for the period, the com-

pany said.

EXMAR said that it considered the notice to be unlawful, has reserved its rights and is considering its best option to defend its interests.

Irrespective of the outcome of the dispute with YPF, EXMAR said it is contemplating several measures to safeguard its liquidity position, which on the basis of its current forecast, is not at risk until the end of this year. ■

Dominion to sell gas assets - retains interest in Cove Point

Dominion Energy has signed a definitive agreement to sell most all of its gas transmission & storage assets to an affiliate of Warren Buffet's Berkshire Hathaway.

The price was \$9.7 bill, which included the assumption of \$5.7 bill of existing indebtedness.

Retained non-state regulated utility operations, notably the 50% passive and unlevered interest in Cove Point — a bi-directional LNG facility in Maryland - represent high-quality, long-term contracted, regulated-like assets with virtually no direct commodity exposure, Dominion said.

However, included in the deal is a 25% operating interest in the LNG marine facility at Cove Point.

As a result, the Gas Transmission & Storage segment will cease. Dominion Energy's retained interest in Cove Point will be reported under the Contracted Generation operating segment, which will be renamed Contracted Assets.

This deal is still subject to US regulatory approval. ■

GEV and Raffles extend Lol

Australian CNG project designer Global Energy Ventures (GEV) has extended the Letter of Intent (Lol) signed with Yantai CIMC Raffles Offshore (CIMC Raffles).

This agreement will lead to the building of GEV's CNG Optimum 200 design CNG ships.

The extension is for six months through 31st December, 2020 and the Lol is for a firm order for four 200 mill cu ft CNG carriers plus an option for another four.

Both parties intend to enter into a shipbuilding engineering, procurement & construction (EPC) contract, employing GEV's CNG Optimum design through the Lol.

CIMC Raffles has had experience with CNG systems, and mov-

ing forward, the group's scale of operations with three shipyards will support GEV's growth aspirations of multiple CNG projects requiring shipbuilding contracts, the company claimed.

GEV Executive Chairman and CEO, Maurice Brand, commented: "GEV is delighted to further extend the shipyard LOL with CIMC Raffles through to the end of 2020. During the past six months our project teams have worked closely with the team at CIMC Raffles to complete important

marine engineering work on our priority projects in Brazil and the US.

"This work has taken the base design of the CNG Optimum ship and qualified new designs to include two additional methods for loading gas offshore. These are the STL and SAL gas loading systems. This work has put the company into a strong position to secure our first project CNG project for multiple applications, including Brazil and the US," he said. ■

LNG shipping index launched

A new LNG shipping index, UP World LNG Shipping Index was recently launched at www.up-indices.com.

This is a rules-based stock index suite designed to measure the performance of global publicly traded companies involved in LNG shipments.

"Our aim is to set up the UP World LNG Shipping Index as the leading index for the rising LNG shipping industry," explained Tomas Novotny, the index founder.

This index covers 17 companies and partnerships worldwide covering 65% of the world LNGC fleet, thus far.

It also uses a unique reduction factor, allowing the inclusion of companies active in areas other than LNG shipping.

According to Novotny, maritime and finance professionals can profit from UP World LNG Shipping Index in several ways. First, it shows which companies are leading the sector and which are under- or overrated. Other charts show comparison of the UP index with spot rates and timecharters, the entire US stock market and more. ■

NEWS NUDGE

Adriatic receives first Q-Flex

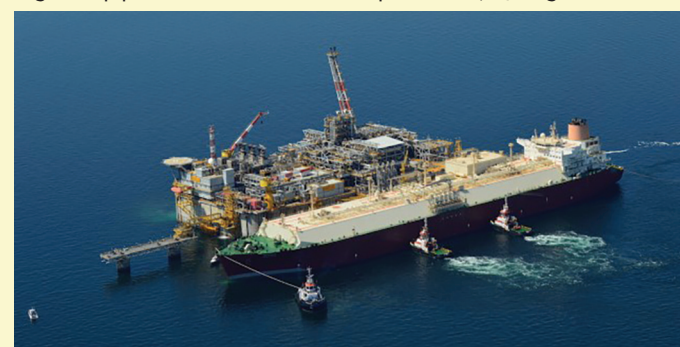
Qatargas has delivered the first Q-Flex LNG cargo to the Adriatic LNG receiving terminal in Italy.

The Qatargas-chartered LNGC, 'Tembek,' loaded at Ras Laffan on 9th June and arrived at the Adriatic LNG terminal on 21st June.

This terminal is located around 14 km offshore of Porto Levante in the northern Adriatic near Rovigo. It was the world's first offshore gravity-based LNG regasification terminal.

Operated by ExxonMobil (70%); Qatar Terminal Ltd (23%),

a subsidiary of Qatar Petroleum; and Snam (7%), the terminal is connected to the Italian national distribution network through integrated pipelines.



Adriatic has played host to its first Q-Flex

It has a regasification capacity of 8 bill cu m of LNG per year and it currently supplies over 10% of the country's natural gas requirements, Qatargas said. ■

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Japan Inc invests in Mozambique

The Japanese Government is to join the business sector in financing the development of Mozambique LNG.

According to the Nikkei Asian Review, under the Y1.5 trillion (\$14.4 billion) deal, a syndicate of lenders, including the Japan Bank for International Co-operation (JBIC) and the country's top-three private sector banks, will provide loans, while Nippon Export and Investment Insurance will handle default risk.

The consortium said it believed that this deal represents an opportunity to secure stable long-term LNG production and diversify Japan's LNG supply sources.

JBIC is to lend \$3 billion, while the remaining amount will be shared by the African Development Bank and the Japanese private-sector banks, including MUFG Bank, Mizuho Bank, Sumitomo Mitsui Banking and Sumitomo Mitsui Trust Bank.

The private bank loans will be insured by NEXI, a Japanese government-affiliated insurer.

Japanese trading house Mitsubishi & Co and Japan Oil, Gas and Metals National Corp (JOGMEC) will invest 20% in the gas field to be

developed in Mozambique.

The gas field is planned to start producing 12 million tonnes of LNG in 2024, of which about 30% will be supplied to Japanese utilities JERA, Tokyo Gas and Tohoku Electric Power.

As the field's deposits were estimated to total over 10 times Japan's annual LNG imports, the companies expect it to produce a stable supply for many years, Nikkei reported.

According to other reports, this project will support at least 16

newbuilding LNGCs, backed by multi-year charters.

Japanese owners Nippon Yusen Kaisha (NYK), Mitsui OSK Lines (MOL) and Kawasaki Kisen Kaisha were thought to be ready to sign contracts, possibly as soon as this month, for four vessels each, while Maran Gas Maritime will build another four.

The vessels, costing an average of \$190 million, are to be built by Hyundai Heavy Industries and Samsung Heavy Industries, the sources suggested. ■

Fuel cells for LNGCs?

Bloom Energy and Samsung Heavy Industries (SHI) have signed a joint development agreement (JDA) to design and develop fuel cell-powered ships.

The next ship type to be submitted for a design approval is an LNGC, following an Approval in Principle (AiP) for fuel cell-powered Aframax crude oil tankers from DNV GL, announced in September, 2019.

"By signing this joint development agreement, SHI has a plan to develop eco-friendly ships that will lead the future of the industry," said Haeki Jang, SHI's Vice President of Shipbuilding & Drilling Sales Engineering. "Our goal is to replace all existing main engines and generator engines with these highly efficient solid oxide fuel cells to align with the IMO's 2030 and 2050 environmental targets."

SHI is participating in the rele-

vant activities during the project, from early studies to project completion, in order to build highly efficient fuel cell-powered ships. Simultaneously, Bloom Energy has created a cross-functional team of engineers to adapt its servers to the marine environment.

Both companies are working towards the next milestone in this development with a target to present the design to potential customers in 2022. Following commercialisation, the two companies anticipate that the market for Bloom Energy servers on SHI built ships could grow to 300 MW annually.

This development work aligns with the IMO's mandate to meet emissions reduction targets by

2050. The fuel cells create electricity through an electro-chemical reaction, without combusting the fuel, and as a result, these ships would be able to improve air quality with a reduction of particulate emissions, including NOx and SOx, by more than 99% and shrink carbon emissions.

"The marine shipping industry has the ability to make a substan-

tial impact on emissions and air quality at ports and across our planet," said KR Sridhar, Bloom Energy's founder, Chairman and CEO. "We see a collaboration with one of the world's largest shipbuilders, SHI, as a moment to make measurable strides in reducing emissions and extending our mission for clean, reliable energy to the seas." ■

NEWS NUDGE

Orders and deliveries

Hudong-Zhonghua Shipbuilding Co, part of China State Shipbuilding Corp (CSSC), is to build three LNGCs worth Yuan3.9 billion (\$551.62 million).

The 174,000 cu m LNGCs will be operated by COSCO Shipping Energy Transportation (CSET), a subsidiary of COSCO Shipping.

They will be deployed under a 20-year charter to PetroChina.

The three vessels are expected to be delivered between the end of 2022 and early 2023, a spokesperson at Hudong-Zhonghua told Reuters.

They will be fitted with X-DF propulsion units and membrane type containment systems.

Liu Hanbo, CSET Chairman,

told Reuters that the construction of the new LNGCs is in response to the government's call to expand domestic demand and to safeguard China's energy security.

Elsewhere, Norwegian shipowner Knutsen OAS has taken delivery of a newbuild LNGC from Hyundai Heavy Industries (HHI).

The 180,000 cu m 'Traiano Knutsen' has begun her long term charter with Enel upon her delivery.

Knutsen has another four 174,000 cu m LNGCs on order with HHI, all of which are scheduled for delivery next year, as well as an 30,000 cu m LNGC at Hyundai Mipo also for delivery in 2021. ■



An LNGC could take advantage of fuel cell technology

GTT teams up with Zvezda

At the end of last month, GTT won an order from the Russian shipyard Zvezda Shipbuilding Complex (Zvezda) for the tank designs of five Arc7 LNGCs.

This represents the first order after GTT had signed a technical assistance and license agreement (TALA) with the shipyard, which will allow Zvezda to build the membrane technologies developed by GTT.

The Arc7s will be employed on NOVATEK's Arctic projects.

Each vessel will have a capacity of 172,600 cu m and will be fitted with GTT-designed Mark III membrane containment systems.

The vessels' deliveries are planned between the first and last quarters of 2023.

GTT's signing of a TALA with Zvezda represented a step forward in the deployment of its technologies in Russia, the company said.

Zvezda Shipbuilding was formed by the Zvezda Far Eastern Shipyard and a consortium of Rosneftgaz, Rosneft and Gazprombank.

The shipbuilder gained its GTT license after a qualification process that began in September, 2017, including the construction of a Mark III mock-up.

More orders

In addition, GTT has won another couple of contracts during the past few weeks.

They include an order from Daewoo Shipbuilding & Marine Engineering (DSME) for the tank design of two FLNG storage units (FSUs), the largest yet to be built,

on behalf of the Russian company GTLK.

Each FSU will have a capacity of 361,600 cu m and will be fitted with the NO96 GW membrane cryogenic containment system. Their delivery is scheduled for the end of 2022.

They will be located in the Murmansk region and in the Bay of Kamchatka, respectively and will be used on NOVATEK's Arctic LNG 2 project.

In addition, GTT received an order to design two storage tanks for Beijing Gas Group's (BGG) Tianjin Nangang LNG terminal from China Huanqiu Contracting & Engineering (HQC).

The two tanks, each with a net

capacity of 220,000 cu m, will be the largest land storage tanks built in China.

This order follows the agreement signed in November, 2019 between GTT and the Chinese state-owned company Beijing Enterprises Group (BEG).

The onshore storage tanks will be located in the Tianjin south port industrial zone and are expected to be commissioned during the last quarter of 2022.

Meanwhile, GTT Training Limited (GTT Training) has signed a training partnership with Singapore's Wavelink Maritime Institute (WMI).

This partnership will facilitate the delivery of GTT Training's LNG industry related courses at WMI's training facility in Jurong, Singapore.

The agreement includes the installation of GTT Training's liquid gas handling simulator 'G-SIM' at the Wavelink Maritime Simulation Centre and the co-sharing of expertise in the full range of LNG handling and operations courses for the personnel involved with LNGCs, terminals and LNG fuelled vessels to be provided at WMI. ■



Zvezda is to benefit from GTT's input

LNGCs and autonomous ships

For vessels such as LNGCs, the industry's drive towards autonomous ships will lead to technology being used on the bridge as a navigational safety tool for collision avoidance, etc, a leading expert said.

It will not displace the human element, Capt Eero Lehtovaara, ABB's regulatory affairs said during a webinar examining autonomous ship development.

The IMO is currently involved in a scoping exercise - looking at the rules in place rather than developing new rules for autonomous ships - it was explained during the webinar's introduction.

ABB has introduced what it calls the Intelligent Shipping Initiative. Capt Lehtovaara kept his talk to navigational issues and explained it was a question of data

management rather than autonomy and how to keep 'the human in the loop'.

It is also a question of how to support the equipment and the person on the bridge and share the operational burden between the human and machine. He explained that within SOLAS there were already mandatory sensor packages, involving ECDIS, Radar, GPS, AIS and Gyro, for example.

One of the key questions going forward was - who gets to make the decisions - the machine or the human being? It was also a ques-

tion of confidence in giving the machinery more space to operate both on the bridge and in the engine room.

This technology already exists, he said, but it is a question of regulatory compliance and license to operate using digital technology. Going forward, improvements need to be taken step-by-step in a gradual development, which will probably be partly driven by the market.

He didn't see the key driver being the reduction of seafarers on board ship. Seafarers will re-

main for a long time, Capt Lehtovaara stressed. However, a change in ship operations could be seen with human working patterns being more akin to normal office working hours, while a ship is on a long sea passage.

The technology needed to be tested, he stressed and another key question was - do the customers want the technology? The regulatory bodies primarily make decisions with safety in mind, hence the drive to maximise safety on board a vessel, such as an LNGC, he said. ■

On board BOG system launched

Wärtsilä has unveiled a new shipboard reliquefaction plant.

The Compact Reliq system is designed to reliquefy boil-off gas (BOG) on board LNGCs and LNGBVs and to keep the cargo cool under all operational conditions.

Its compact design enables it to be installed on existing vessels without extensive modification work.

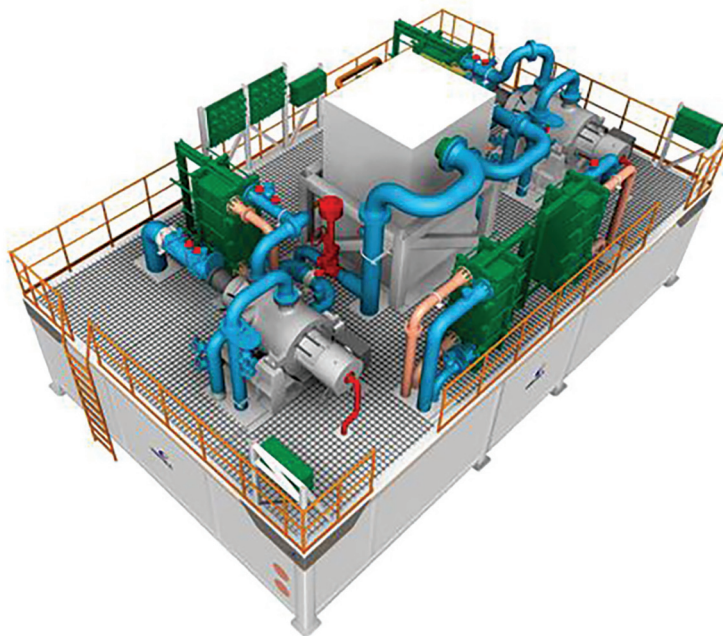
“Wärtsilä has been a pioneer in BOG reliquefaction and the Compact Reliq is a continuation of our strong development activities in this field. As the global market for LNG applications expands in response to increasing environmental regulations, greater flexibility in meeting these growing needs is required. The Compact Reliq is an important and innovative new piece towards completing the puzzle,” said Kjell Ove Ulstein, Director Sales & Marketing, Gas Solutions, Wärtsilä Marine Systems.

As with previous Wärtsilä reliquefaction systems, Compact Reliq is based on Brayton technology. This allows part of the BOG to be used as fuel for the vessel, while the excess can be liquefied and sold with the LNG cargo.

Liquefying the BOG instead of burning it in a gas combustion unit also has a positive environmental effect, as no gases are released into the atmosphere.

The system is ready instrumented for remote monitoring and online operational support, and requires minimal maintenance between five-year interval dockings.

It is also compatible with Wärtsilä's Operational Performance Improvement and Monitoring (OPERIM) protocol, and can be fully integrated with the ship's planned maintenance system (PMS).



Wärtsilä's Compact Reliq can be installed on existing vessels without extensive modification requirements

“

As the global market for LNG applications expands in response to increasing environmental regulations, greater flexibility in meeting these growing needs is required. The Compact Reliq is an important and innovative new piece towards completing the puzzle

”

- Kjell Ove Ulstein, Director Sales & Marketing, Gas Solutions, Wärtsilä Marine Systems.

NEWS NUDGE

Sonatrach extends Total deal

Algerian state energy company Sonatrach has signed a deal with Total to continue the supply of 2 mill tonnes a year of LNG to France for another three years.

Relations between Sonatrach and Total had deteriorated after Algeria blocked the sale of Anadarko assets to the French company, energy sources had told Reuters.

Korea Lines spins off LNGC segment

Korea Lines has reportedly completed its planned spin-off of its LNG shipping business into a separate entity.

A new company – Korea LNG Shipping – now owns 11 LNGCs, all of which are under term charters with South Korean state-controlled importer Kogas. Four of these vessels are owned in a consortium.

Korea LNG Shipping is also due to take delivery of another two LNGCs from Hyundai Samho Heavy Industries (HSHI) in 2022.

Tianjin tops LNG imports in China

North China's Tianjin came top in the list of the country's LNG import ports for the first five months of this year.

Tianjin accounted for about 19.5% of the country's total LNG

imports, according to the Tianjin Customs, reported Xinhua.

From January to May, LNG imports through the port increased 24.8% year-on-year to hit 4.97 mill tonnes as LNG

prices kept falling.

Tianjin LNG imports during the period mainly came from Australia, Russia and Southeast Asia, which added up to 75.4% of the port's total LNG imports.

LNG rate assessments

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

Region	This week	Change*
East of Suez	\$31,000	+\$1,000
West of Suez	\$34,000	+\$1,000
12 mos T/C	\$43,000	-

*Since last report (25/06/20)

Source: Fearnleys (08/07/20)

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WORLD LNG CARRIER ORDERBOOK

Name	Containment system	Yard	Propulsion	Capacity	Delivery date	Primary Owner
Amberjack Lng	GTT Mark III Flex	Hyundai	XDF	174000	01/04/2020	Cardiff Marine
Gaslog Wales	GTT Mark III Flex	Samsung	XDF	180000	01/04/2020	GasLog
Qogir	GTT Mark III Flex	Samsung	XDF	174000	01/04/2020	Cardiff Marine
Elisa Larus	GTT Mark III Flex	Hyundai	XDF	174000	01/04/2020	NYK
Bonito Lng	GTT Mark III Flex	Hyundai	XDF	174000	01/04/2020	Cardiff Marine
Maran Gas Psara	GT NO 96	DSME	MEGI	173400	01/04/2020	Maran Gas Maritime
Gaslog Windsor	GTT Mark III Flex	Samsung	XDF	180000	15/04/2020	GasLog
Global Energy	GT NO 96	DSME	MEGI	173400	01/05/2020	Nakilat
Traiano Knutsen	GTT Mark III Flex	Hyundai	MEGI	180000	01/06/2020	Knutsen
Flex Aurora	GTT Mark III Flex	Hyundai	XDF	174000	01/06/2020	Flex LNG
Bw Pavilion Aramhera	GT NO 96	DSME	MEGI	173400	01/06/2020	BWGas
Flex Amber	GTT Mark III Flex	Hyundai	XDF	174000	01/07/2020	Flex LNG
Lng Phecda	GT NO 96	Hudong-Zhonghua	MEGI	174000	01/07/2020	MOL
SHI Gaslog #2	GTT Mark III Flex	Samsung	XDF	180000	15/07/2020	GasLog
SHI #1	GTT Mark III Flex	Samsung	XDF	174000	15/07/2020	Cardiff Marine
Scf Barents	GTT Mark III Flex	Hyundai	XDF	174000	01/08/2020	Sovcomflot
Energy Pacific	GT NO 96	DSME	MEGI	173400	01/08/2020	Alpha Gas
Flex Artemis	GT NO 96	DSME	MEGI	173400	01/08/2020	Flex LNG
Flex Resolute	GT NO 96	DSME	MEGI	173400	01/08/2020	Flex LNG
Vivit Americas Lng	GTT Mark III Flex	Hyundai	XDF	174000	01/09/2020	Cardiff Marine
Diamond Gas Metropolis	GTT Mark III Flex	Hyundai	XDF	174000	01/09/2020	NYK
Flex Freedom	GT NO 96	DSME	MEGI	173400	01/09/2020	Flex LNG
Cool Discoverer	GTT Mark III Flex	Hyundai	XDF	174000	01/09/2020	Thenamaris
Samsung 2297	GTT Mark III Flex	Samsung	XDF	180000	01/10/2020	Celcius Shipping
Samsung 2300	GTT Mark III Flex	Samsung	XDF	174000	01/10/2020	GasLog
Aristos I	GTT Mark III Flex	Hyundai	XDF	174000	01/10/2020	Capital Gas
Yiannis	GT NO 96	DSME	MEGI	173400	01/10/2020	Maran Gas Maritime
Samsung 2276	GTT Mark III Flex	Samsung	XDF	174000	01/10/2020	Cardiff Marine
LNG Megnez	GT NO 96	Hudong-Zhonghua	MEGI	174000	01/10/2020	MOL
Aristidis I	GTT Mark III Flex	Hyundai	XDF	174000	01/11/2020	Capital Gas
Global Star	GT NO 96	DSME	MEGI	173400	01/11/2020	Nakilat
Flex Volunteer	GTT Mark III Flex	Hyundai	XDF	174000	01/11/2020	Flex LNG
Daewoo 2498	GT NO 96	DSME	MEGI	180000	01/12/2020	MOL
Hyundai Samho 8008	GTT Mark III Flex	Hyundai	XDF	174000	01/12/2020	Sovcomflot
Samsung 2301	GTT Mark III Flex	Samsung	XDF	174000	01/12/2020	GasLog
Energy Endeavour	GT NO 96	DSME	MEGI	173400	01/12/2020	Alpha Gas
Daewoo 2481	GT NO 96	DSME	MEGI	173400	01/12/2020	Minerva Marine
Celcius #2	GTT Mark III Flex	Samsung	XDF	180000	15/12/2020	Celcius Shipping
Lngships Athena	GTT Mark III Flex	Hyundai	XDF	174000	01/01/2021	Cardiff Marine
Cool Racer	GTT Mark III Flex	Hyundai	XDF	174000	01/01/2021	Thenamaris
Samsung 2304	GTT Mark III Flex	Samsung	XDF	174000	01/01/2021	Minerva Marine
Samsung 2313	GTT Mark III Flex	Samsung	XDF	180000	01/02/2021	Celcius Shipping

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 = 1st April 2020

Name	Containment system	Yard	Propulsion	Capacity	Delivery date	Primary Owner
Bw Lesmes	GT NO 96	DSME	MEGI	174000	01/02/2021	BWGas
Daewoo 2499	GT NO 96	DSME	MEGI	180000	01/02/2021	MOL
Cobia Lng	GTT Mark III Flex	Hyundai	XDF	174000	15/02/2021	Cardiff Marine
DSME Minerva #2	GT NO 96	DSME	MEGI	173400	15/02/2021	Minerva Marine
Marvel Swan	GTT Mark III Flex	Samsung	XDF	173400	01/03/2021	Navigare
Bw Helios	GT NO 96	DSME	MEGI	174000	01/03/2021	BWGas
Hyundai Samho 8039	GTT Mark III Flex	Hyundai	XDF	174000	01/03/2021	Latsco Shipping
Hyundai Ulsan 3039	GTT Mark III Flex	Hyundai	XDF	174000	01/03/2021	Cardiff Marine
Flex Vigilant	GTT Mark III Flex	Hyundai	XDF	174000	01/03/2021	Flex LNG
SHI #18	GTT Mark III Flex	Samsung	XDF	174000	15/03/2021	Cardiff Marine
Aristarchos	GTT Mark III Flex	Hyundai	XDF	174000	15/03/2021	Capital Gas
Samsung 2302	GTT Mark III Flex	Samsung	XDF	174000	01/04/2021	NYK
Celcius #4	GTT Mark III Flex	Samsung	XDF	180000	15/04/2021	Celcius Shipping
DSME 2485	GT NO 96	DSME	MEGI	173400	15/04/2021	Alpha Gas
Hyundai Samho S971	GTT Mark III Flex	Hyundai	XDF	174000	01/05/2021	NYK
Diamond Gas Crystal	GTT Mark III Flex	Hyundai	XDF	174000	01/05/2021	NYK
Daewoo 2501	GTT Mark III Flex	DSME	MEGI	174000	01/06/2021	Maran Gas Maritime
Hudong-zhonghua H1827a	GT NO 96	Hudong-Zhonghua	XDF	174000	01/06/2021	CSSC
Daewoo 2495	GT NO 96	DSME	XDF	174000	01/06/2021	Maran Gas Maritime
Daewoo 2500	GT NO 96	DSME	MEGI	174000	01/06/2021	Alpha Gas
SHI Gaslog CE #1	GTT Mark III Flex	Samsung	XDF	180000	15/06/2021	GasLog
Attalos	GTT Mark III Flex	Hyundai	XDF	174000	15/06/2021	Capital Gas
Adamastos	GTT Mark III Flex	Hyundai	XDF	174000	01/07/2021	Capital Gas
DSME MOL #3	GT NO 96	DSME	MEGI	173400	15/07/2021	MOL
Asterix 1	GTT Mark III Flex	Hyundai	XDF	174000	01/08/2021	Capital Gas
SHI Gaslog CE #2	GTT Mark III Flex	Samsung	XDF	180000	15/08/2021	GasLog
Hyundai Ulsan 2939	GTT Mark III Flex	Hyundai	XDF	180000	01/09/2021	SK Shipping
Daewoo 2504	GT NO 96	DSME	XDF	174000	01/09/2021	Maran Gas Maritime
Daewoo 2502	GTT Mark III Flex	DSME	XDF	173400	01/09/2021	Nakilat
Samsung 2305	GTT Mark III Flex	Samsung	XDF	174000	01/09/2021	Minerva Marine
Diamond Gas Victoria	GTT Mark III Flex	Hyundai	XDF	174000	01/09/2021	NYK
Hyundai Samho 8040	GTT Mark III Flex	Hyundai	XDF	174000	01/09/2021	Latsco Shipping
Samsung 2355	GTT Mark III Flex	Samsung	XDF	174000	01/10/2021	NYK
Daewoo 2507	GT NO 96	DSME	XDF	174000	01/10/2021	Maran Gas Maritime
Hyundai Ulsan 3111	GTT Mark III Flex	Hyundai	XDF	174000	01/10/2021	Capital Gas
Samsung 2306	GTT Mark III Flex	Samsung	XDF	174000	01/10/2021	NYK
Hyundai Ulsan 3157	GTT Mark III Flex	Hyundai	XDF	174000	01/11/2021	Tsakos Energy Navigation
Samsung 2315		Samsung	XDF	174000	01/12/2021	
Hyundai Samho 8025	GTT Mark III Flex	Hyundai	XDF	174000	01/12/2021	Hanjin Shipping
Daewoo 2503	GTT Mark III Flex	DSME	XDF	173400	01/12/2021	Nakilat
Samsung 2307	GTT Mark III Flex	Samsung	XDF	174000	01/12/2021	NYK
Daewoo 2508	GT NO 96	DSME	XDF	174000	01/01/2022	Maran Gas Maritime
Hyundai Samho 8032	GTT Mark III Flex	Hyundai	XDF	174000	01/01/2022	NYK

Name	Containment system	Yard	Propulsion	Capacity	Delivery date	Primary Owner
Samsung 2336	GTT Mark III Flex	Samsung	XDF	174000	01/01/2022	JP Morgan
Hyundai Ulsan 3137	GTT Mark III Flex	Hyundai	XDF	200000	01/01/2022	Dynagas
Hudong-zhonghua H1828a	GT NO 96	Hudong-Zhonghua	XDF	174000	01/01/2022	CSSC
Samsung 2332	GTT Mark III Flex	Samsung	XDF	174000	01/01/2022	Minerva Marine
Hyundai Samho 8026	GTT Mark III Flex	Hyundai	XDF	174000	01/02/2022	Hanjin Shipping
Hyundai Samho 8033		Hyundai	XDF	173000	01/03/2022	NYK
Samsung 2316		Samsung	XDF	174000	01/03/2022	
Samsung 2319	GTT Mark III Flex	Samsung	XDF	174000	01/03/2022	Nisshin Shipping
Hudong-zhonghua #1	GT NO 96	Hudong-Zhonghua	XDF	80000	01/04/2022	K-Line
Hyundai Ulsan 3138	GTT Mark III Flex	Hyundai	XDF	200000	01/04/2022	Dynagas
DSME May19	GT NO 96	DSME	MEGI	174000	15/05/2022	Maran Gas Maritime
Hudong-zhonghua #2	GT NO 96	Hudong-Zhonghua	XDF	80000	01/06/2022	K-Line
Samsung 2317		Samsung	XDF	174000	01/06/2022	
Hyundai Ulsan 3145	GTT Mark III Flex	Hyundai	XDF	180000	01/07/2022	SK Shipping
Samsung 2337	GTT Mark III Flex	Samsung	XDF	174000	01/07/2022	JP Morgan
Hyundai Samho 8091	GTT Mark III Flex	Hyundai	XDF	174000	01/08/2022	Knutsen
Hyundai Ulsan 3185	GTT Mark III Flex	Hyundai	XDF	174000	01/08/2022	Korea Line
Daewoo 2509	GT NO 96	DSME	MEGI	174000	01/08/2022	BWGas
Samsung 2318		Samsung	XDF	174000	01/09/2022	
Daewoo 2510	GT NO 96	DSME	MEGI	174000	01/09/2022	BWGas
Hyundai Ulsan 3187	GTT Mark III Flex	Hyundai	XDF	174000	01/10/2022	JP Morgan
Hyundai Samho 8092	GTT Mark III Flex	Hyundai	XDF	174000	01/10/2022	Knutsen
Hyundai Ulsan 3186	GTT Mark III Flex	Hyundai	XDF	174000	01/10/2022	Korea Line
Hyundai Ulsan 3188	GTT Mark III Flex	Hyundai	XDF	174000	01/11/2022	JP Morgan
Hyundai Samho 8093	GTT Mark III Flex	Hyundai	XDF	174000	01/11/2022	Knutsen
Hyundai Samho 8094	GTT Mark III Flex	Hyundai	XDF	174000	01/12/2022	Knutsen
Samsung 2364	GTT Mark III Flex	Samsung	XDF	174000	01/01/2023	MISC
Samsung 2365	GTT Mark III Flex	Samsung	XDF	174000	01/02/2023	MISC

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 = 1st April 2020



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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	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
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	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	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
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	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
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	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2017	Oizmendi	600	LNG	Bilbao	Yes	Itsas Gas
2017	ENGIE Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell

For more information please visit <http://small-lng.com>

*Includes multi-gas, ethylene and LNG bunker ships with 40,000 cubic metres LNG cargo capacity or less

TBN = To Be Nominated indicates ships are still at construction/planning stage

** = project shelved † =Data to be verified Data last updated = 11th May 2020

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
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	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	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	Coral Encanto	30,000	LNG	China	Yes	Anthony Veder
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
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	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	Bunker Breeze	0	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	FuelLNG TBN	7,500	LNG	Singapore	Yes	FuelLNG
2020	CLS TBN	3,500	LNG	Japan	Yes	CLS
2020	Elenger TBN	6,000	LNG	NWE	Yes	Elenger
2020	ENN TBN	8,500	LNG	China	Yes	ENN
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2021	Knutsen TBN	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	Gazprom Neft TBN	5,800	LNG	Russia	Yes	Gazprom Neft
2021	PE TBN	12,000	LNG	Singapore	Yes	MOL
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	TBN	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2022	PNE TBN	5,400	LNG	USG	Yes	PNE
2024	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2024	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2026	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2026	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas

For more information please visit <http://small-lng.com>

*Includes multi-gas, ethylene and LNG bunker ships with 40,000 cubic metres LNG cargo capacity or less

TBN = To Be Nominated indicates ships are still at construction/planning stage

** = project shelved † =Data to be verified Data last updated = 11th May 2020