

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

7 March 2019

LNGC operator's outlook - the bulls and the bears

In the fourth quarter 2018 and annual reports published in the past couple of weeks, there were both bullish and bearish predictions going forward.

LNG SN has condensed the forecasts into a short look at what the various operators are thinking.

Awilco LNG said that despite short term softness, the outlook for LNG shipping in the next few years is promising. A total of 91 mill tonnes per annum of new LNG production capacity is expected to start up between 2018 and 2021.

Close to 50 mill tonnes will come from the US, which is expected to increase average LNGC sailing distances substantially, and with orderbook visibility until 2021, the tonnage balance is supportive of improving utilisation and firming rates.

However, periods of volatility and seasonality should be expected, as evidenced by the warmer 2018/2019 winter.

In the longer-term recent liquefaction FIDs are promising, and to meet the growing demand for gas, estimated at double the growth rate of the total global energy demand, according to Shell Energy Outlook, several new LNG production plants are expected to be sanctioned in the next six to 12 months.

Flex LNG said that due to a combination of higher temperatures and about 30 vessels used for floating storage, the freight rates slumped during first quarter of 2019, resulting in lower general fleet usage.

However, for the whole of this year, the LNG market is expected to grow by an incremental 33 mill tonnes, thereby increasing shipping demand.



Mixed messages from the results presentations - Golar in bearish mood. Photo credit Port of Gibraltar

Flex LNG expected about 38 vessels to be delivered this year, which would result in only 1.15 new ships per mill tonne of new LNG, compared to historic requirement for about 1.3 ships per mill tonnes of LNG, given a lifting capacity of about 750,000 tonnes per annum per LNGC.

Tonne/mile increase

Flex LNG also agreed that the incremental growth in LNG will mainly come from the US, which will increase tonne/miles.

By 2022, both the US and Australia are expected to overtake Qatar as the biggest LNG exporters. However, with the expected addition of four more liquefaction trains in Qatar, scheduled for operation by 2024, it should return to its pole position.

The world's total LNGC fleet, above 125,000 cu m, exceeds 470 vessels and around 38 more are expected to be delivered

this year.

Flex LNG expected the potential growth of LNG production and growth in demand for natural gas to continue to tighten the shipping market.

On a more short term bearish note, Golar LNG said that almost half of the 2019 newbuildings are scheduled for delivery in the first quarter of this year, which will contribute to a rise in prompt vessel availability and falling spot rates.

Headline TFDE spot rates were around \$50,000 per day at the end of February. Golar said that based on fixtures to date, 1Q19 TCEs were expected to be significantly reduced from 4Q18, dropping below mid-cycle rates.

Although spot rates may be prone to further periods of volatility, 2019 is expected to report a shipping deficit, which is expected to increase next year, the company said.

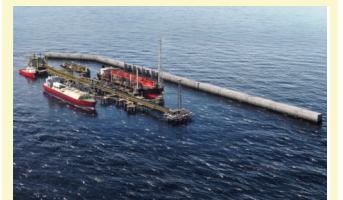
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Global LNG trade set to rise

Global LNG demand rose by 27 mill tonnes to 319 mill tonnes last year, according to Shell's latest annual LNG Outlook.

Demand is expected to reach about 384 mill tonnes in 2020, while supply is set to rise by 35 mill tonnes this year alone, the report said.

Europe and Asia will absorb all of the additional supply, while a rebound in new long-term LNG contracting in 2018 could revive investment in liquefaction projects.

However, based on current demand projections, Shell still forecast that supplies will tighten in the mid-2020s.

Ongoing efforts to improve urban air quality saw China's LNG imports surge by 16 mill tonnes last year, up by 40% from 2017.

On the supply side, Australian LNG exports caught up with leading supplier Qatar towards the end of last year and are expected to rise by 10 mill tonnes in 2019. Both countries are well-positioned to supply rapidly developing

economies across Asia with gas they need to displace coal-fired power and heating, the report said.

"The continued surge in Chinese LNG imports has helped improve air quality in some of its biggest cities over the last few years. China's success in making the air cleaner for millions of people shows the critical role that natural gas can play in providing more and cleaner energy around

the world," said Maarten Wetseelaar, Shell's Integrated Gas and New Energies Director.

"We saw Asian LNG demand growth exceed expectations again in 2018 and we expect this strong growth to continue. Investment in new supply projects is picking up, but more will be needed soon," he added.

An increasing number of countries have turned to natural gas to meet their growing energy needs,

resulting in LNG trade increasing from 100 mill tonnes in 2000 to 319 mill tonnes in 2018.

Long-term contracts

New LNG projects typically require long-term sales agreements to secure financing. From 2014 through 2017, LNG buyers had increasingly been looking to sign shorter, smaller and more flexible contracts.

Shell warned in last year's LNG Outlook that this mismatch between suppliers and buyer needs would have to be resolved to enable developers to go ahead with new projects.

Encouragingly, the average length of contracts signed more than doubled from around six years in 2017 to about 13 years in 2018. In addition, the total contracted volume more than doubled to almost 600 mill tonnes last year, Shell said. ■



Shell has forecast an LNG trade ramp up

EPIK teams up with Hyundai LNG

South Korean LNG project development company, EPIK has signed a strategic partnership agreement with Hyundai LNG Shipping.

This agreement lays down a framework for the two companies to work together in the development of FSRU projects worldwide, including, EPIK's recently announced Newcastle LNG FSRU import project at Newcastle, NSW.

Jee Yoon, EPIK's Founder and Managing Director, said, "Partnering with Hyundai LNG Shipping marks a key strategic milestone for EPIK, contributing significant

expertise and support to the advancement of our flagship Newcastle LNG project."

Hyundai LNG Shipping currently operates the largest LNGC fleet in South Korea with eight vessels and ships around 17% of all imported LNG to the country.

"EPIK has identified a significant opportunity for the NSW market with the Newcastle LNG project," said KyuBong Lee, Hyundai LNG Shipping President

and CEO. "We are thrilled to be partnering with EPIK at this critical stage of the company's growth and look forward to building a strong and lasting relationship that will benefit all parties involved."

EPIK's Newcastle LNG project will include a 170,000 cu m capacity newbuilding FSRU and associated onshore infrastructure. The combined potential investment is estimated to be between \$400

mill and \$430 mill.

In addition to the import terminal, EPIK is exploring the possibility of adding gas related infrastructure for the NSW region, including potential gas-fired power and LNG bunkering facilities.

EPIK said that it expected to place an order for the FSRU subject to receiving the project's regulatory approvals, which could be given by early 2020. ■

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FERC in LNG certification breakthrough

The US Federal Energy Regulatory Commission (FERC) has reached an agreement that may provide a path forward for considering future pending LNG export terminals.

In the context of the Commission's approval last week of Venture Global's Calcasieu Pass LNG export project, FERC applied a new approach for considering direct greenhouse gas emissions from LNG facilities.

"Since I joined the Commission, it's been a priority of mine to expedite and improve our LNG terminal application review process," FERC Chairman, Neil Chatterjee, said.

"I'm extremely pleased that we are issuing the certificate order for the Calcasieu Pass LNG export terminal. This facility will have the capacity to export 12 mill tonnes of US LNG per year. But even more so, I really appreciate the efforts of my colleagues to work together to come to an agreement on this facility. This is significant, as I anticipate we'll be able to use the framework developed in this order to evaluate the

other LNG certificates that the Commission is considering," he explained.

Chatterjee added that FERC's multi-pronged approach to improve its process over the past year put the agency in a position to move forward efficiently with the other 12 pending LNG projects.

"We signed a MOU with the Department of Transportation's Pipeline and Hazardous Materials Safety Administration, to cut through unnecessary red tape and reduced inter-agency friction by signing the One Federal Decision MOU with our federal partners, and increased the number of engineers working on our reviews by casting a wide net to capture talent everywhere we could find it," he said.

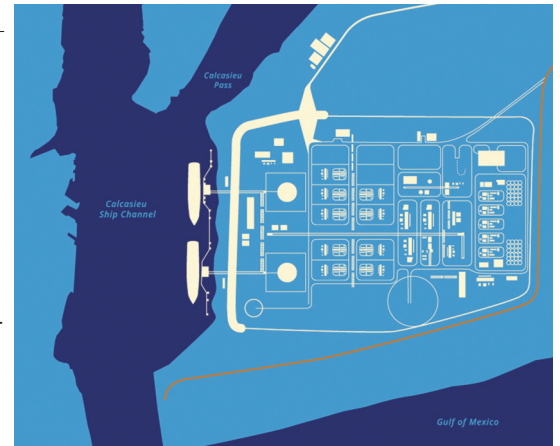
The US Department of Energy (DoE) has applauded FERC's agreement to provide a path forward for considering pending liquefied

natural gas (LNG) export terminals.

"I applaud FERC on their action today to authorise the construction of another LNG export facility," said US Secretary of Energy, Rick Perry.

"This past year, the US became a net exporter of natural gas on an annual basis, and we are exporting US LNG to 34 different countries across five continents. The construction of this facility and the expedition of others under this new framework will further build upon the success of American natural gas."

****On Tuesday, the DOE issued a long-term order authorising the



Venture Global's Calcasieu Pass export terminal has got the go ahead

export of domestically produced LNG from Calcasieu Pass.

Under the order, Venture Global Calcasieu Pass will be able to export up to 1.7 bill cu ft per day of LNG to any countries that do not have a free trade agreement (FTA) with the US and that are not prohibited from trading with the US under US law or policy (known as non-FTA countries). ■

Golar to supply FLNG to BP

Golar LNG Limited's new subsidiary, Gimi MS Corp has signed a 20-year lease and operate agreement (LOA) with BP to charter the converted FLNG 'Gimi'.

Once converted from an LNGC, the FLNG will serve the Greater Tortue Ahmeyim project.

Expected to commence production in 2022, FLNG 'Gimi' will liquefy gas as part of the first phase of the Greater Tortue Ahmeyim project and will be located at a near shore hub located on the Mauritania and Senegal maritime border.

FLNG 'Gimi' will be designed to produce an average of around 2.5 mill tonnes of LNG per annum, using Black & Veatch's Prico liquefaction process. The total gas resources in the field are estimated to be around 15 trill cu ft.

'Gimi' has been taken to Keppel Shipyard in Singapore where conversion work is expected to commence soon, Golar said.

Her conversion is expected to cost about \$1.3 bill, excluding financing costs. Once accepted under the contract, annual EBITDA of around \$215 mill, with a potential for over performance, is expected.

Golar is also in the final stages of receiving an underwritten credit commitment for a \$700 mill long-term financing facility from a syndicate of international banks that will be available during her conversion.

The company said that together with other financing facilities, by the end of the four-year construction period, the anticipated maximum total equity contribution, by way of the company's 70% stake will be about \$300 mill.

Commenting on the LOA, Golar CEO, Iain Ross, said, "This landmark 20-year agreement with BP,

which is Golar's second FLNG tolling agreement, is the culmination of a lot of hard work and commitment from the project and commercial teams that commenced late 2017.

"The potential of Golar's floating LNG solution was reinforced by FLNG 'Hilli Episeyo's' proof of concept, heads of terms were agreed with BP and its partners in April, 2018 and work has been ongoing via the previously reported 'limited notice to proceed,'" he said.

Meanwhile, TechnipFMC was recently awarded the contract for the engineering, procurement, construction, installation and commissioning (EPCIC) for an FPSO also earmarked for the project.

The mid-water FPSO will process the gas, removing heavier hydrocarbon components, before transferring the gas to the FLNG. ■



BP's offshore Senegal/Mauretania production and receiving facility

FLNG derivatives charge hits Golar

Golar LNG Limited reported a fourth quarter operating loss of \$102.8 mill, compared to income of \$132.5 mill in 3Q18.

The loss was due to a fair value change in the 'Hilli Episeyo' contract related oil derivatives from a \$77.5 mill gain in 3Q18 to a \$195.7 mill loss in 4Q18.

Adjusted EBITDA increased from \$83.5 mill in 3Q18 to \$121.2 mill in 4Q18.

Total operating revenues, net of voyage, charterhire and commission expenses, increased from \$98.4 mill in 3Q18 to \$141.9 mill in 4Q18. Of the 4Q18 total, \$86.7 mill was derived from vessel and other operations and \$55.1 mill from FLNG operations.

The start-up of new LNG production facilities together with China's early entry into the winter buying market and subsequent use of vessels for floating storage generated significant vessel demand. Utilisation quickly increased, as did voyage charter rates, which

reached record levels. Fleet utilisation increased from 86% in 3Q18 to 93% in 4Q18.

Full fleet TCE daily earnings increased from \$41,200 in 3Q18 to \$77,600 in 4Q18.

In line with the previous quarter, FLNG 'Hilli Episeyo' generated operating revenues of \$54.5 mill, including base tolling fees and amortisation of pre-acceptance amounts recognised. In addition to a reduction in operating costs, more efficient use of LNG during the liquefaction process resulted in reduced 4Q18 FLNG related voyage expenses.

Golar Partners

As for Golar Partners, a non-consolidated affiliate of Golar LNG, largely as a result of a non-cash loss on interest rate swaps and a reduction in revenues recognised

in respect of the FSRU 'Golar Freeze', the Partnership reported a 4Q18 net loss of \$19 mill.

Although charter hire in respect of 'Golar Freeze's' previous contract continues to be received on a monthly basis through to April, 2019, all remaining revenue receivable in respect of this contract was recognised in 3Q18. Partly offsetting the reduced revenues was revenue received from 'Golar Mazo', which was on hire throughout the quarter.

Drydocking and modifications necessary to service 'Golar Freeze's' new 15-year contract were completed on 20th October 2018. The FSRU subsequently departed Dubai arriving offshore Jamaica on 11th December. Hire at the full rate is expected to commence early in 2Q19. 'Methane Princess' also completed her

scheduled drydocking during the quarter, resulting in 20 days offhire.

Charterers of the FSRU 'Golar Igloo' extended the 2018 regas season to include December and subsequently elected to exercise an option to extend the charter by a further year, covering the 2019 regas season. After her scheduled five-year drydocking, the vessel returned to Kuwait in late February to start her sixth regas season.

'Golar Grand' charterers also exercised the first of a one-year extension options. The option rate between May, 2019 and May, 2020 will represent a material improvement on the initial two-year rate.

Golar's total current cash position as of 31st December, 2018 was \$704.3 mill (including long-term restricted cash), of which \$217.8 mill was unrestricted. ■

GTT celebrates best year in decade

Tank containment system designer, GTT has reported record orders for 2018 with sales reaching a 10-year high.

GTT won orders to supply its technology to 48 new LNGCs, two FSRUs, one onshore storage tank, one bunkering vessel and one ice-breaking cruise ship last year.

In addition, the company had received 11 new LNGC orders this year up to the end of February.

Consolidated revenue for 2018 amounted to €246 mill, compared to €240.8 mill in 2017, an increase of 2.2%.

Revenue from newbuildings totalled €231.5 mill last year, up by 1.7% compared to the previous year, which was impacted by lower order levels in 2016.

Royalties on LNGCs and FSRUs amounted to €198.8 mill (-2.1% compared to 2017) and €25.1 mill (+30.6%), respectively.

Revenue from services also increased (+9.6%), mainly due to the consolidation of Ascenz.

EBITDA for 2018 was €168.7 mill, compared with €151.3 mill

for the previous year. Net income reached €142.8 mill, up 15.1% compared to 2017.

Philippe Berterottière, GTT Chairman & CEO, said: "With 50 orders for LNG carriers and FSRUs, 2018 stands out as the best year of the decade for our core business, thus confirming our vision of market needs.

"The strong growth in LNG demand throughout the past two years, in particular in Asia, shows the current ongoing dynamics of the LNG market. The pace of future orders will notably depend on FIDs in new liquefaction trains.

"On the promising market of LNG fuel, we achieved further successes, which once again confirmed our ability to meet the needs of shipowners in this area. Less than a year away from the global sulfur cap, and in an increasingly stringent regulatory environment, especially in the main

trading ports, the interest of shipowners for our LNG propulsion solutions is becoming clear.

"In conjunction with our partners, we are continuing our efforts to become a long-term player in this new ecosystem. I wish to reiterate that, beyond the benefits for GTT, the adoption of LNG as a fuel for merchant vessels is a major step forward for the planet in terms of reducing polluting emissions.

"For our new activities, as well as for our core activities, we are continuing to prepare the future by developing new variants of our flagship technologies, such as NO96 Flex, and by creating new ones, such as LNG Brick®. The Group anticipates, for 2019, an increase of around 25% of its R&D expenses. Consequently, 2019 will be a year of innovation for GTT.

"Concerning our outlook for the year in progress, given our

healthy order book in 2018 and for the beginning of 2019, as well as the efforts made by the Group to prepare the future, we expect our 2019 consolidated revenue to be between €255 mill and €270 mill, with consolidated EBITDA between €150 mill and €160 mill. Furthermore, we maintain our commitment to pay out dividends amounting to at least 80% of our net income for FY2019 and FY2020," he concluded.

New order

This week, GTT received an order notification from Hyundai Heavy Industries (HHI), to undertake the design of a new 174,000 cu m LNGC, on behalf of Greek shipowner, Capital Gas Carriers.

The vessel will be fitted with the Mark III Flex membrane containment system. Her delivery is planned during the third quarter of 2021. ■

The Atlas Copco logo is displayed in white text within a blue rectangular box. The logo consists of the company name "Atlas Copco" in a serif font, flanked by two horizontal white bars.

Atlas Copco

A large, semi-transparent blue triangle containing a technical drawing of a compressor. The drawing shows various components and dimensions, including a circular cross-section with a diameter of 1380 mm and a length of 1630 mm. Other dimensions include 90 mm, 174 mm, 10.5 mm, 18.5 mm, 30.8 mm, 47.8 mm, and 10.8 mm. The drawing is overlaid on the background image of a worker.

"Energy is a major cost driver in running an LNG plant. But with efficient Atlas Copco mixed-refrigerant compressors, we're using less energy and saving more money."

Zhang Jia-Hua, Operations Team Leader
Baotou Lu Ding Natural Gas Co. Ltd.
Inner Mongolia, China

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Awilco heading in right direction

The Awilco LNG Group has reported net freight income of \$10.4 mill for the fourth quarter of last year, compared with \$7.4 mill in 3Q18.

EBITDA for 4Q18 was \$7.1 mill, compared with \$3.8 mill in the previous quarter.

Vessel utilisation was 84%, compared to 70% in 3Q18, excluding offhire from a scheduled drydocking of the 'WilPride', which was completed in early December at a total cost of \$3.6 mill and incurred 20 offhire days.

The company also reported that good progress was made on ongoing discussions with other shipowners to establish a consolidated LNG shipping structure.

For the full year, net freight income was \$34.8 mill, compared with \$13.6 mill in 2017. Full year EBITDA was \$22.4 mill, compared with just \$1.7 mill in the previous year.

However, the company suffered a net loss before tax of \$11.4 mill last year, compared to a loss of \$31.8 mill in 2017.

During 2018, vessel utilisation

was 80%, compared to 74% in 2017.

Drydockings

The almost doubling of freight income reflected the gradually improving market rates throughout 2018, but was offset by 41 days of offhire from the drydocking of both vessels.

As at 31st December 2018, total current assets were \$31.4 mill and cash and cash equivalents were \$22.5 mill. Total equity as at 31st December, 2018 was \$115.6 mill.

Awilco LNG is actively pursuing refinancing of the 'WilForce' and 'WilPride' leases, the company said.

A warmer winter than expected in the Far East, coupled with high storage levels in China after LNG imports reached an all-time high in December, 2018, pushed Far East gas prices down in 4Q18 from

\$11.4 per MMBTU at the start of the quarter to \$9 per MMTBU at the end of the quarter.

UK NBP started the quarter at \$9.6 per MMBTU and closed at \$8.4 per MMBTU, while US Henry Hub opened at \$2.9 per MMBTU and closed at \$3.9 per MMBTU.

According to Fearnleys LNG, headline day rates started 4Q18 at \$100,000 per day and \$90,000 for trips West and East of Suez, respectively and ended at \$110,000 per day in both basins. Halfway through the quarter headline rates hit an all-time high of \$195,000 and \$175,000 per day, respectively, firmly led by fundamental demand factors as the West/East arbitrage was closed.

'WilPride' is being marketed on the short term or spot market, while 'WilForce' entered into a nine to 12 month timecharter contract to an oil and gas major on 15th September last year. ■

NEWS NUDGE

Orders continue to flow

Among the orders reported recently were four LNGCs for a US-based interest booked at Samsung Heavy Industries (SHI).

This contract is worth Won870 bill (\$774 mill), SHI said in an announcement to the South Korean stock exchange.

The new LNGCs are scheduled to be delivered by 30th September, 2022.

Capital Gas was believed to have firmed up an option for a fifth 174,000 cu m LNGC for \$184 mill.

Daewoo has also confirmed that it had received a \$380 mill order to build two 174,000 cu m LNGCs for Maran Gas Maritime to be built by the end of 2021. ■

Train 1 'substantially completed' at Corpus Christi

'Substantial completion' of Train 1 of the Corpus Christi liquefaction project was achieved on 28th February, 2019.

Commissioning is complete and Bechtel has turned over care, custody, and control of Train 1 to Cheniere, the companies announced.

"Train 1 at Corpus Christi has achieved 'substantial completion', becoming the first liquefaction train placed into operation at a greenfield liquefaction facility in the lower 48 states," said Jack

Fusco, Cheniere's President and CEO. "This momentous achievement was made possible by Cheniere's professionals and our EPC partner, Bechtel, who worked diligently together to ensure a seamless transition from construction to operations."

"The entire Bechtel team is very proud of our contribution to Cheniere's success on the US Gulf

Coast, as we hand over custody of this historic first Texas LNG train," said Brendan Bechtel, Bechtel Chairman and CEO. "It was three years ago that we were able to support Cheniere's entry into the LNG export market with Train 1 at the Sabine Pass Liquefaction project.

"With five trains now completed and operating well ahead

of schedule, we are excited to continue working alongside Cheniere to deliver their next wave of trains with the reliability of outcome that Cheniere and Bechtel have become known for delivering. This programme is a great example of how a one-team approach can bring world-class results, and I want to congratulate Jack and the Cheniere team for fostering this environment of collaboration and mutual success."

Under sale and purchase agreements (SPAs) with Endesa and Pertamina (Persero), the date of first commercial delivery is expected in June, 2019, upon which the term of each of these SPAs commences. In addition, bridging volumes are expected to begin in the same month under an SPA with Iberdrola. ■



Cheniere's Corpus Christi Train 1 is 'substantially complete'

Flex LNG capitalises on strong market

Flex LNG has reported revenues of \$36.1 mill for the fourth quarter 2018, compared to \$7.9 mill for 4Q17, while revenues were \$77.2 mill for the full year, compared to \$27.3 mill for 2017.

Operating income before depreciation of \$28.3 mill for 4Q18, compared to \$1.2 mill for 4Q17. For the full year, this figure was \$46.4 mill, compared to an operating loss before depreciation of \$12.6 mill for 2017.

Flex LNG also reported a net profit of \$15.2 mill for 4Q18, compared to \$1.3 mill for the same period of 2017. Reported net profit of \$11.8 mill for the full year, compared to a net loss of \$10.4 mill for 2017.

In October, 2018, Flex LNG successfully conducted a private placement, raising gross proceeds of around \$300 mill. As a result, Flex LNG signed a contract to acquire five LNGC newbuildings.

Subsequently, the company secured \$250 mill from a syndicate of banks for the financing of the two newbuildings delivering this year.

As the market has softened in the first quarter of this year, com-

pared to 4Q18, Flex LNG said it expects the results for 1Q19 to be more in line with 3Q18, due to lower headline rates and lower utilisation level.

CEO Øystein Kalleklev, commented: "We are pleased to deliver strong results for the fourth quarter in line with our guidance. During the fourth quarter we capitalised on a strong market and clearly demonstrated the earnings potential of our new fifth generation LNG carriers.

"While the market is currently soft, due to weaker shipping demand, we remain upbeat about the outlook for LNG shipping as a glut of new liquefaction capacity is coming on line both near and long term," he said.

Following agreements to acquire seven vessels in 2018, Flex LNG now controls a fleet of 13 fifth generation LNGCs, including four vessels on the water and nine newbuildings.

Two of the newbuildings are scheduled for delivery this year, five in 2020 and the remaining two in 2021.

The two LNGCs acquired in May, 2018 have an acquisition cost of \$184 mill per vessel, with a 20% down payment at signing of the agreements and the remaining 80% at their delivery. The five vessels acquired in 4Q18 cost \$180 mill each, with a 30% payment at signing of the agreements and the remaining 70% at delivery.

Liquefaction systems

Three will be fitted with full re-liquefaction systems at an additional cost of \$6 mill each. These re-liquefaction systems reduce the boil-off rate to 0.035%, which makes the vessels particularly attractive for longer term charter parties, as fuel and boil-off cost are for the charterer's account, the company said. ■

New efficient LNGC named

Mitsubishi Shipbuilding held a christening ceremony the LNGC 'Marvel Crane' last month.

The new ship, being built for Mitsui & Co at Mitsubishi, is claimed to be designed to significantly improve both the LNG carrying capacity and fuel performance, due to a more efficient hull structure and a hybrid propulsion system.

Her completion is scheduled for this month, after which she will transport LNG for the US Cameron LNG project in which

Mitsui & Co is a partner.

'Marvel Crane' is the first of two 177,000 cu m LNGCs of the same design being built for Mitsui & Co.

Mitsubishi received the orders for the new vessels through MI LNG Company, Limited, a joint venture for the design and sale of LNGCs established by MHI and Imabari Shipbuilding.

They are each equipped with a

modified version of the MOSS-type spherical tank. This tank design effectively expands the ship's LNG carrying capacity without increasing its width, allowing it to transit the new Panama Canal.

Their propulsion systems is a hybrid twin shaft STaGE (steam turbine and gas engines) and they are equipped with MHI's proprietary reheat marine steam turbine engine, or UST (MHI ultra steam turbine plant), a dual-fuel engine power generator able to burn both natural gas and diesel, as well as an electric propulsion engine.

Effective usage of waste heat by the UST provides a substantial improvement in plant efficiency, allowing for high-efficiency navigation at both low and high-speeds, Mitsubishi claimed. ■



Mitsubishi and NYK have held a naming ceremony for an efficient design LNGC

NEWS NUDGE

Open season at Fos Tonkin

French terminal operator Elengy is seeking interest from shippers looking to secure LNG capacity beyond 2020.

Announcing 'Open Season Fos 2021', Elengy said it believed that the Fos Tonkin terminal would form an ideal additional base for Fos Cavaou terminal.

Extending the life of Fos Tonkin, which has imported LNG into the South of France since 1972, would also contribute to the development of small-scale LNG infrastructure for the industrial and road and marine markets, the company said.

Elengy claimed that the terminal is well placed to supply ports in the western Mediterranean, and the facility is already able to load small-scale LNGCs with a minimum capacity of 7,500 cu m.

The qualification deadline for those interested in capacity at the terminal is 15th March, and open season will close on 28th June this year.

LNG bunker vessel design proposal

Piraeus-based startup probunkers has asked stakeholders to propose a design for the company's LNG bunkering vessels (LNBVs).

The company said it intends to build seven reliable global-scale LNBVs to operate in various ports worldwide, and has invited companies to submit initial, concept design proposals, along with outline specification and general arrangements for the vessels.

Proposals can be submitted until 29th March. probunkers' Technical Manager, Andreas Zompanakis, will supervise the process.

The company is currently raising finance to complete LNG bunkering hubs. ■

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Teekay LNG enjoys increased earnings

Teekay LNG Partners reported GAAP net income of \$6.6 mill for the fourth quarter of last year and \$28.4 mill for fiscal 2018.

Adjusted net income was \$32.6 mill and \$87.7 mill for 2018.

The Teekay daughter company generated total cash flow from vessel operations (CFVO) of \$150.1 mill in 4Q18 and \$515.3 mill for fiscal 2018.

For this year, Teekay LNG estimated that total CFVO will be between \$635 mill to \$660 mill.

GAAP net income and non-GAAP adjusted net income for 4Q18, compared to the same quarter in 2017, were positively impacted by an increase in earnings, due to the deliveries of 12 LNGCs and equity-accounted joint ventures between October, 2017 and December, 2018, and higher earnings from the 'Magellan Spirit', which was chartered-in from the Partnership's 52%-owned joint venture with Marubeni Corp starting in September, 2018.

These increases were partially offset by a decrease in earnings in 2018 on seven multi-gas carriers following the termination of their previous charter contracts, the sale of three conventional crude oil tankers last year, an increase in offhire days during 2018 for some

of the vessels due to repairs, and an increase in general and administrative expenses, a portion of which is non-recurring.

"Once again this quarter, our cash flows and adjusted earnings were up significantly over the prior quarter as the Partnership's LNG segment grew and certain existing vessels commenced new contracts at firm rates," said Mark Kremin, President and CEO of Teekay Gas Group. "This segment continued its expansion in early-2019 with the delivery of two additional newbuilding LNG carriers, including the 'Yamal Spirit', which delivered on 31st January, 2019, soon after finalising its dedicated financing facility.

"We expect our LNG segment results to be significantly higher in 2019, primarily due to the delivery of 15 newbuilding LNG carriers during 2018 and throughout 2019, as well as the start-up of the Bahrain LNG regasification terminal in 2019," he said.

Charters

The LNGC 'Torben Spirit' com-

menced a minimum three-year charter on 1st January, 2019 at a charter rate in excess of \$100,000 per day for the duration of the contract.

In December, 2018, the Partnership took delivery of an MEGI LNGC newbuilding, 'Sean Spirit', which immediately commenced a seven-year charter contract with BP Gas Marketing Limited.

In January, 2019, the Partnership's 20%-owned joint venture with China LNG, CETS Investment Management (HK) - a CNOOC affiliate - and BW LNG Investments (the Pan Union Joint Venture), took delivery of the LNGC newbuilding, 'Pan Africa', which commenced a 20-year charter contract with Shell.

In the same month, the Partnership took delivery of the MEGI LNGC newbuilding, 'Yamal Spirit', which started a 15-year charter with Yamal Trade. Concurrent with this delivery, the Partnership agreed a \$159 mill, 15-year sale-leaseback financing arrangement with a lessor, which added about \$30 mill of liquidity to Teekay LNG. ■

NEWS NUDGE

JMU to build hybrid bunker vessel

Japan Marine United Corporation (JMU) has received an order from Ecobunker Shipping (EBS) for the construction of a multi-product (LNG and low sulfur fuel oil) bunkering vessel.

The 95 m vessel will be built as a part of the STS LNG fuel supply operation in Tokyo Bay by three EBS shareholders, Sumitomo Corp, Uyeno Transtech, and Yokohama-Kawasaki International Port Corp.

She will be based in Yokohama and the business will be subsidised by the Japanese Ministry of Land, Infrastructure, Transport and Tourism.

Her hull design and construction will be subcontracted to Fukuoka Shipbuilding, and LNG tank fabrication, including the LNG cargo handling system, to Philippines-based Atlantic, Gulf & Pacific Co.

JMU said the vessel will be the first of its type in Asia, capable of providing 1,500 cu m of compliant marine fuel oil and 2,500 cu m of LNG. ■

Egas settlement boosts Höegh LNG

Höegh LNG Holdings reported total income of \$122.3 mill for the fourth quarter of 2018, compared with \$82.3 mill in the preceding quarter.

The increase mainly reflects \$34.7 mill in revenue recognition of remaining contractual commitments under the suspension and settlement agreement with Egas, which covers the difference in revenue between the original FSRU contract and the new LNGC timecharter for 'Höegh Gallant' and running through April, 2020, the termination date of the original FSRU contract.

This will not have any cash flow effects, as Egas continues to pay monthly under the amended contract structure. However, it will result in lower future re-

ported revenues for this contract, the company said.

Revenue increase was further driven by higher rates for 'Höegh Giant' under its spot-related contract and FSRU hire earned by 'Höegh Esperanza', partly offset by unscheduled offhire for 'Höegh Gallant' in 4Q18 and reimbursement of expenses recorded in 3Q18.

Höegh LNG recorded a 4Q18 profit of \$45 mill, up from \$6 mill in the previous quarter. This increase was driven by higher EBITDA, offset by accelerated depreciation for 'Independence'

and depreciation and interest expenses related to 'Höegh Gannet'.

For the full year, Höegh LNG recorded \$352.7 mill in total revenue, compared with \$279.4 mill in the previous year.

This increase reflected a larger fleet, improved market conditions for LNGCs, charter hire for 'Höegh Esperanza' and the revenue recognition of remaining contractual commitments from Egas under the amended contract structure.

EBITDA for the year increased to \$207.7 mill from \$148.9 mill for

2017, while the net profit rose to \$72 mill from \$40.1 mill. The improved net profit reflected a higher EBITDA, partly offset by increased depreciation, an impairment of jetty equipment and higher interest expense.

As of 31st December, 2018, Höegh LNG held \$164.5 mill in current cash and the net interest-bearing debt amounted to \$1,251 mill, an increase which related to debt drawn to fund the final newbuilding instalment for 'Höegh Gannet', which was delivered in December, 2018. ■

GTT in digital transformation push

GTT is to create a Singapore 'digital hub of excellence'.

Aimed at specialising in maritime business process digitalisation, smart shipping and smart ports, the hub will be run by GTT's local subsidiaries, Ascenz Solutions and GTT South East Asia.

Products, solutions and services developed in Singapore will be deployed worldwide through GTT's specialised entities. The hub will also support GTT in its own digital transformation.

It aims to help shipping companies reduce costs, mitigate risks, improve operational efficiency, implement compliance & sustainability programmes and encourage data-driven collaboration as the shipping industry increasingly opens up to new uses and services driven by digitalisation.

"GTT's plan to set up its 'Digital Hub of Excellence' is in line with Singapore's Marine & Off-shore Engineering (M&OE) Industry Transformation Map (ITM) to improve productivity and capture long term growth opportunities with the use of digital technologies.

"Once fully operational, we believe that the hub will enhance Singapore's M&OE eco-system and, in the process create good job opportunities for Singaporeans to gain new valuable and practical experience," said Linda Sein, Executive Director, Investment Facilitation, Singapore Economic Development Board (EDB).

Philippe Berterottière, GTT Chairman and CEO, said: "This is an exciting new phase for us. The 'Digital Hub' will contribute to accelerate the Group's digital transformation. In addition to LNG as fuel, a market in which GTT intends to grow, the digital services will enable us to explore new paths and deliver differentiating value to new segments within the shipping industry." ■

Wärtsilä to support Tokyo Gas

Technology group Wärtsilä has signed a long-term optimised maintenance solution agreement with Tokyo Gas subsidiary, Tokyo LNG Tanker.

This solution will support a range of maintenance needs for three LNGCs powered by Wärtsilä 50DF dual-fuel engines.

The maintenance agreement, the first of its kind signed between Wärtsilä and a fully owned Japanese marine customer, covers scheduled maintenance, as well as dynamic maintenance planning inspections and spare parts.

Optimised, condition-based maintenance provided by Wärtsilä will enable predictive assessments of servicing needs based on actual component performance, rather than conventional time-based scheduling. This will eliminate the need for unexpected and unscheduled vessel repairs.

"Wärtsilä can provide maintenance on a wide scale that positions well with our needs," said Hajime Adachi, General Manager of Engineering Department, Tokyo



Wärtsilä has signed a service agreement with Tokyo LNG

LNG Tanker. "We need a reliable lifecycle partner who can respond to our needs and enable us to operate as smoothly as possible. This is why we have chosen Wärtsilä as our maintenance partner."

"Our agreement with Tokyo LNG Tanker is an important aid in ensuring their fleet availability and eliminating unexpected break-

downs. It will allow the customer to focus on their core business, and strengthen the reliability of their operations," said John Sydney, Vice President, Middle East & Asia, Wärtsilä Marine.

Each 165,000 cu m LNGC is powered by four 9-cylinder Wärtsilä 50DF and one 6-cylinder Wärtsilä 50DF engines. ■

KBR wins FEED and Pre-FEED contracts

Engineering company KBR is to supply engineering and technical agreement from Pointe Noire LNG to provide front end engineering design (FEED) submittals and services.

These will go towards obtaining US Federal Energy Regulatory Commission (FERC) approval for its proposed LNG liquefaction and export facility at Plaquemines Parish, Louisiana.

"We are pleased to have KBR, a global EPC LNG contractor, as a partner, and this strategic agreement is an important step in the development of our project. We are thrilled about the opportunity to add KBR's decades of LNG experience on board as we bring Pointe LNG to market," said James Lindsay, Pointe's co-founder.

"Selecting KBR to provide the full engineering design on FERC FEED, Full FEED and a lump sum EPC turnkey bid package assures that Pointe LNG will complete the FERC filing process on time and ensures the quality design needed," said Tom Burgess, the

company's co-founder.

"KBR is pleased to be working with Pointe LNG in this key role and contribute to this important development in Louisiana," said Farhan Mujib, KBR President, Hydrocarbons Delivery Solutions. "KBR's selection for this work demonstrates Pointe LNG's confidence in KBR's LNG project experience, leverages our US construction capability and provides opportunity for a full service EPC contract at a later date."

Assuming that various contingencies and approvals are satisfied, including the completion of the FERC pre-filing process which is expected by December, 2019 and Pointe LNG's receipt of financing and all necessary permits and approvals, construction is expected to begin in the first quarter of 2021 with initial operations

expected in the first quarter of 2025.

In addition, KBR has been awarded a pre-front end engineering design (Pre-FEED) contract by Mexico Pacific Limited (MPL) for a mid-scale LNG liquefaction project in Puerto Libertad on Mexico's Pacific coast.

KBR will provide a Pre-FEED and cost estimate for the project, which will be undertaken using the ConocoPhillips patented Optimised Cascade technology.

"We are excited to be a part of this Mexico Pacific Limited LNG project and to deliver innovative LNG technology solutions for our customers," Mujib said. "We believe mid-scale LNG projects have an important part to play in the global LNG market."

FEED is expected to start mid-2019. ■

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WORLD LNG CARRIER ORDERBOOK

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Jmu Tsu 5072	JMU	SPB	165000	TFDE	Mar-19	Feb-14	MOL
Jmu Tsu 5073	JMU	SPB	165000	TFDE	Jul-19	Feb-14	MOL
Jmu Tsu 5071	JMU	SPB	165000	TFDE	Mar-19	Feb-14	NYK
Gaslog Gladstone	Samsung	TZ Mk. III	174000	XDF	Jan-19	May-14	GasLog
Maran Gas Syros	DSME	GT NO 96	173400	MEGI	Apr-19	Jun-14	Maran Gas Maritime
Daewoo 2430	DSME	GT NO 96	172000	TFDE - Azipod	Jul-19	Jul-14	Teekay LNG
Daewoo 2431	DSME	GT NO 96	172000	TFDE - Azipod	Aug-19	Jul-14	Teekay LNG
Daewoo 2433	DSME	GT NO 96	172000	TFDE - Azipod	Oct-19	Jul-14	Teekay LNG
Daewoo 2434	DSME	GT NO 96	172000	TFDE - Azipod	Nov-19	Jul-14	Teekay LNG
Daewoo 2432	DSME	GT NO 96	172410	TFDE - Azipod	Sep-19	Jul-14	MOL
Kawasaki Sakaide 1729	Kawasaki	Moss	155000	TFDE	Dec-19	Sep-14	MOL
Samsung 2150	Samsung	GTT Mark III Flex	174000	XDF	Jan-19	Oct-14	MOL
British Mentor	DSME	GT NO 96	173400	MEGI	Feb-19	Nov-14	BP
British Sponsor	DSME	GT NO 96	173400	MEGI	Mar-19	Nov-14	BP
Daewoo 2444	DSME	GT NO 96	173400	MEGI	Jan-19	Nov-14	BP
Nikolay Zubov	DSME	GT NO 96	172410	TFDE - Azipod	Mar-19	Dec-14	Dynagas
Mitsubishi Nagasaki 2322	Mitsubishi H.I.	Moss	177000	STaGE	Sep-19	Jan-15	MOL
Marvel Crane	Mitsubishi H.I.	Moss	177000	STaGE	Dec-18	Jan-15	NYK
Mitsubishi Nagasaki 2323	Mitsubishi H.I.	Moss	177000	STaGE	Jan-19	Mar-15	MOL
Maran Gas Chios	DSME	GT NO 96	173400	MEGI	Jan-19	Jun-15	Maran Gas Maritime
Maran Gas Hydra	DSME	GT NO 96	173400	MEGI	Jan-19	Jun-15	Maran Gas Maritime
Hyundai Samho S856	Hyundai Heavy	TZ Mk. III	174000	MEGI	Jan-19	Jun-15	Teekay LNG
Yamal Spirit	Hyundai Heavy	TZ Mk. III	174000	MEGI	Jan-19	Jun-15	Teekay LNG
Daewoo 2489	DSME	GT NO 96	173400	MEGI	Nov-19	Sep-15	BWGas
Shinshu Maru	Kawasaki	Moss	177000	STRH	Feb-19	Sep-15	MOL
Sohshu Maru	Kawasaki	Moss	177000	STRH	Jul-19	Sep-15	MOL
Diamond Gas TBN	Mitsubishi H.I.	Moss	165000	STaGE	May-19	Nov-15	Mitsubishi
Bushu Maru	Mitsubishi H.I.	Moss	180000	STaGE	Jun-19	Nov-15	NYK
Nohshu Maru	Mitsubishi H.I.	Moss	180000	STaGE	Feb-19	Nov-15	NYK
Hyundai Ulsan 2937	Hyundai Heavy	GTT Mark III Flex	180000	XDF	Apr-19	May-16	SK Shipping
Hyundai Ulsan 2938	Hyundai Heavy	GTT Mark III Flex	180000	XDF	Jul-19	May-16	SK Shipping
Daewoo 2466	DSME	GT NO 96	173400	MEGI	Oct-19	Jun-16	Maran Gas Maritime
Daewoo 2467	DSME	GT NO 96	173400	MEGI	Nov-19	Jun-16	Maran Gas Maritime
Samsung 2213	Samsung	GTT Mark III Flex	180000	XDF	Jun-20	Sep-16	GasLog
Daewoo 2469	DSME	GT NO 96	173400	MEGI	Apr-20	Dec-16	Maran Gas Maritime
Hyundai Ulsan 2964	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	May-19	Mar-17	Knutzen
Flex Constellation	DSME	GT NO 96	173400	MEGI	Jun-19	Mar-17	Flex LNG
Flex Courageous	DSME	GT NO 96	173400	MEGI	Aug-19	Mar-17	Flex LNG
Hyundai Ulsan 2963	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-19	May-17	Knutzen
MOL HUDONG-ZHONGHUA 1/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	Dec-19	Jul-17	MOL
MOL HUDONG-ZHONGHUA 2/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	Mar-20	Jul-17	MOL
MOL HUDONG-ZHONGHUA 3/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	Jul-20	Jul-17	MOL

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 = 23rd January 2019

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
MOL HUDONG-ZHONGHUA 4/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	Oct-20	Jul-17	MOL
Gaslog Windsor	Samsung	GTT Mark III Flex	180000	XDF	Jul-19	Dec-17	GasLog
Daewoo 2478	DSME	GT NO 96	173400	MEGI	May-20	Dec-17	Maran Gas Maritime
HHI NYK/EDF	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Apr-20	Jan-18	NYK
HHI / Total	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Jan-18	Cardiff Marine
HHI / Total / Sovc	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Jan-18	Sovcomflot
DSME 2490	DSME	GT NO 96	173400	MEGI	Feb-20	Feb-18	BWGas
DSME 2491	DSME	GT NO 96	173400	MEGI	May-20	Feb-18	BWGas
HHI / Cardiff #1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Feb-18	Cardiff Marine
HHI / Cardiff #2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Feb-18	Cardiff Marine
DSME 2479	DSME	GT NO 96	173400	MEGI	Aug-20	Feb-18	John Fredriksen
DSME 2480	DSME	GT NO 96	173400	MEGI	Sep-20	Feb-18	John Fredriksen
Flex America	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Aug-20	Mar-18	Flex LNG
Flex Aurora	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Mar-18	Flex LNG
SHI Gaslog #1	Samsung	GTT Mark III Flex	180000	XDF	Jun-20	Mar-18	GasLog
Samsung 2271	Samsung	GTT Mark III Flex	174000	XDF	Apr-20	Mar-18	Cardiff Marine
DSME Minerva #1	DSME	GT NO 96	173400	MEGI	Mar-21	Mar-18	Minerva Marine
DSME Minerva #2	DSME	GT NO 96	173400	MEGI	Jul-21	Mar-18	Minerva Marine
Hyundai Ulsan 3086	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-20	Mar-18	Knutsen
DSME 2483	DSME	GT NO 96	173400	MEGI	Oct-20	Mar-18	Alpha Gas
DSME 2484	DSME	GT NO 96	173400	MEGI	Dec-20	Mar-18	Alpha Gas
SHI Gaslog #2	Samsung	GTT Mark III Flex	180000	XDF	Sep-20	May-18	GasLog
Maran Gas DSME	DSME	GT NO 96	173400	MEGI	Oct-20	Jun-18	Maran Gas Maritime
DSME 2487	DSME	GT NO 96	173400	TFDE	Apr-21	Jun-18	Maran Gas Maritime
DSME 2485	DSME	GT NO 96	173400	MEGI	Mar-21	Jun-18	Alpha Gas
HHI Thenamaris #1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Nov-20	Jun-18	Thenamaris
HH 8012	Hyundai Heavy	GTT Mark III Flex	174000		Feb-21	Jun-18	Flex LNG
HH 8013	Hyundai Heavy	GTT Mark III Flex	174000		May-21	Jun-18	Flex LNG
HHI Capital Gas #1	Hyundai Heavy	GTT Mark III Flex	174000		Sep-20	Jul-18	Capital Gas
HHI Capital Gas #2	Hyundai Heavy	GTT Mark III Flex	174000		Dec-20	Jul-18	Capital Gas
HHI Capital Gas #3	Hyundai Heavy	GTT Mark III Flex	174000		Mar-21	Jul-18	Capital Gas
HHI Capital Gas #4	Hyundai Heavy	GTT Mark III Flex	174000		Jun-21	Jul-18	Capital Gas
DSME 2492	DSME	GT NO 96	173400	MEGI	Nov-20	Jul-18	John Fredriksen
SHI Celcius #1	Samsung	GTT Mark III Flex	180000	XDF	Oct-20	Aug-18	Celcius Shipping
SHI Celcius #2	Samsung	GTT Mark III Flex	180000	XDF	Jan-21	Aug-18	Celcius Shipping
HHI 3037	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jul-20	Aug-18	Cardiff Marine
SHI 2300	Samsung	GTT Mark III Flex	174000	XDF	Nov-20	Aug-18	GasLog
SHI 2301	Samsung	GTT Mark III Flex	174000	XDF	Dec-20	Aug-18	GasLog
HHI / Cardiff	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Sep-18	Cardiff Marine
HHI/ Thenamaris	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Sep-18	Thenamaris
Samsung/NYK	Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Sep-18	NYK
Samsung/Minerva 1	Samsung	GTT Mark III Flex	174000	XDF	Feb-21	Oct-18	Minerva Marine
Samsung/Minerva 2	Samsung	GTT Mark III Flex	174000	XDF	Aug-21	Oct-18	Minerva Marine

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Samsung/Cardiff 1	Samsung	GTT Mark III Flex	174000	XDF	Dec-20	Nov-18	Cardiff Marine
Samsung/Cardiff 2	Samsung	GTT Mark III Flex	174000	XDF	Jan-21	Nov-18	Cardiff Marine
HHI / Cardiff 1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Nov-18	Cardiff Marine
HHI / Cardiff 2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Apr-21	Nov-18	Cardiff Marine
HHI/Latsco 1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jan-21	Nov-18	Latsco Shipping
HHI/Latsco 2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Nov-18	Latsco Shipping
Samsung/NYK 1	Samsung	GTT Mark III Flex	174000	XDF	Aug-21	Dec-18	NYK
Samsung/NYK 2	Samsung	GTT Mark III Flex	174000	XDF	Nov-21	Dec-18	NYK
DSME BW 1	DSME	GT NO 96	174000	MEGI	Feb-21	Dec-18	BWGas
DSME BW 2	DSME	GT NO 96	174000	MEGI	Jun-21	Dec-18	BWGas
DSME Maran Gas	DSME	GT NO 96	173400	MEGI	Jun-21	Dec-18	Maran Gas Maritime
HHI NYK 1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Nov-20	Dec-18	NYK
HHI NYK 2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	NYK
HHI NYK 3	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-21	Dec-18	NYK
DSME MOL 1	DSME	GT NO 96	180000	MEGI	May-21	Dec-18	MOL
DSME MOL 2	DSME	GT NO 96	173400	MEGI	Jun-21	Dec-18	MOL
HHI Sov 1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Sep-20	Dec-18	Sovcomflot
HHI Sov 2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Dec-18	Sovcomflot
Samsung GasLog 1	Samsung	GTT Mark III Flex	180000	XDF	Jun-21	Dec-18	GasLog
Samsung GasLog 2	Samsung	GTT Mark III Flex	180000	XDF	Aug-21	Dec-18	GasLog
Samsung Cardiff	Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	Cardiff Marine
DSME Alpha	DSME	GT NO 96	174000	MEGI	Oct-21	Dec-18	Alpha Gas
Samsung/ Navigare	Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	Navigare

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 = 23rd January 2019



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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	Aman Hakata	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	Norgas Creation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2010	Norgas Innovation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
2011	Norgas Conception	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Norgas Invention	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
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
2014	LNG-Oil combi**	2,000	LNG	Germany	Yes	Veka
2014	Short Sea LNG Tanker **	4,000	LNG	Germany	Yes	Veka
2015	LNG Inland bunker**	800	LNG	Germany	Yes	Veka
2015	LNG bunker barge 1†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 2†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 3†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
2015	10 small carriers TBN**	5,000	LNG			Bimantara Group
2015	Jahre TBN**	6,200	LNG	Norway	Yes	Donsotank/Jahre Marine
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
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	TBN 1	27,500	LNG	China?		Danyang?
2015	TBN 2	27,500	LNG	China?		Danyang?
2015	TBN 3	27,500	LNG	China?		Danyang?
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 Innovation	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)
2016	Navigator Aurora	35,000	Ethane/Ethylene	Markus Hood - Stenungsund	Ethane, for Borealis	Navigator
2016	Gaschem Beluga	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2016	Gaschem Orca	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services

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Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2016	Ocean Yield TBN**	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2017	Oizmendi	600	LNG	Bilbao	Yes	Itsas Gas
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
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
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 EnergyICE	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	Yuan He 1	30,000	LNG	China	Yes	CSR
2017	Navigator Eclipse	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Nova	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Prominence	35,000	Ethane/Ethylene	US	Ethane	Navigator
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2018	CME TBN†	2,200	LNG	US Coast	Yes	CME
2018	Shell Bunker Barge TBN 4	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	Qi Yuan	28,000	LNG	China	Yes	Dalian Inteh Group
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
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
2020	Shell Bunker Barge	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Stolt TBN (option) **	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Total TBN	18,600	LNG	NWE	Yes	MOL
2020	FuelLNG TBN	7,500	LNG	Singapore	Yes	FuelLNG
2020	CLS TBN	3,500	LNG	Japan	Yes	CLS
2020	Eesti Gaas TBN	6,000	LNG	NWE	Yes	Eesti Gaas
2020	ENN TBN	8,500	LNG	China	Yes	ENN
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
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
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

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