

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

4 April 2019

Near term supply to outstrip demand

At a recent presentation attended by LNG SN, Poten & Partners said that the LNGC contracts market was changing with several soon to expire.

Next year, rapid growth in supply was forecast before flattening out by 2022. From 2024, due to the number of FIDs to be taken, the supply side should expand again.

On the demand side, the market will become more balanced by the end of 2021, and remain balanced through 2022-2023 until the new FIDs kick in.

Around 133 mill tonnes per year of gas exports have already been sanctioned worldwide with 33 mill tonnes per year the subject of FIDs this year and next.

China's growth pattern is expected to remain strong but more pipeline gas is forecast and increased use of renewables will grow the energy mix. There are around 45 power projects planned but some of these might be slow to get off the ground.

The demand picture was more uncertain, Poten said. At present Europe is importing significant volumes of LNG, while Southeast and South Asia are both predicted to be big growth areas.

Contracts are becoming more complex with traders and aggregators more involved.

Some 190 mill tonnes per year of contracted gas is due to expire in 2030, which may be replaced by shorter contracts. By 2028, up to 70% of LNG could be contracted on flexible terms.

In 2017, the average contracts signed were for less than seven years, however, the situation



Several FIDs are due to be declared in the next couple of years

changed last year with the length increasing to around 13 years.

There is also the question of finance availability to anything but long term contracts. New long term contracts are being signed for 10-15 years and it was thought that banks could live with a 15-year contract.

Delivery ex-ship is the preferred transport method with these longer contracts, although some Mozambique contracts are being offered FOB (free on board).

This year, the supply surplus was forecast to be 1.7 mill tonnes for the second and third quarters of 2019. Prices are expected to remain low with Europe soaking up much of the surplus, as Asia experienced a mild winter in 2018/2019.

Storage full

After importing a record level of LNG in December and January, China received only 4.1 mill tonnes in February - a drop of 31% on Jan-

uary's total. Reports indicate that China's storage capacity is full, so imports are expected to decline for much of this year. However, Chinese demand is still forecast to increase by 21%, Poten said.

In 2Q19, the surplus is expected to peak in the shoulder months between March and May and August and October with a slight drop during the summer months, due to demand increases for power, especially from the Middle East.

Poten said that it expected most of this year's overhang to be absorbed by Europe. If this region took the entire projected surplus, then overall LNG imports would increase by 38% during the season when demand is usually very low.

Traditionally, Asian demand has not been driven by lower prices. However, the rise of China as a major demand centre and the emergence of new importers in the region may throw up a few surprises, Poten warned.

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China's growth pattern is expected to remain strong but more pipeline gas is forecast and increased use of renewables will grow the energy mix.

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Mexican LNG exports come closer

Sempra Energy's subsidiary Energía Costa Azul (ECA) LNG has received two US Department of Energy (DOE) authorisations to export US produced natural gas to Mexico and to re-export liquefied natural gas (LNG) to non-FTA countries.

The exports will be handled from ECA's Phase 1 and Phase 2 liquefaction facilities under development in Baja California, Mexico.

"The timing of these approvals is great news as we meet with customers and partners in Shanghai," said Joseph Householder, Sempra Energy president and COO. "ECA LNG's location on the West Coast of North America is truly a differentiator and it has the potential to be a game changer. ECA LNG will source natural gas from some of the fastest-growing production regions in the US and provide our customers with a competitive advantage in accessing world markets, especially Asia."

"The authorisations are another step forward in the development of this project that could bring many benefits for Mexico, US natural gas producers and our customers and partners in greater Asia," said Carlos Ruiz Sacristán, chairman and CEO of Sempra

North American Infrastructure.

"We are pleased to continue to advance the development of ECA LNG, which can uniquely meet the energy needs of isolated markets in Mexico and customers in Asia."

ECA LNG Phase 1 development project is a single train LNG facility to be located adjacent to the existing LNG receiving terminal. It is expected to use current LNG storage tanks, a marine berth and associated facilities. Phase 2 of the project will add another two trains and one LNG storage tank.

DOE has authorised the export of 636 bill cu ft per year of US sourced LNG from these infrastructure projects. Phase 2 of the project will require an additional DOE approval in order to export its full scheduled capacity.

ECA's existing receiving terminal was the first one to be built on North America's West Coast. Located about 15 miles north of Ensenada, Baja California, it began commercial operations in 2008

and is capable of processing up to 1 bill cu ft of natural gas per day.

Last November, Sempra announced that its subsidiaries IEnova and Sempra LNG had signed Heads of Agreements (HOAs) with affiliates of Total, Mitsui & Co and Tokyo Gas for Phase 1 of the ECA LNG project, subject to reaching definitive agreements.

Both TechnipFMC and Kiewit were selected as the engineering, procurement, construction and commissioning (EPC) contractors for the project, subject to reaching a definitive agreement on the EPC contract.

Its development is contingent upon obtaining binding customer commitments, completing the required commercial agreements, securing all necessary permits, including additional export authorisation from the Mexican and US governments, obtaining financing, incentives and other factors, and reaching a final investment decision (FID). ■

NEWS NUDGE

DSME names four Arc7s

Daewoo Shipbuilding & Marine Engineering (DSME) has held a naming ceremony for four Arc7s at its Okpo Shipyard.

On 28th March, DSME christened the new 172,600 cu m LNGCs 'Nikolay Yevgenov', 'Vladimir Voronin', 'Georgiy Ushakov' and 'Yakov Gakkel', named after Russian Arctic explorers and scholars.

The Arc7s are scheduled to be delivered in October and November, 2019, and January and February, 2020, respectively.

They were ordered by Teekay LNG Partners as part of a \$4.8 bill contract for 15 ice-breaking LNGCs for the Yamal LNG project. Each ship is valued at \$320 mill.

Thus far, DSME has delivered 10, with five remaining under construction at Okpo. ■

Ocean LNG to handle Golden Pass volumes

Ocean LNG Limited, majority owned by Qatar Petroleum, will be responsible for the offtake and marketing of all the LNG to be produced and exported from the Golden Pass LNG export project in Sabine Pass, Texas.

This company was set up as an international joint venture marketing initiative in which Qatar Petroleum (QP) affiliates own 70% and ExxonMobil owns 30%.

Earlier this year, Ocean LNG entered into a binding LNG sales and purchase agreement (SPA) with Golden Pass Products to purchase and offtake all the LNG volumes to be produced by Golden

Pass LNG.

Since its establishment, Ocean LNG has been mainly active in South America and Europe.

Following Golden Pass's successful Final Investment Decision (FID) on 5th February, 2019, Ocean LNG will now focus on marketing its US LNG volumes in the Asia/Pacific region.

It will also expand its relations

and networks with both established customers as well as emerging and prospective LNG buyers, while at the same time maintaining a strong footprint across South America and Europe, Qatar Petroleum said.

Qatar's Minister of State for Energy Affairs, Saad bin Sherida al-Kaabi, who is also QP president & CEO, said, "The FID of Golden

Pass LNG earlier this year underpins Ocean LNG's marketing efforts to deliver US LNG to customers across the globe. This is a further testament of Qatar Petroleum's position as a global LNG leader with a large portfolio capable of offering tailored LNG supply structures and commercial terms in an evolving global LNG environment." ■

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Shell to take Rio Grande LNG

NextDecade Corp has signed a 20-year sale and purchase agreement (SPA) with Shell for the supply of 2 mill tonnes per annum of LNG from the Rio Grande LNG project in Brownsville, Texas.

Shell will purchase LNG on a free-on-board (FOB) basis starting from Rio Grande's commercial operation date, currently expected in 2023. About three-quarters of the purchased LNG volumes will be indexed to Brent and the remaining volumes indexed to domestic US gas indices, including Henry Hub.

This SPA is claimed to be the first-ever long-term contract for LNG produced out of the US to be indexed to Brent and comes with

full destination flexibility.

"We are honoured to have Shell as the first foundation customer of our Rio Grande LNG project," said Matt Schatzman, NextDecade's President and CEO. "Shell is not only the largest portfolio LNG company in the world, Shell is also a recognised pioneer in the global LNG business."

"Shell was the first to sign a long-term SPA from the US indexed to Henry Hub in 2011, and so it is fitting

they are the first to sign a long-term SPA from a US LNG project indexed to Brent. We look forward to finalising additional commercial agreements and to proceeding with the development of our Rio Grande LNG project," he said.

"LNG continues to be the fastest-growing gas supply source to 2035," said Slavko Preocanin, Vice President, Shell LNG Marketing & Trading. "This agreement secures more volume for our portfolio in the 2020s and ensures we can meet the growing demand for secure, flexible and cleaner energy from our global customers. We look forward to working with NextDecade in the years to come."

NextDecade said that it anticipated making a positive final investment decision (FID) on up to three trains (Phase I) by the end of the third quarter of this year. ■



Shell has signed a deal to take Rio Grande LNG gas

Vitol and Repsol sign SPAs for Arctic LNG 2 gas

During the 19th International Conference & Exhibition on Liquefied Natural Gas (LNG2019) in Shanghai, Novatek Gas&Power Asia, a trading subsidiary of PAO NOVATEK, Vitol and Repsol signed of Heads of Agreement for the supply of LNG.

These agreements were signed during the 19th International Conference & Exhibition on Liquefied Natural Gas (LNG2019) held in Shanghai.

Under the Vitol agreement, a 15-year contract will be signed to supply 1 mill tonnes of LNG from the Arctic LNG 2 project, as well as other NOVATEK outlets on an annual basis.

The gas will be shipped on an FOB basis to NOVATEK's transhipment terminals in the Murmansk region and Kamchatka.

"We commenced contracting LNG volumes from our new project Arctic LNG 2," said NOVATEK's First Deputy Chairman of the Management Board, Lev Feodosyev. "LNG volumes sold at our transhipment terminals ensures the flexibility of LNG supplies around

the world and allows us to create LNG hubs in the Asia/Pacific and Atlantic basins."

The Repsol agreement also involves a 15-year contract to supply 1 mill tonnes per annum of LNG from Arctic LNG 2 project and other NOVATEK projects.

Ex ship

LNG will be delivered ex-ship primarily to markets on the Iberian Peninsula.

"The agreement for the sale of LNG would allow us to increase our market presence on the Iberian Peninsula where Russian pipeline gas is not supplied," Feodosyev said. "Expanding our supply geography and diversifying our long-term contract customer base is consistent with the company's strategy to

ramp up LNG production in the Russian Arctic."

Arctic LNG 2 involves the constructing three LNG trains of 6.6 mill tonnes per annum each, using gravity-based structure (GBS) platforms.

The project is based on the hydrocarbon resources of the Utrenneye field. As of 31st December, 2018, the Utrenneye field's 2P reserves under PRMS totalled 1,138

Anthony Veder buys two hybrid gas carriers

Anthony Veder has taken delivery of two 10,000 cu m combined gas carriers.

They are able to transport LNG and petrochemical gases including ethylene (LEG).

With this transaction, the company has expanded its fleet to 33 vessels, giving it eight small scale LNG vessels.

The gas carriers were part of the Skaugen fleet, and were renamed 'Coral Favia' and 'Coral Fungia'. Anthony Veder has taken over the commercial operation and shipmanagement from the previous managers.

Jan Valkier, CEO of Anthony Veder said; "The acquisition is consistent with our focus on providing safe and sustainable shipping solutions to our customers in the petrochemical gas segment and in the small scale LNG market. This fleet expansion marks an important step in our continuous commitment to both segments. After a short yard period to upgrade them to our standards, the vessels will be available to our customers in the second quarter of 2019."

Broking sources said the cost of the vessels was \$41 mill en bloc. ■

bill cu m of natural gas and 57 mill tonnes of liquids.

Under the Russian classification, reserves totalled 1,978 bill cu m of natural gas and 105 mill tonnes of liquids. OOO Arctic LNG 2 owns the LNG export license, NOVATEK explained. ■



Anthony Veder has taken delivery of two hybrid gas carriers (see above)

GasLog signs two multi-year charters

GasLog has signed two multi-year contracts for newbuilding LNGCs with Endesa and JERA

The JERA contract involved a subsidiary signing a 12-year timecharter agreement for an LNGC with LNG Marine Transport Limited (LMT), the Japanese company's principal LNG shipping entity.

The vessel involved is an as yet unnamed 180,000 cu m, Mark III Flex Plus design fitted with low pressure 2-stroke propulsion - LNG newbuilding No HN 2274.

GasLog is scheduled to take delivery of the LNGC from Samsung Heavy Industries this month at which point she will commence the fixed-term timecharter.

GasLog CEO Paul Wogan, said "We are honoured to add JERA, one of the world's largest LNG buyers and a very high-quality counterparty, to our customer list. Furthermore, GasLog is one of the first non-Japanese LNG carrier owners to secure a long-term charter with JERA, again showing the advantage we can obtain from our differentiated operating capa-

bilities, safety standards and commercial relationships.

"We look forward to expanding our relationship with JERA and developing our position as a provider of LNG transportation services to Japan's LNG market, which remains the largest globally at more than 80 mill tonnes in 2018.

"(Recently) we have announced new charters for our uncommitted newbuilds to two very high-quality new customers in JERA and Endesa. This demonstrates that our strategy of ordering these latest generation vessels at cyclically low yard prices was well timed, allowing us to capture accretive returns and to further diversify our customer base.

"We have now ordered and fixed seven newbuild vessels on long-term contracts with four high quality counterparties since our April, 2018 investor day. As we execute on our strategy, we continue to make excellent progress toward

our target of more than doubling consolidated run-rate EBITDA over the 2017 to 2022 period.

"Furthermore, we continue to be focused on the scope to deliver enhanced returns to our shareholders against the backdrop of what we expect to be a strong LNG shipping market, especially during the 2019/2020 and 2020/2021 winters."

Attractive returns

The charter rate is in line with mid-cycle rates and is expected to deliver attractive returns for GasLog's shareholders, the company said without divulging the terms.

Following the starting of the 12-year charter, GasLog Partners will have the right to acquire HN 2274 under the omnibus agreement between the two companies. As a result, GasLog Partners' potential dropdown pipeline will increase to 13 LNGCs with charters

of five years or longer.

Earlier, GasLog had confirmed an eight-year charter for the newbuilding LNGC 'GasLog Warsaw'.

Under the deal with a subsidiary of Spanish electric utility company Endesa, the new ship will start its fixed-term employment in May, 2021.

Endesa has two options to extend the charter period by six years each, GasLog said, adding that the rate of hire for the charter is in line with mid-cycle rates.

The 180,000 cu m Mark III Flex Plus vessel is due to be delivered in July, 2019. Built by Samsung Heavy Industries, she features a low pressure 2-stroke propulsion system.

Before commencing her long-term charter, the vessel will be available on the spot market at a time when GasLog expects the market to be firm, especially during the 2019/2020 and 2020/2021 winters, as mentioned. ■

FERC has reservations over Coos Bay project

The US Federal Energy Regulatory Commission (FERC) has issued a rather negative draft environmental impact statement (DEIS) for the Jordan Cove LNG Project and the Pacific Connector Gas Pipeline Project.

The statement said that constructing and operating this project would result in temporary, long-term, and permanent impacts on the environment.

Many of these impacts would not be significant or would be reduced to less than significant levels with the implementation of proposed and/or recommended impact avoidance, minimisation, and mitigation measures.

However, some of these impacts would be adverse and significant, FERC said.

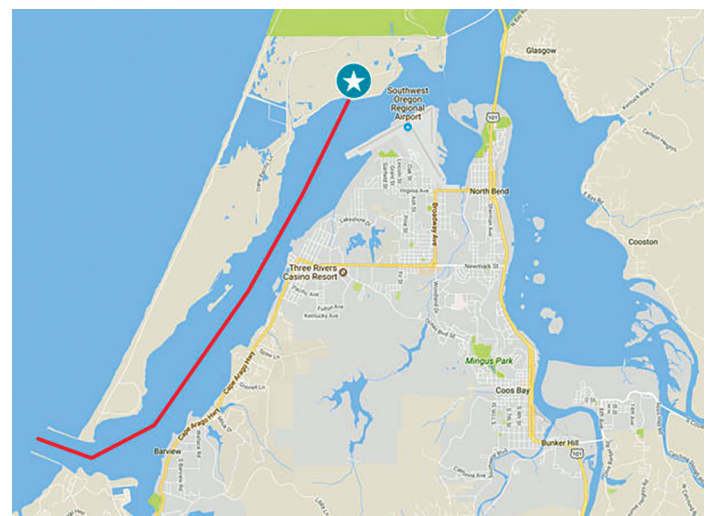
Specifically, constructing the project would temporarily but significantly impact housing in Coos Bay, Oregon and that constructing and operating it would permanently and significantly impact the visual character of Coos Bay.

Furthermore, this project

would likely adversely affect 13 federally-listed threatened and endangered species. FERC's conclusions were based wholly or in part on the following factors:

Basically, the project would involve the construction of an LNG terminal located in Coos County capable of liquefying up to 1.04 bill cu ft of natural gas per day for export.

The 200-acre LNG terminal site would include: a pipeline gas conditioning facility; five natural gas liquefaction trains; two full-containment LNG storage tanks and associated equipment; LNG loading platform and transfer line; marine facilities; an access channel from the existing Coos Bay Federal Navigation Channel to the LNG terminal; modifications adjacent to the existing channel; a tempo-



US FERC is not happy with Jordan Cove

rary workforce housing facility; the non-jurisdictional Southwest Oregon Regional Security Centre and fire department building; and other security and control facili-

ties, administrative buildings, and other support structures.

As proposed, the LNG terminal would be used by about 120 LNGCs per year. ■

LNG export hub for Ust-Luga

Late last month, Gazprom and RusGazDobycha finalised the configuration of a large-scale complex to process ethane-containing gas and produce LNG near Ust-Luga, Leningrad Region.

Both parties have thus moved to the implementation stage, Gazprom said.

It involves the construction of facilities to process 45 bill cu m of gas and for the production and shipping of 13 mill tonnes of LNG, up to 4 mill tonnes of ethane and over 2.2 mill tonnes of LPG per year.

The complex will be processing

ethane-containing gas produced by Gazprom from the Achimov and Valanginian deposits of the Nadym-Pur-Taz region. The gas remaining after the processing (about 20 bill cu m) will go into the company's gas transmission system.

The first train is expected to start operations in the second half of 2023 and the second train in

late 2024. The project operator will be RusKhimAlyans, a special-purpose company established on a 50:50 basis by Gazprom and RusGazDobycha.

Once operational, this plant will increase Russian LNG exports and LPG exports up by 30-40%. The production of ethane, which is in high demand in the Russian domestic industry, will also grow substantially.

"We have launched the implementation of an ambitious project that is simply unparalleled in Russia. Within a short time, we are going to build the most powerful gas treatment and liquefaction plant in the country. Together with the technically affiliated gas chemical facility, it will grow into a large modern industrial cluster in the northwest of Russia.

"The decision made is a practical manifestation of the new economic model for the comprehensive monetisation of hydrocarbon resources. Combining the

production of LNG and ethane within one industrial site will have a beneficial effect on the economics and specific indicators of the project and will allow us to considerably mitigate our resource and price risks," said Alexey Miller, Gazprom Management Committee Chairman. ■



Gazprom is setting up an LNG hub at Ust-Luga

JERA, EDF finalise LNG merger

JERA and EDF Trading Limited (EDFT) have completed the merger of their LNG optimisation and trading activities.

These activities have been combined into JERA Global Markets (JERAGM), the new name for JERA Trading.

"This is a great opportunity for EDFT which strengthens our partnership with one of the largest buyers of LNG and coal in the world. I look forward to building this business with JERA and developing future cooperation in the evolving energy markets," John Rittenhouse, Chief Executive of EDF Trading, commented.

"As one of the largest utility-owned seaborne energy optimisers, JERAGM would significantly contribute to building and strengthening relationships with both current and new counterparties amid global expansion of the LNG market. I look forward to developing an even closer relationship with EDFT," Sunao Nakamura, Managing Executive Officer of JERA and Chairman of JERAGM, said.

JERA has 66.67% of the equity in the new company through its wholly-owned subsidiary JERA Trading International, while, EDFT holds 33.33% of the shares in JERAGM and is a wholly-owned subsidiary of EDF SA (EDF). ■

Trump administration urged to support US flag LNGCs

A US congressman and senator have opened up the debate on US flagged LNGCs being used to export domestic LNG.

On 26th March, US Congressman John Garamendi (D-CA) and Senator Roger Wicker (R-MS) sent a bipartisan, bicameral letter urging US Trade Representative Robert Lighthizer, Commerce Secretary Wilbur Ross, and Treasury Secretary Steven Mnuchin to ensure that US-flagged and crewed vessels play a key role in shipping LNG to China.

Recent reports have indicated that an agreement to end the retaliatory tariffs between the US and China will include substantial commitments by the Chinese to purchase US LNG.

"America is on pace to be the third largest producer of LNG exports by 2020. If we don't use

these trade negotiations to require our LNG exports to ship on US vessels, the US will continue exporting its LNG on foreign-flagged ships manned by foreign crews," said Congressman Garamendi. "The US-flag international fleet has declined 60% since 1991 to just 80 vessels.

"These negotiations give us the opportunity to reenergise American shipyards and rebuild our nation's dwindling merchant fleet, which provides a vital economic stimulus and critical sealift capacity for our military. I look forward to establishing a dialogue with the administration on this matter, and I thank Senator Wicker for leading the effort in the Senate to grow

the US-flag fleet," he said.

"The US should seize every opportunity to bolster our domestic maritime industry," Senator Wicker said. "As we pursue stronger trade agreements with China and other nations, I urge the administration to consider supporting the American merchant marine fleet by requiring liquid natural gas and crude oil exports be transported by US-flagged and crewed vessels."

Last Congress, Wicker and Garamendi introduced the 'Energising American Shipbuilding Act.'

This legislation would guarantee that a fixed percentage of all exported LNG and crude oil would travel on US-built, crewed, and flagged vessels starting in 2025. ■



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International
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the Up, Mid &
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20

Exhibiting
Country
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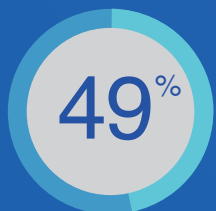
100

Countries
Representing the
Global Gas Value
Chain

55,000

SQM Exhibition
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Up to US\$50M



Up to US\$50M & Above

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Exmar confident of financial future

Belgian LNG and LPG owner Exmar reported a loss of \$16.1 mill for 2018, compared with a loss of \$28 mill for the previous year.

EBITDA was \$27.5 mill, compared to \$58.6 mill in 2017.

Apart from a fleet of LPG carriers, Exmar now operates only one LNGC, 'Excalibur', which is under a long term contract until early 2022. Her debt has been successfully refinanced until the end of the timecharter period.

This charter will guarantee a stable income in the coming years and puts Exmar in a position to take advantage of new LNG shipping opportunities as they arise, the company said in its annual report.

The LNG Division's EBIT for 2018 was \$21.4 mill, which included a capital gain of \$30.9 mill on the sale of 'Excelsior', compared to \$47.6 mill for 2017, including a \$70 mill capital gain on the sale of three LNGCs and a \$22.5 mill impairment on another.

The barge-based FSRU, contracted to Gunvor and delivered from the yard in 2017, is currently still at Keppel Shipyard, Singapore.

Exmar said it was waiting for instructions and a timeline for further mobilisation.

Gunvor has certain termination rights in line with market practice and they still exist as long as no agreement is reached between Gunvor and its customer for the deployment of the unit.

In the meantime the FSRU was on hire from October, 2018. Exmar said that it had reached an agreement in principle for her financing.

The 'TANGO' FLNG arrived in Bahia Blanca, Argentina on 4th February, 2019. She has been installed and moored in Bahia Blanca only two-and-a-half months after contract signing.

Her installation and commissioning started upon her arrival and Exmar's management said that they remained comfortable that the unit will be able to start its gas liquefaction operations in the second quarter of this year at which time a significant portion of the restricted cash under her



FLNG 'Tango' should boost Exmar's future EBITDA

financing will be released.

The yearly production of about 500,000 tonnes of LNG will account for an estimated annual EBITDA of \$43 mill per year with a potential upside depending on the market environment and the actual production of the unit.

Exmar claimed, taking into account its available cash, cash equivalents (including undrawn committed credit lines and release of restricted cash under the 'TANGO' FLNG financing) and financing and re-financing assumptions, it has sufficient liquidity to meet its present obligations and cover its working capital needs for

at least 12 months.

The company is looking to refinance, partly or fully, its existing bond (about \$121.4 mill) which is due on 7th July, 2019. No commitments have been made thus far. DNB Markets, Nordea and Pareto Securities have been mandated in relation to a bond issue, which may follow.

The next testing date with respect to the financial position as at the end of June, 2019 is in September, 2019. In the event of a breach of covenants Exmar claimed it was confident that a waiver will be obtained from the relevant lenders. ■

Dynagas revenue hit by drydockings

Dynagas LNG Partners reported a fourth quarter 2018 net loss and loss per common unit of \$0.9 mill and \$0.10 mill, respectively.

Adjusted net loss, adjusted EBITDA and adjusted loss per common unit was \$1.3 mill, \$21.6 mill and \$0.04 mill, respectively

Distributable cash flows for 4Q18 and full year was \$5.5 mill and \$33 mill, respectively.

Reported free cash was \$109.9 mill and available liquidity was \$139.9 mill as of 31st December, 2018.

The \$0.9 mill net loss recorded in 4Q18, compared to net income of \$5.6 mill in the corresponding period of 2017, a decrease of \$6.5 mill, or 116.4%, was mainly attributable to: (i) the decrease in period operating revenues during 4Q18, compared to the same period in 2017; (ii) costs associated with the 'Lena River' drydock and special survey, which

was undertaken in 4Q18, resulting in 16.85 drydock days for the quarter versus nil drydock days in the same period in 2017; and (iii) increased financing costs with respect to Partnership's \$480 mill senior secured term loan in 4Q18 in comparison to 4Q17, due to the increases in US Libor, which correspondingly increased the Partnership's interest and finance costs.

CEO Tony Lauritzen, commented: "Our reported earnings for the fourth quarter ended 31st December, 2018 were in line with our expectations. Compared to the same period in 2017, our fourth quarter earnings were impacted by the following occurrences: (i) the decrease in revenues as result of the 'Arctic

Aurora' and the 'Ob River' commencing employment under extended charter contracts with their respective charterers at lower rates, compared with the previous charter contracts, (ii) the cost and off-hire associated with scheduled special survey and drydocking of the 'Lena River' and (iii) the increase in US Libor, which increased the interest and finance costs of our Term Loan B.

"All of our LNGCs are or to be employed on long-term contracts with an average contract duration of approximately 10 years, with the first potential vessel availability in the year 2021 (only one vessel) and thereafter in the year 2026.

"We believe that our revenue backlog estimate of approximately

\$1.4 bill is driven in part by our dominant market share in the ownership and operation of Ice Class LNG carriers. We are pleased that the Yamal LNG project is progressing well.

"The 'Lena River' is currently employed on a multi-month charter contract with a large US gas producer until the vessel is employed under the 15-year contract with Yamal LNG, which is expected to commence in the third quarter of 2019.

"Currently our main focus is on the refinance of our \$250 mill unsecured notes due in October, 2019. While we cannot provide any assurance of the outcome, we are currently working on various refinancing options," he explained. ■

Nakilat adds four LNGCs

Nakilat has established a new joint venture, 'Global Shipping Co Ltd', with Maran Ventures.

Under the agreement, Nakilat will have a 60% stake in the JV while Maran Ventures will hold the remaining 40%. With four LNGCs under the new JV, the number of Nakilat vessels will effectively increase to 74, which is about 11.5% of the global LNG fleet by carrying capacity.

Nakilat's CEO, Eng. Abdullah Al Sulaiti, said, "This agreement is a step forward for the company, as we expand our fleet with additional capacity to meet the growing international demand for clean energy. This has subsequently led to a significant increase in demand for LNG shipping, which we hope will have a positive effect on charter rates.

"With the four new vessels being managed and marketed by Nakilat, this not only affirms our

global leadership in energy transportation but also bears testament to our vessel management and marketing capabilities with the world's largest LNG fleet. Nakilat's steady growth highlights our robust financial performance and strategic planning, which comes as part of our efforts to maximise returns for our shareholders and support Qatar's industry leading position as the world's top LNG exporter.

"We have seen a shift in terms of management and vessel technology in the industry, which we have taken into consideration. Currently under construction in South Korea, the four modern vessels each have a cargo carrying capacity of 173,400 cu m. They are equipped with some of the most advanced technology in the market today, with two of them being

equipped with ME-GI while the other two with X-DF technology."

Maran Ventures Chairman, John Angelicoussis, said, "Nakilat has been one of our strategic partners for many years and we are pleased to be strengthening our relation-

ship with them. Through this new venture, I am confident that we will continue to provide first-class services together for all our LNG customers around the world and look forward to further collaborations in the future."

LNGC charters, sales and orders

There were several long term charters and only one order reported recently.

For example, Samsung has confirmed an order from Nisshin Shipping for an 180,000 cu m LNGC.

The price was said to be around \$191 mill and the vessel will be delivered in 2022.

In the charter market, TMS Cardiff has signed a 10-year time-charter contract with Vitol for one of its X Carrier LNGC series.

This is the 10th out of 11 x 174,000 cu m X Carrier vessels, which is currently under construction at Hyundai Heavy Industries, to have been fixed on a long term charter.

Christos Economou, TMS Cardiff Gas founder, commented: "We are delighted to bring on board our new long-term business customer, which is a first time term customer for TMS Cardiff Gas"

Pablo Galante Escobar, Vitol's head of LNG, said: "This timecharter is our first long-term shipping position and enhances the overall proposition to our customers."

Another period charter was reported involving Maran Gas Maritime.

This Angelicoussis-owned com-

pany has signed a 12-year timecharter contract with JERA for a newbuilding LNGC.

Maran Gas signed the agreement with LNG Marine Transport Limited (LMT), a JERA subsidiary, in late March, 2019.

The 173,400cu m vessel is currently being built at Daewoo Shipbuilding & Marine Engineering (DSME).

JERA plans to increase its LNG fleet to 25 vessels by 2025 in association with an increased ratio of 'free on board' (FOB) contracts.

Elsewhere, brokers reported that Trafigura had taken the 2018-built 'BW Lilac' for nine months at \$85,000 per day, while Petrobras fixed the 2009-built 'Magellan Spirit' for three years at \$65,000 per day and Shell concluded the charter of the 2015-built 'BW Pavilion Leera' for 12 months at \$67,000 per day.

Reported to be leaving the fleet was the 1977-built 129,300 cu m 'Sunrise' which has been committed to Bangladesh recyclers for about \$11 mill.

She has been laid up at Batam for a number of years.

Largest LNGC on the cards

Hudong-Zhonghua Shipyard and Classification society DNV GL have signed a joint development project (JDP) agreement for a new 270,000 cu m LNGC – the largest ship of this type.

This agreement was signed recently at LNG2019 in Shanghai between Hudong-Zhonghua General Manager, Chen Jun and DNV GL's Regional Manager for China, Norbert Kray.

China is carrying out a 'protecting blue sky' campaign, forecasts for LNG demand in China will continue to grow at a high level, and it is expected to exceed 100 mill tonnes by 2030. Shanghai alone imported a record 600 mill cu m of LNG in January, 2019, involving six 170,000 vessels.

The transport of large amounts, from diverse suppliers, will require new vessels and greater efficiencies. To achieve this, the new JDP will see Hudong-Zhonghua Shipyard and DNV GL co-operate to bring their expertise and experience in research and development, engineering, classification, and construction, to develop a modern ultra large LNGC with a

capacity of 270,000 cu m.

A vessel of this size could transport enough LNG to provide gas for 4.7 mill Shanghai homes for a month, 25-30% more efficiently than a 170,000 cu m vessel. In addition, a single 250,000 cu m vessel would increase terminal capacity by 50% without expanding the size of the terminal.

"LNG is an energy source that is becoming more important as we look to improve air quality and lower carbon emissions," said Kray. "DNV GL has been one of the leaders on maritime LNG technology for many years and we are very proud that Hudong-Zhonghua Shipyard has chosen us to co-operate with them on this exciting and innovative project.

"We look forward to deepening our partnership as we work to enable a design that is cost efficient, environmentally friendly, and above all safe," he added.



Teekay's 'Magellan Spirit' (left) was reported fixed to Petrobras for three years

Teekay LNG to optimise fleet performance

Teekay LNG Partners recently signed a full fleet partnership with the New York-based startup, Nautilus Labs, aimed at enhancing the efficiency of its LNGCs.

Nautilus Labs' platform unifies fleet data and leverages machine learning to optimise vessel performance.

Teekay LNG and Nautilus Labs began their partnership in February, 2018 with a five ship pilot project.

In March of this year, the Glasgow-based shipping company agreed to roll out the software platform on its whole fleet, making Teekay Nautilus' largest client.

Teekay aims to reduce operational costs and act on predictive decision support by leveraging Nautilus Platform. The software unifies the company's various data sets

and different systems to give a detailed analysis of fleet performance in real-time and to enhance collaboration across its organisation.

Both companies are closely partnering on the product development front, helping the technology company to develop software for other business needs.

"Nautilus ties together a number of our performance monitoring systems, providing real-time insights and visibility into the impact of vessel operations and voyage management decisions, so that we can continuously optimise our fleet."

Mark Endall, Fleet Performance Superintendent at Teekay, said.

Nautilus uses high-frequency data to build machine learning models that support shoreside and on board decision-making.

On working with the New York-based start-up, David McRoberts, Teekay LNG's Director of Business Development, Marine and Technical, said, "It's great to partner with a forward-thinking tech company like Nautilus Labs. We're excited to continue working with the Nautilus team to bring advanced fleet solutions to LNG operations." ■

N-KOM completes first FSRU project

Nakilat-Keppel Offshore & Marine (N-KOM) has successfully completed its first FSRU project.

This involved the 138,000 cu m FSRU 'Excelerate' owned by Excelerate Energy (USA).

During time spent at the Erhama Bin Jaber Al Jalahma Shipyard, the FSRU underwent routine drydocking and repairs. In addition, modifications to and retrofitting of several new systems, including the installation of a ballast water treatment system (BWTS), were undertaken

To date, N-KOM has completed seven BWTS installations for various types of vessels, such as LNG and LPG carriers, as well as very large crude carriers (VLCCs). The FSRU is now ready to sail to Bangladesh to join Excelerate's FSRU 'Excellence' in the Bay of Bengal to serve as the country's second LNG import terminal.

N-KOM's expertise in handling gas carriers has attracted many LNGCs for routine docking, membrane repairs, and other repair and maintenance work at its facility. Located within the Erhama Bin Jaber Al Jalahma Shipyard, N-KOM has completed more than 190 LNGC drydockings and repairs to date, with around 30 projects

undertaken last year alone.

Among the shipyard's facilities are three Q-Max sized docks (two graving docks and one floating dock), berthing capacity of 3,150 m, specialist workshops and cryogenic cleanrooms, enabling the yard to handle repairs and maintenance for all types of ships and offshore structures. ■



N-KOM has handled the first FSRU at its repair base

Damaged LNGC remains off Fujairah

The 2009-built Shipping Corp of India (SCI) managed LNGC 'Aseem' was still anchored off Fujairah on 2nd April with collision damage, according to Marine Traffic.

The LNGC allegedly struck the VLCC 'Shinyo Ocean' at around 2000 UTC on 24th March at Fujairah Anchorage.

'Shinyo Ocean' suffered a large port side hull-height breach, while 'Aseem' reportedly, suffered severe bow damage.

After the collision, 'Aseem' dropped anchor.

According to the AIS track, the LNGC arrived in ballast at Fujairah Anchorage from India, probably for bunkers. She was initially reported as bound for Qatar. ■

Q-Flex Panama transits investigated

Since the New Panama Canal has been in operation, Nakilat's LPG vessels have transited through the Canal 16 times, while the joint venture conventional LNGCs have completed 38 transits.

Nakilat has conducted compatibility studies and thorough assessments of Q-Flex class LNGCs on their ability to safely transit through the new locks in the near future.

The flexibility of going through the New Panama Canal not only enables Nakilat to widen its international outreach and cement its position as a global leader of energy transportation, but also allows it to exceed customer satisfaction, the company said.

Passage through the canal allow vessels to shorten their voyage by about 13,000 km, leading to lesser delivery times, as well as operational cost savings. ■

NEWS NUDGE

NYK to conduct IGF code training

A training programme for seafarers responsible for LNG and other low-flashpoint fuels on board NYK Group-operated ships has been accredited by Nippon Kaiji Kyokai (Class NK).

This makes NYK the first

Japanese shipping company to obtain an international institution's certification in the field of IGF Code training, the company claimed.

Polish LNG terminal extension gets green light

The European Commission has approved plans to increase the regasification capacity, and the development of additional ser-

vices, at the Świnoujście LNG receiving terminal.

The plans would see the terminal capacity increase from 5 to 7.5 bill cu m per year.

As a result, Polish LNG will receive €128 million from the European Regional Development Fund and the Cohesion Fund, under the 2014-20 Infrastructure and Environment Operational Programme. ■

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WORLD LNG CARRIER ORDERBOOK

Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
JMU	SPB	165000	TFDE	Apr-19	Feb-14	MOL
JMU	SPB	165000	TFDE	Jul-19	Feb-14	MOL
JMU	SPB	165000	TFDE	Apr-19	Feb-14	NYK
DSME	GT NO 96	173400	MEGI	May-19	Jun-14	Maran Gas Maritime
DSME	GT NO 96	172000	TFDE - Azipod	Jul-19	Jul-14	Teekay LNG
DSME	GT NO 96	172000	TFDE - Azipod	Aug-19	Jul-14	Teekay LNG
DSME	GT NO 96	172000	TFDE - Azipod	Oct-19	Jul-14	Teekay LNG
DSME	GT NO 96	172000	TFDE - Azipod	Nov-19	Jul-14	Teekay LNG
DSME	GT NO 96	172410	TFDE - Azipod	Sep-19	Jul-14	MOL
Kawasaki	Moss	155000	TFDE	Dec-19	Sep-14	MOL
DSME	GT NO 96	173400	MEGI	Apr-19	Nov-14	BP
Mitsubishi H.I.	Moss	177000	STaGE	Sep-19	Jan-15	MOL
DSME	GT NO 96	173400	MEGI	Sept-19	Sep-15	BWGas
Kawasaki	Moss	177000	STRH	Jul-19	Sep-15	MOL
Mitsubishi H.I.	Moss	165000	STaGE	May-19	Nov-15	Mitsubishi
Mitsubishi H.I.	Moss	180000	STaGE	Jun-19	Nov-15	NYK
Mitsubishi H.I.	Moss	180000	STaGE	Feb-19	Nov-15	NYK
Hyundai Heavy	GTT Mark III Flex	180000	XDF	Apr-19	May-16	SK Shipping
Hyundai Heavy	GTT Mark III Flex	180000	XDF	May-19	May-16	SK Shipping
DSME	GT NO 96	173400	MEGI	Oct-19	Jun-16	Maran Gas Maritime
DSME	GT NO 96	173400	MEGI	Nov-19	Jun-16	Maran Gas Maritime
DSME	GT NO 96	173400	MEGI	Apr-20	Dec-16	Maran Gas Maritime
Hyundai Heavy	GTT Mark III Flex	180000	MEGI	May-19	Mar-17	Knutsen
DSME	GT NO 96	173400	MEGI	Jun-19	Mar-17	Flex LNG
DSME	GT NO 96	173400	MEGI	Aug-19	Mar-17	Flex LNG
Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-19	May-17	Knutsen
Hudong-Zhonghua	GT NO 96	174000	MEGI	Dec-19	Jul-17	MOL
Hudong-Zhonghua	GT NO 96	174000	MEGI	Mar-20	Jul-17	MOL
Hudong-Zhonghua	GT NO 96	174000	MEGI	Jul-20	Jul-17	MOL
Hudong-Zhonghua	GT NO 96	174000	MEGI	Oct-20	Jul-17	MOL
Samsung	GTT Mark III Flex	180000	XDF	Jun-19	Dec-17	GasLog
DSME	GT NO 96	173400	MEGI	May-20	Dec-17	Maran Gas Maritime
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-20	Jan-18	NYK
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jan-20	Jan-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-20	Jan-18	Sovcomflot
DSME	GT NO 96	173400	MEGI	Dec-19	Feb-18	BWGas
DSME	GT NO 96	173400	MEGI	Jun-20	Feb-18	BWGas
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-20	Feb-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Apr-20	Feb-18	Cardiff Marine
DSME	GT NO 96	173400	MEGI	Aug-20	Feb-18	John Fredriksen
DSME	GT NO 96	173400	MEGI	Sep-20	Feb-18	John Fredriksen
Hyundai Heavy	GTT Mark III Flex	174000	XDF	May-20	Mar-18	Flex LNG
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jul-20	Mar-18	Flex LNG
Samsung	GTT Mark III Flex	180000	XDF	Apr-20	Mar-18	GasLog

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 = 4th April 2019

Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Samsung	GTT Mark III Flex	174000	XDF	Mar-20	Mar-18	Cardiff Marine
DSME	GT NO 96	173400	MEGI	Dec-20	Mar-18	Minerva Marine
DSME	GT NO 96	173400	MEGI	Jan-21	Mar-18	Minerva Marine
Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-20	Mar-18	Knutsen
DSME	GT NO 96	173400	MEGI	Aug-20	Mar-18	Alpha Gas
DSME	GT NO 96	173400	MEGI	Dec-20	Mar-18	Alpha Gas
Samsung	GTT Mark III Flex	180000	XDF	Sep-20	May-18	GasLog
DSME	GT NO 96	173400	MEGI	Oct-20	Jun-18	Maran Gas Maritime
DSME	GT NO 96	173400	TFDE	Apr-21	Jun-18	Maran Gas Maritime
DSME	GT NO 96	173400	MEGI	Apr-21	Jun-18	Alpha Gas
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Sep-20	Jun-18	Thenamaris
Hyundai Heavy	GTT Mark III Flex	174000		Feb-21	Jun-18	Flex LNG
Hyundai Heavy	GTT Mark III Flex	174000		May-21	Jun-18	Flex LNG
Hyundai Heavy	GTT Mark III Flex	174000		Oct-20	Jul-18	Capital Gas
Hyundai Heavy	GTT Mark III Flex	174000		Nov-20	Jul-18	Capital Gas
Hyundai Heavy	GTT Mark III Flex	174000		Mar-21	Jul-18	Capital Gas
Hyundai Heavy	GTT Mark III Flex	174000		Jun-21	Jul-18	Capital Gas
DSME	GT NO 96	173400	MEGI	Nov-20	Jul-18	John Fredriksen
Samsung	GTT Mark III Flex	180000	XDF	Dec-20	Aug-18	Celsius Shipping
Samsung	GTT Mark III Flex	180000	XDF	Mar-21	Aug-18	Celsius Shipping
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Sep-20	Aug-18	Cardiff Marine
Samsung	GTT Mark III Flex	174000	XDF	Oct-20	Aug-18	GasLog
Samsung	GTT Mark III Flex	174000	XDF	Dec-20	Aug-18	GasLog
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Sep-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Sep-18	Thenamaris
Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Sep-18	NYK
Samsung	GTT Mark III Flex	174000	XDF	Jan-21	Oct-18	Minerva Marine
Samsung	GTT Mark III Flex	174000	XDF	Sep-21	Oct-18	Minerva Marine
Samsung	GTT Mark III Flex	174000	XDF	Feb-21	Nov-18	Cardiff Marine
Samsung	GTT Mark III Flex	174000	XDF	Jan-21	Nov-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Nov-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Apr-21	Nov-18	Cardiff Marine
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Nov-18	Latsco Shipping
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Nov-18	Latsco Shipping
Samsung	GTT Mark III Flex	174000	XDF	Aug-21	Dec-18	NYK
Samsung	GTT Mark III Flex	174000	XDF	Nov-21	Dec-18	NYK
DSME	GT NO 96	174000	MEGI	Feb-21	Dec-18	BWGas
DSME	GT NO 96	174000	MEGI	Jun-21	Dec-18	BWGas
DSME	GT NO 96	173400	MEGI	Jun-21	Dec-18	Maran Gas Maritime
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Nov-20	Dec-18	NYK
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	NYK
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-21	Dec-18	NYK
DSME	GT NO 96	180000	MEGI	Dec-20	Dec-18	MOL
DSME	GT NO 96	173400	MEGI	Jun-21	Dec-18	MOL
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Sep-20	Dec-18	Sovcomflot

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 = 4th April 2019

Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Feb-21	Dec-18	Sovcomflot
Samsung	GTT Mark III Flex	180000	XDF	Jun-21	Dec-18	GasLog
Samsung	GTT Mark III Flex	180000	XDF	Aug-21	Dec-18	GasLog
Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	Cardiff Marine
DSME	GT NO 96	174000	MEGI	Jun-21	Dec-18	Alpha Gas
Samsung	GTT Mark III Flex	174000	XDF	Mar-21	Dec-18	Navigare
Samsung	GTT Mark III Flex	180000	XDF	Jun-21	Feb-19	Celsius Shipping
Samsung	GTT Mark III Flex	180000	XDF	Sep-21	Feb-19	Celsius Shipping
Hudong-Zhonghua	GT NO 96	178000	XDF	Sep-21	Feb-19	CSSC
Hudong-Zhonghua	GT NO 96	178000	XDF	Feb-22	Feb-19	CSSC
DSME	GTT Mark III Flex	174000	MEGI	May-21		Nakilat
Samsung		174000		Sep-22		Sinokor
Samsung		174000		Sep-22		Sinokor
Samsung		174000		Sep-22		Sinokor
Samsung		174000		Sep-22		Sinokor
DSME	GTT Mark III Flex	173400	XDF	Aug-21		Nakilat
DSME	GTT Mark III Flex	173400	XDF	Oct-21		Nakilat
Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-21		Capital Gas
Samsung		174000		Mar-22		Nisshin 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 = 4th April 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 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)
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

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 = 4th March 2019

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

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 = 4th March 2019