

LNG Shipping News

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13 September 2018

Overall shipping growth to peak around 2030

DNV GL - Maritime has released an updated version of its 'Maritime Forecast to 2050'.

'Maritime Forecast 2050' predicts a rise of nearly a third (32%) in total seaborne-trade measured in tonne/miles for 2016-2030, but only 5% growth over the period 2030-2050.

This is based on the results of DNV GL's updated global model, which encompasses the global energy supply and demand, and the use and exchange of energy within and between 10 world regions.

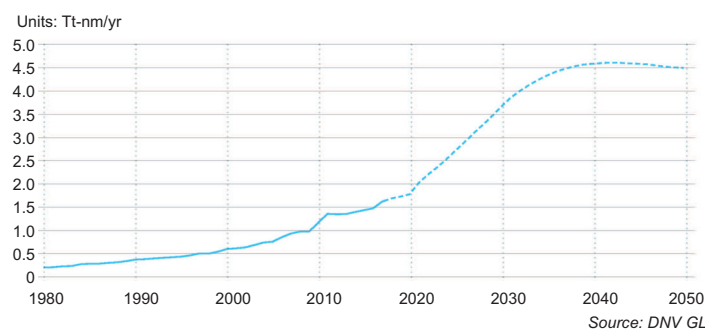
The forecast also examined how the energy transition will affect the shipping industry.

"The energy transition is undeniable," said Remi Eriksen, DNV GL Group President and CEO.

"Last year, more gigawatts of renewable energy were added than those from fossil fuels and this is reflected in where lenders are putting their money."

Following on from the 2017 report, the new Maritime Forecast to 2050 focuses on the challenges of de-carbonising the shipping industry. It examines recent changes in shipping activity and fuel consumption, future developments in the types and levels of cargoes transported, and future regulations, fuels and technology drivers.

World seaborne natural gas trade



For LNGCs, the report predicts that seaborne trade will reach 640 mill tonnes by 2030, 770 mill tonnes by 2040 and 790 mill tonnes by 2050, compared with just 360 mill tonnes recorded in 2016.

As for tonne/miles, in 2016 the figure was 1.46 bill. In 2030, this figure is expected to rise to 3.67 bill, increasing to 4.62 bill by 2040, then decreasing slightly to 4.52 bill tonnes by 2050.

Fleet growth

The annual average LNGC fleet growth rate in tonnage was estimated at 4.3% during the period 2016-2030, much the same as seen between 2010-2016 but slowing to just 1% between 2030 and 2050. The fleet size is forecast to triple

by 2040 and then slip back slightly by 2050.

****China has withdrawn its threat of putting imported US LNG on its tariff list having originally included natural gas on the list of imports to be hit in a tit-for-tat trade war with the US.

If the tariff on LNG had gone ahead, this would have dealt a considerable blow to the companies either operating, building or negotiating to build liquefaction plants and export terminals, especially in the US Gulf.

It would also have dealt a major blow to LNGC owners and operators, as exports from the US to China via the Panama Canal considerably adds to the tonne/miles thus stimulating the spot market.

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LNGCs stuck at Sabine Pass

Eight ships were reported stuck in the US Gulf Sabine Pass shipping channel last weekend, due to a damaged submerged pipeline.

One LNGC, one LPG carrier and two oil tankers were waiting to leave Sabine Pass, while one LNGC and three oil tankers were waiting to enter the channel, a

US Coast Guard spokesman told Reuters last Friday.

Port Arthur's VTS implemented draft restrictions earlier last week after a ship pulled some 300 m of a 24-inch dredge pipeline out toward the Gulf of Mexico.

Although the maximum draft was increased to 37 ft from 32 ft

earlier in the week, parts of the pipeline remained missing and surveys of the Port Arthur Canal and Sabine Pass Channel were ongoing, the USCG said.

Officials at Cheniere said the USCG restrictions were not affecting operations at Sabine Pass towards the end of last week.

FERC issues schedules for 12 LNG terminal applications

The US Federal Energy Regulatory Commission's (FERC) Office of Energy Projects has issued environmental schedules for 12 pending LNG export terminal applications.

This move reflects FERC's recent efforts to streamline and speed up its review processes for LNG project applications.

"Thanks to the tremendous work of our Office of Energy Projects and Office of the General Counsel, the Commission has made significant strides in streamlining our regulatory processes to adapt to the increasing number, and greater complexity, of the LNG applications we have received. These process improvements have shortened projected

environmental schedules in some cases by nine to 12 months," FERC Chairman, Kevin McIntyre said. "There is widespread acknowledgement that the US is poised to play an important role in serving worldwide LNG demand, and its ability to serve that demand quickly will serve the nation's national security and economic interests. Because sufficient LNG export capacity is a necessary gateway to the global gas markets, the FERC's efficient processing of LNG facility applications

will put the US in a more competitive position."

McIntyre added, "As FERC is the lead siting agency for LNG projects, our responsibility over LNG applications is to assess the environmental effects, safety, and engineering of LNG facilities in a timely manner in accordance with our statutory obligations. Our recent streamlining efforts will provide all LNG stakeholders additional regulatory certainty and help minimise undue administrative burdens."

- Hiring of an outside contractor to assist Commission staff in construction inspections; and
- Working with project applicants to hire third-party contractors to conduct analyses that involve non-proprietary information.

These LNG environmental schedules also benefit from a new Commission practice of moving to electronic issuances of environmental documents for FERC's natural gas and hydropower programmes.

LNG projects receiving the regulatory schedules included: Freeport Train 4, Port Arthur, Driftwood LNG, Corpus Christi, Texas LNG, Gulf LNG, Rio Grande LNG, Jacksonville Eagle, Annova LNG, Plaquemines, Jordan Cove and Alaska LNG.

In addition, the US Maritime Administration (MARAD) has issued a notice saying that, at the request of the licensee, it has suspended the operational license of Neptune LNG, located off the coast of Massachusetts, for another four years. ■



FERC has examined 12 potential new US export terminals.
Photo credit - Tellurian

Increased staff

Among the improvements, the Commission has increased the number of FERC LNG staff. In addition, it has taken steps to save staff time to allow them to focus on reviewing LNG applications, including:

- The recently signed agreement with the Pipeline and Hazardous Materials Safety Administration (PHMSA) to better leverage each agency's expertise in the LNG authorization process and issues related to LNG safety;

Tema LNG terminal takes a giant step forward

Tema LNG Terminal Company, a company controlled by Helios Investment Partners, the world's largest Africa-focused private equity fund, has signed an agreement with China Harbour Engineering Co, to build an LNG terminal at Tema.

The LNG Terminal is being constructed on the back of a 12-year gas supply agreement signed between Ghana National Petroleum Corp (GNPC) and Rosneft. Rosneft subsequently contracted Tema LNG Terminal Co to provide regasification services.

The LNG Terminal, which will

be completed in 18 months, will be sub-Saharan Africa's first regasification terminal, strengthening Ghana's position as a regional trade and energy hub, the company claimed.

It is estimated that the project will provide about 2 mill tonnes per annum of LNG, meaning that

this facility would supply about 30% of Ghana's total electricity generating capacity, displacing crude oil and crude derivatives as fuel sources for power generation.

The cost of the project is thought to be in excess of \$350 mill.

China Harbour Engineering Co,

which is already involved in a Tema port expansion project, is constructing the marine facilities, whilst Jiangnan Shipyard will build an FSRU.

It is intended that the terminal will be transferred to the Ghana Government after 12 years of operation. ■

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Panama lifts LNGC transit restrictions

On 1st October, 2018, some navigation restrictions currently imposed on LNGCs transiting the new Panama Canal will be lifted.

Specifically, meetings between north and southbound LNGCs in Gatun Lake will be allowed, as well as transiting during hours of darkness in certain areas of the Canal.

In order to maximise the benefits of these new navigation rules, modifications to the transit reservation (booking) system for Neopanamax vessels will be required. The changes are the result of in-depth analysis of the needs of this market segment and consultation with customers, the canal authority said.

Among the main issues addressed was the need to increase the number of LNGCs that can

book a transit per day, and adjustment of the booking periods based on the needs of the LNG industry, which include the spot and long term contracts market (annual delivery programme) scheduling.

The modifications to the reservation system also address the current practice by some LNGC customers of acquiring booking slots during the first period competition, to the point where these slots are nearly sold out up to 365 days in advance. In reality, these slots are only used on average 60% of the time.

This practice is detrimental since it creates the perception that the Panama Canal does not

have the capacity to handle the actual LNG demand, affecting not only the best interests of the Panama Canal Authority (ACP) and the LNG industry, but of other customers as well, the authority claimed.

These modifications will allow the Panama Canal to better handle the present and expected demand for LNGC transit slots by providing the certainty and flexibility required by the LNG market segment.

These changes should also improve the efficiency of the transit reservation system, which will benefit all users of the Neopanamax locks. ■

Höegh LNG charters out FSRU - wins funding for another

Höegh LNG Holdings has timechartered newbuilding FSRU No 9 to Naturgy Energy Group for 15 months.

The timecharter commences in December, 2018, immediately after the delivery of the unit and a positioning voyage from Hyundai Heavy Industries shipyard.

Under the contract, FSRU No 9 will earn a fixed daily charter rate, which is in line with the current medium-term market for DFDE LNGCs.

Sveinung Støhle, Höegh LNG President and CEO, commented. "We are pleased to further develop our strong relationship with Naturgy, a highly reputable and ambitious LNG portfolio player and a long-time business partner of Höegh LNG.

"This charter party will cover the period from delivery of FSRU No 9 until planned start-up for prospective FSRU projects, and it further demonstrates once again the premium trading qualities of our FSRUs. Finally, from commencement of the contract, Höegh LNG's fleet will be fully employed."

In addition, Höegh LNG Holdings received a commitment letter for a sale and leaseback financing for FSRU No 10 of up to \$206 mill.

FSRU No 10 is currently under construction at Samsung Heavy Industries in South Korea, and is scheduled for delivery in the second quarter of 2019.

Chinese financing

The facility is being provided by CCB Financial Leasing (CCBFL), a wholly owned subsidiary of China Construction Bank (CCB), and is available to fund 70% of the delivered cost of the FSRU, increasing to 80% once long-term employment for the unit has been secured.

The facility bears a 20-year amortisation profile and has a tenor of 12 years. Höegh LNG intends to fix the interest rate, and based on the current swap rate environment, the fixed interest rate is expected to be around 6%. The facility is subject to final documentation.

Støhle explained: "With this sale and leaseback facility, Höegh LNG's current newbuilding programme is now fully equity and debt funded. Combined with the recent three newbuilding debt facilities, Höegh LNG continues to demonstrate support from a wide group of leading international banks and credit institutions, now also including CCB.

"We are pleased to welcome CCBFL to our lending group and appreciate its support in the financing of the last FSRU in our current newbuilding programme, at a combination of tenor, amortisation profile, flexibility and interest rate that is attractive and supportive of our commercial strategy.

"This agreement is also fully in line with HLNG's strategy of expanding our activities in China, where we currently have the FSRU 'Höegh Esperanza' on charter to CNOOC, and are actively pursuing new projects," he concluded. ■

Sumitomo signs long term gas agreement

FLNG Liquefaction 4 and Sumitomo Corp of America (SCOA) have entered into a binding Heads of Agreement (HOA) for the supply of 2.2 mill tonnes per annum of LNG.

Under the HOA, SCOA, a subsidiary of Sumitomo Corp, has agreed to negotiate for a 20-year liquefaction tolling agreement (LTA). The LTA is expected to start in 2023 upon the commencement of commercial operations of Train 4 of Freeport LNG's natural gas liquefaction and export facility located on Quintana Island near Freeport, Texas.

The 2.2 mill tonnes per annum to be contracted under the LTA will enable SCOA to significantly expand its US natural gas-related business, from upstream development to LNG export.

"We are pleased to announce the start of a long-term relationship with Sumitomo as our first Train 4 foundation customer," said Michael Smith, Chairman and CEO of Freeport LNG. "Sumitomo's significant US gas trading and LNG operations makes it an especially great addition to our outstanding group of existing customers. Sumitomo's 2.2 mill tonnes per annum of capacity under this HOA is a major step toward Freeport LNG contracting the approximately 3.5 mill tonnes per annum needed for financing and commencing construction of Train 4."

"This valuable partnership with Freeport LNG is an excellent step for SCOA as we continue to expand our business within this sector," said Shingo Ueno, SCOA's President and CEO. "We believe our ability to learn and grow through this long-term project will allow us to provide real value to the energy industry globally, connecting the growing natural gas supply in the US and the increasing appetite for LNG worldwide." ■

Qatargas in long term SPA with PetroChina

Qatargas has signed a long-term Sale and Purchase Agreement (SPA) with PetroChina International Company Limited, a unit of PetroChina Company Limited, to supply around 3.4 mill tonnes of LNG per annum.

Under the 22-year SPA, which ends in 2040, Qatargas will supply LNG from the Qatargas 2 project, a joint venture between Qatar Petroleum, ExxonMobil and Total, to receiving terminals across China. The first cargo is due to be delivered later this month.

Commenting on this agreement, Saad Sherida Al-Kaabi, President and CEO of Qatar Petroleum, and Chairman of the Qatargas Board of Directors, said: "I would like to thank the Government of the People's Republic of China and PetroChina for this important SPA.

"This agreement underscores Qatar's trusted capability in ensuring energy security to countries around the world, particularly in Asia, as well as its unique position as the world's largest LNG producer, supplying safely and reliably across the globe. We are very pleased to be of support to the

People's Republic of China in its quest to secure LNG supplies to meet the country's growing energy requirements. As we announce this long-term SPA, we look forward to continuing to supply reliable and clean energy to China and to countries all over the world that

seek to use the cleanest fossil fuel available to meet their energy needs."

Khalid Bin Khalifa Al-Thani, Qatargas CEO, added: "This is an important milestone for Qatargas. We are very pleased that LNG from Qatargas continues to con-

tribute towards meeting the huge demand for energy in the world's second largest economy. With China expected to become one of the world's largest gas markets, this SPA will further strengthen the existing relationship between Qatargas and PetroChina over the long-term."

The SPA allows flexibility in delivering LNG to various receiving terminals across China, including the Dalian, Jiangsu, Tangshan and Shenzhen, using Qatargas' 70 conventional Q-Flex and Q-Max LNGCs.

Qatargas is the world's largest LNG producing company with an annual production capacity of 77 mill tonnes, while PetroChina is China's largest gas supplier, supplying 66% of China's domestic demand in 2017.

Chinese gas consumption grew by 15% in 2017 alone, with LNG imports growing by more than 40%. ■



More work for Qatargas LNGCs?

Venture Global in long term Repsol deal

Repsol has signed a 20-year, binding sales and purchase agreement (SPA) for the supply of 1 mill tonnes per annum of LNG from the proposed 10 mill tonnes per annum Venture Global Calcasieu Pass LNG export facility in southwestern Louisiana.

According to a Reuters report, Venture Global said that Repsol will purchase LNG on a free on board (FOB) basis for a 20-year period that begins when the mid-scale LNG terminal, currently under development in Cameron Parish, La, begins commercial operations.

Pending a final investment decision (FID) and other conditions, Venture Global said that it expects commercial operations to start in 2022. ■

Novatek in LNG Far East transshipment project

At this week's Eastern Economic Forum, PAO NOVATEK, the Ministry of the Russian Federation for the Development of the Far East and the Government of Kamchatka signed an agreement to build an LNG transshipment complex in Kamchatka.

The agreement will see NOVATEK investment about RR70 bill.

"The construction of the Kamchatka transshipment complex will increase the efficiency of LNG deliveries from the Arctic zone by optimising transport logistics," said Leonid Mikhelson, NOVATEK's Chairman of the Management Board, "We plan to create a Russian LNG hub for shipments to consumers in the Asia/Pacific region. This investment will con-

tribute to the development of the Northern Sea Route allowing for the optimal use of the existing Arctic tanker fleet. The project will give an additional impetus to the economy of the Far East, create additional jobs and facilitate gasification of Kamchatka by using the boil-off gas from the LNG transshipment complex."

In addition, NOVATEK signed a Memorandum of Understanding (MOU) with Japan Oil, Gas and

Metals National Corp (JOGMEC).

Under the terms of the MOU, the parties agreed to explore opportunities to co-operate on NOVATEK's projects in the Yamal and Gydan peninsulas, including the Arctic LNG 2 project, on developing a regular transport link via the Northern Sea Route for LNG deliveries to the Japanese and Asia/Pacific markets, as well as exploring LNG marketing opportunities in the Asia/Pacific region. ■

NEWS NUDGE

OLT Offshore publishes regasification capacity products allocation

OLT Offshore LNG Toscana has said that the 'Procedure for the allocation of regasification capacity products for the Gas Year

2018/2019 offered during the Gas Year' is now available in the business area of OLT's website.

The scope is the offering of one or more capacity products, consisting of one delivery slot for each month, following the month

in which the capacity products were offered until the end of the gas year.

The first auction for the allocation of regasification capacity for the gas year 2018/2019 will be held on 1st October, 2018. ■

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Awilco reports improved earnings

The Awilco LNG Group reported a loss \$6.5 mill for the second quarter of this year, compared to a profit of \$1 mill in 1Q18.

Net freight income was \$4.6 mill for 2Q18, compared to \$12.5 mill in 1Q18 and EBITDA was \$1.9 mill, compared to \$9.5 mill in the previous quarter.

Vessel utilisation was 71%, compared to 97% in 1Q18.

For the first half of 2018, the net loss was \$5.5 mill, compared to a loss of \$20.5 mill in 1H17.

Freight income was \$20.2 mill, compared to \$5.1 mill in the same period last year. EBITDA in 1H18 was \$11.5 mill, compared to minus \$3.7 mill in 1H17.

Subsequently, on 5th July, 2018 'WilForce' was fixed on a nine to 12 month timecharter contract to an oil and gas major. The vessel is scheduled for delivery to the charterer early this month and is expected to contribute an annualised EBITDA of about \$26 mill during the charter period.

She completed her scheduled

drydocking in mid-August, 2018 at a total cost of about \$3.5 mill and incurred 21 offhire days. She was on time and on budget, the company claimed.

'WilPride' is scheduled for drydocking in 4Q18, which will include certain upgrades to the vessel, which will reduce boil-off and improve marketability. Therefore her drydock budget is about \$2.5 mill higher than 'WilForce', and offhire may be extended by a few more days.

Total equity as at 30th June, 2018 was \$121.5 mill, while total current liabilities were \$7.6 mill. Around \$5.1 mill of the current liabilities relates to the short-term portion of the 'WilForce' and 'WilPride' financial leases.

Total non-current liabilities were \$263 mill, of which the long-term portion of the two LNGCs financial leases was \$260.7 mill.

Although rates and activity softened at the start of 2Q18 in line with normal seasonal patterns, increased LNG production coupled with strong power generation demand in the Far East in the latter part of the quarter saw average market rates 50% above 2Q17 levels, Awilco said.

Activity in 3Q18 initially softened but has again started to improve as buyers already start to prepare for winter, and owner's expectations are correspondingly high.

The long-term outlook for LNG shipping remains promising. To meet the growing demand for gas, estimated at 2% per year according to Shell Energy Outlook and twice the growth rate of total global energy demand, several new LNG production plants are expected to be sanctioned in the near future. ■

Three new Arc7s head for Sabetta

According to Reuters Shipping Data, three new Arc7s are due to start loading at the Yamal LNG terminal in northern Russia in the near future.

Novatek's Yamal terminal has been ramping up LNG shipments faster than expected after loading its first cargo in December, 2017, with two trains now running at capacity and a third being commissioned.

The 170,000 cu m 'Rudolf Samoylovich', managed by Teekay, has left DSME's Okpo shipyard and was due to arrive at Sabetta on 7th September, according to the shipping data.

'Vladimir Vize', managed by Mitsui Osk Lines (MOL), has been launched but remains at Okpo fitting out, while Dynagas's 'Georgiy Brusilov' returned to Okpo on 25th August following sea trials, Reuters said.

The three vessels will increase the number of Arc7s operating from Yamal to eight, with another two due to be delivered by the end of this year. Two Arc4s, Dynagas's 'Clean Planet' and SCF's 'Pskov' have also been loading Yamal LNG.

Analysts at boutique bank Evcore estimated that the first two trains at Yamal needed 14 LNGCs for the terminal to work at full capacity, Reuters said. ■

FSRU sale helps Exmar avoid a loss

Belgian Gas vessel owner Exmar has reported a net result after tax of \$3.5 mill for the first half of this year, compared with a loss of \$34.1 mill for 1H17.

EBITDA was \$23.3 mill for 1H18, compared with a negative \$17.8 mill for the first half of the previous year. EBIT was \$13.8 mill, compared to a negative \$22 mill. Turnover was \$47.6 mill as against \$44.6 mill for 1H17.

As for the separate divisions, LNG's EBIT was \$23.8 mill for 1H18, which included a \$30.9 mill capital gain on the sale of FSRU 'Excelsior', compared to a negative \$20.4 mill for 1H17.

LNG shipping's EBIT is generated by the one LNGC - 'Excalibur' - in ownership under her long-term timecharter contract beyond 2022, fully performing in line with expectations.

As for floating regasification, In January, 2018 'Excelsior's' sale was concluded. The sale of EXMAR's share in the other three FSRU's took place in 2017.

The FSRU barge, contracted to Gunvor last year and delivered

from the yard in December, 2017, is currently at Keppel Shipyard undergoing site specific modifications prior to deployment under its 10-year charter in Bangladesh.

This long-term contract will start generating cash flow as from October, 2018.

The CFLNG, lying idle at the yard, is being marketed for several LNG export opportunities. Commercial discussions have intensified with various parties, Exmar claimed.

In the LPG division, EBIT of the LPG fleet in 1H18 was \$1.9 mill, compared to \$7.4 mill for the same period in 2017.

In the Offshore division, EBIT was a negative \$2 mill, compared to minus \$3.9 mill in 1H17.

The contribution of the Services activities (Exmar Ship Management and Travel Plus) to the EBIT for 1H18 was \$1.4 mill, compared to \$1.8 mill for the same period in 2017.

Holding activities contribution to the EBIT for 1H18 was minus \$3.5 mill, compared to minus \$1.2 mill in the first half of 2017.

EXMAR Ship Management has diversified its fleet under management, which now totals 88 assets.

Travel PLUS had a good first half with a 2% year-on-year increase in overall earnings. ■

NEWS NUDGE

CargoDocs LNG B/Ls roll out

Following 12 month trials involving CargoDocs electronic Bills of Lading (eB/Ls) in LNG trades within Europe, Shell will roll out the solution globally.

Shell and its ships agents will use CargoDocs DocPrep to draft B/Ls and approve them online, whereafter they will be electronically signed, issued, endorsed and then produced in the

technical/legal CargoDocs DocEx solution.

Commenting on the recent milestone, essDOCS co-founder & CEO, Alex Goulondris, said: "The LNG industry already utilises some of the most advanced shipping technologies, so adding electronic Bills of Lading was an obvious next step. We are excited to work with Shell as it leads the digitisation of this fast-growing market." ■

DNV GL signs new Jiangnan LNGC design AiP

At SMM last week, Knut Ørbeck-Nilssen, CEO of DNV GL – Maritime and Lin Ou, Chairman & President of Jiangnan Shipyard Group signed an approval in principle (AiP) for the 'LNG JUMBO'.

This is a new LNGC design fitted with GTT MK III Flex cargo containment system.

What was claimed to be a flexible, efficient and environmentally friendly design was developed by Jiangnan Shipyard in co-operation with ship designer MARIC, GTT, DNV GL and major equipment manufacturers.

"Jiangnan and DNV GL have successfully collaborated on joint design development and classifica-

tion for various ship types, particularly in our star product gas carriers," said Lin Ou. "We have completed China's first Mark III/Mark III Flex model tanks and moved into the membrane type liquefied gas carrier market.

"With this latest AiP, we have laid a solid foundation for introducing this ship type to the market and will further enrich our product portfolio in gas carriers and gas-fuelled ship types, which

will benefit our clients and at the same time reduce emissions. Both Jiangnan and DNV GL will gain from the deeper and broader co-operation that this AiP represents," he said.

The design uses the GTT Mark III Flex cargo containment system, and is equipped with four standard cargo holds, with a total capacity of 175,000 cu m. The ship's shore connection is flexible and compatible with most shore facilities, and it will be able to transit the Panama Canal.

The proposed propulsion system, a WINGD X-DF low-pressure, low-speed 2-stroke dual-fuel main engine, offers higher propulsion efficiency and lower fuel consumption in combination with an optimised twin skeg design and additional energy saving devices, DNV GL said.

In gas mode, the propulsion

system meets IMO NOx Tier III requirements without the need for exhaust gas treatment systems. In addition, a USCG certified ballast water treatment system means the design is ready for the incoming regulations.

"I am very pleased to be able to present this certificate to Jiangnan Shipyard, continuing a very productive and longstanding relationship," said Ørbeck-Nilssen. "Jiangnan Shipyard had been continuously developing their ability to offer new and advanced vessel designs and we are very proud to have been part of this process. As the gas segment continues to gain importance in shipping, new designs that offer greater efficiency and compliance alongside safety are important in advancing the segment, and we are very proud to support Jiangnan Shipyard in realising this new concept." ■



Jiangnan has been awarded AiP by DNV GL for its LNGC design

WinGD connects to DNV GL's fleet performance program

At last week's Hamburg SMM, DNV GL signed partnership agreements with leading LNGC propulsion developer WinGD, VAF Instruments and Viswa Lab to work together to improve vessel performance.

All three partners will connect to DNV GL's ECO Insight, claimed to be the most widely used fleet performance solution in the shipping industry.

"We are very much looking forward to co-operating with innovative companies like WinGD, VAF Instruments, and Viswa Lab," says Torsten Büssow, DNV GL's Global Head of Fleet Performance Management. "We want to offer an integrated solution for fleet performance that provides better analytics while streamlining the work of the crew on board, by avoiding double data entry and additional administrative task."

WinGD will deliver engine information and analytics to ECO Insight, while VAF Instruments as a manufacturer of thrust, power and fuel meters, as well as propulsion performance monitoring solutions will support the accuracy of hull

degradation assessments. Viswa Lab, as a fuel testing company, will directly feed fuel test results into ECO Insight to include fuel quality data, such as calorific value or water content in the performance assessment of vessels.

Talking with WinGD's Rob Stiefel and Anna Garcia in Hamburg last week, LNG SN was told that LNG was always going to be cheaper than LPG as a fuel going forward. Stiefel thought that LPG would be a good fit for VLGCs.

He also claimed that WinGD had won around 125 orders to install X-DF engines in LNGCs and that interest was strong for this engine type.

Stiefel claimed a market share of 80% of the newbuilding market and explained that LNGCs fitted with this engine type proved to be cheaper for charterers to operate, so was an obvious benefit to vessel

owners seeking period charters.

WinGD has a co-operation agreement in place with CSSC Marine Service and Wärtsilä to provide services.

All of the engines are manufactured by the leading engine manufacturers in South Korea and China

under license.

Winterthur Gas & Diesel (WinGD) was formed in early 2015 on the back of a merger between Wärtsilä Switzerland and China State Shipbuilding Corp (CSSC) and became a 100% subsidiary the following year. ■



WinGD has signed up to ECO Insight

ABS awards Chinese yard's LNGC design AiP

ABS has granted Approval in Principle (AiP) to Hudong-Zhonghua Shipbuilding's 174,000 cu m GTT MARK III Flex LNGC design, thus strengthening their position as China's premier LNG Shipbuilder.

"ABS is pleased to award Hudong-Zhonghua this AiP for their design to help meet the industry's diversifying LNG shipping requirements, in this growing segment," said Vassilios Kroustallis, Vice President Europe Regional Business Development, ABS. "ABS continues to review advanced LNG designs, drawing on our extensive experience in safe handling, storage and transport of gas."

"Working with ABS through the AiP process we have demonstrated

our ability to meet our clients' requirements for more efficient LNG vessel design," said Chi Benbing, Vice President, Hudong-Zhonghua.

Through the partnership with ABS, Hudong-Zhonghua can now offer designs using GTT membrane containment systems - MARK III Flex and NO 96 series.

This allows Hudong-Zhonghua to use different kinds of cargo containment systems to best meet their clients' requirements throughout an LNGC's life, ABS said. ■



ABS' Vassilios Kroustallis presents the certificate to Hudong-Zhonghua vice president Chi Benbing

GTT's Mark III Flex technology proves popular

GTT has received an order from Hyundai Heavy Industries (HHI) to design the tanks of four new LNGCs, which are to be built for Capital Gas Carriers.

The four 174,000 cu m LNGCs will be fitted with GTT's Mark III Flex technology.

Their delivery is scheduled for between the end of 2020 and mid-2021.

Philippe Berterottière, GTT Chairman and CEO, said: "We are pleased with the long-term partnership of excellence developed with HHI. This new order represents a major project to which we are proud to contribute. We are also very pleased to accompany Capital Gas Carriers

for its entry in the LNG world."

Earlier, GTT announced it had received an order notification from an undisclosed South Korean shipyard to design a tank for a new 174,000 cu m LNGC.

To be built on behalf of an unnamed European shipowner, the vessel's LNG tanks will be equipped with a Mark III Flex containment system.

She is expected to be delivered during the second half of 2020. ■

For confidentiality purposes, the names of the contracting parties of the project were not disclosed, GTT said.

This order also follows a contract received from Samsung to design the tank of another 174,000 cu m LNGC ordered by a European shipowner.

The delivery of this ship is planned for the fourth quarter of 2020.

A Mark III Flex containment system was also selected for the tanks. ■

NEWS NUDGE

Vessel deliveries

Several LNGC deliveries have been reported recently.

These included the 174,000 cu m 'Pan Europe' from Hudong-Zhonghua; the 173,400 cu m 'Megara' from DSME; the 174,000 'Flex Rainbow' from Samsung; the 180,000 cu m 'LNG Schneeweisschen' from DSME; the Arc7 'Rudolf Samoylovich' from DSME; the 165,000 cu m STaGE type 'Diamond Gas Rose' from Mitsubishi and the 'Moss type 164,000 cu m 'Enshu Maru' from Kawasaki. ■

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WORLD LNG CARRIER ORDERBOOK

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Energy Liberty	Japan Marine United Corp	SPB	165000	TFDE	01/08/2018	2014	MOL
Castillo De Caldelas	Imabari	TZ Mk. III	178000	MEGI	01/09/2018	2014	Elcano
Vladimir Vize	DSME	GT NO 96	172410	TFDE - Azipod	01/09/2018	2014	MOL
Kinisis	DSME	GT NO 96	173400	MEGI	15/09/2018	2015	Chandris
British Achiever	DSME	GT NO 96	173400	MEGI	01/10/2018	2014	BP
Georgiy Brusilov	DSME	GT NO 96	172410	TFDE - Azipod	01/10/2018	2014	Dynagas
Marvel Eagle	Kawasaki	Moss	155000	TFDE	19/10/2018	2014	MOL
Jmu Tsu 5071	Japan Marine United Corp	SPB	165000	TFDE	01/11/2018	2014	NYK
British Contributor	DSME	GT NO 96	173400	MEGI	01/11/2018	2014	BP
Boris Davydov	DSME	GT NO 96	172410	TFDE - Azipod	01/11/2018	2014	Dynagas
Marvel Hawk	Samsung	GTT Mark III Flex	174000	XDF	01/12/2018	2014	MOL
Marvel Crane	Mitsubishi H.I.	Moss	177000	STaGE	01/12/2018	2015	NYK
Nikolay Zubov	DSME	GT NO 96	172410	TFDE - Azipod	01/12/2018	2014	Dynagas
Samsung 2150	Samsung	GTT Mark III Flex	174000	XDF	01/01/2019	2014	MOL
Maran Gas Spetses	DSME	GT NO 96	173400	MEGI	01/01/2019	2015	Maran Gas Maritime
Daewoo 2444	DSME	GT NO 96	173400	MEGI	01/01/2019	2014	BP
Mitsubishi Nagasaki 2323	Mitsubishi H.I.	Moss	177000	STaGE	01/01/2019	2015	MOL
Maran Gas Chios	DSME	GT NO 96	173400	MEGI	01/01/2019	2015	Maran Gas Maritime
Maran Gas Hydra	DSME	GT NO 96	173400	MEGI	01/01/2019	2015	Maran Gas Maritime
Hyundai Samho S856	Hyundai Heavy	TZ Mk. III	174000	MEGI	01/01/2019	2015	Teekay LNG
Gaslog Gladstone	Samsung	TZ Mk. III	174000	XDF	01/01/2019	2014	GasLog
Yamal Spirit	Hyundai Heavy	TZ Mk. III	174000	MEGI	01/01/2019	2015	Teekay LNG
Pan Africa	Hudong-Zhonghua	GT NO 96	174000	TFDE	01/01/2019	2014	Teekay LNG
Shinshu Maru	Kawasaki	Moss	177000	STRH	01/02/2019	2015	MOL
British Mentor	DSME	GT NO 96	173400	MEGI	01/02/2019	2014	BP
Nohshu Maru	Mitsubishi H.I.	Moss	180000	STaGE	01/02/2019	2015	NYK
Jmu Tsu 5072	Japan Marine United Corp	SPB	165000	TFDE	01/03/2019	2014	MOL
British Sponsor	DSME	GT NO 96	173400	MEGI	01/03/2019	2014	BP
Hyundai Ulsan 2937	Hyundai Heavy	GTT Mark III Flex	180000	XDF	01/04/2019	2016	SK Shipping
Diamond Gas TBN	Mitsubishi H.I.	Moss	165000	STaGE	01/05/2019	2015	Mitsubishi
Hyundai Ulsan 2964	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	01/05/2019	2017	Knutzen
Bushu Maru	Mitsubishi H.I.	Moss	180000	STaGE	01/06/2019	2015	NYK
Flex Constellation	DSME	GT NO 96	173400	MEGI	01/06/2019	2017	Flex LNG
Hyundai Ulsan 2963	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	01/06/2019	2017	Knutzen
Sohshu Maru	Kawasaki	Moss	177000	STRH	01/07/2019	2015	MOL
Hyundai Ulsan 2938	Hyundai Heavy	GTT Mark III Flex	180000	XDF	01/07/2019	2016	SK Shipping
Jmu Tsu 5073	Japan Marine United Corp	SPB	165000	TFDE	01/07/2019	2014	MOL
Daewoo 2430	DSME	GT NO 96	172000	TFDE - Azipod	01/07/2019	2014	Teekay LNG
Maran Gas Syros	DSME	GT NO 96	173400	MEGI	01/07/2019	2014	Maran Gas Maritime
Gaslog Windsor	Samsung	GTT Mark III Flex	180000	XDF	01/07/2019	2017	GasLog
Kawasaki Sakaide 1729	Kawasaki	Moss	155000	TFDE	01/08/2019	2014	MOL
Daewoo 2431	DSME	GT NO 96	172000	TFDE - Azipod	01/08/2019	2014	Teekay LNG
Flex Courageous	DSME	GT NO 96	173400	MEGI	01/08/2019	2017	Flex LNG
Daewoo 2432	DSME	GT NO 96	172410	TFDE - Azipod	01/09/2019	2014	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 = 6th June 2018

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Mitsubishi Nagasaki 2322	Mitsubishi H.I.	Moss	177000	STaGE	01/09/2019	2015	MOL
Daewoo 2466	DSME	GT NO 96	173400	MEGI	01/10/2019	2016	Maran Gas Maritime
Daewoo 2433	DSME	GT NO 96	172000	TFDE - Azipod	01/10/2019	2014	Teekay LNG
Daewoo 2467	DSME	GT NO 96	173400	MEGI	01/11/2019	2016	Maran Gas Maritime
Daewoo 2489	DSME	GT NO 96	173400	MEGI	01/11/2019	2015	BWGas
Daewoo 2434	DSME	GT NO 96	172000	TFDE - Azipod	01/11/2019	2014	Teekay LNG
MOL HUDONG-ZHONGHUA 1/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/12/2019	2017	MOL
DSME 2490	DSME	GT NO 96	173400	MEGI	01/02/2020	2018	BWGas
MOL HUDONG-ZHONGHUA 2/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/03/2020	2017	MOL
HHI NYK/EDF	Hyundai Heavy	GTT Mark III Flex	174000	XDF	30/04/2020	2018	NYK
DSME 2491	DSME	GT NO 96	173400	MEGI	01/05/2020	2018	BWGas
Daewoo 2478	DSME	GT NO 96	173400	MEGI	31/05/2020	2017	Maran Gas Maritime
Samsung 2213	Samsung	GTT Mark III Flex	180000	XDF	01/06/2020	2016	GasLog
HHI / Total	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/06/2020	2018	Cardiff Marine
HHI / Total / Sovc	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/06/2020	2018	Sovcomflot
HHI / Cardiff #1	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/06/2020	2018	Cardiff Marine
HHI / Cardiff #2	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/06/2020	2018	Cardiff Marine
Flex Aurora	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/06/2020	2018	Flex LNG
SHI Gaslog #1	Samsung	GTT Mark III Flex	180000	XDF	01/06/2020	2018	GasLog
Hyundai Ulsan 3086	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	01/06/2020	2018	Knutsen
Daewoo 2469	DSME	GT NO 96	173400	MEGI	30/06/2020	2016	Maran Gas Maritime
MOL HUDONG-ZHONGHUA 3/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/07/2020	2017	MOL
DSME 2479	DSME	GT NO 96	173400	MEGI	01/08/2020	2018	John Fredriksen
Flex America	Hyundai Heavy	GTT Mark III Flex	174000	XDF	01/08/2020	2018	Flex LNG
DSME 2480	DSME	GT NO 96	173400	MEGI	01/09/2020	2018	John Fredriksen
SHI Gaslog #2	Samsung	GTT Mark III Flex	180000	XDF	01/09/2020	2018	GasLog
MOL HUDONG-ZHONGHUA 4/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/10/2020	2017	MOL
DSME 2483	DSME	GT NO 96	173400	MEGI	01/10/2020	2018	Alpha Gas
DSME 2484	DSME	GT NO 96	173400	MEGI	01/12/2020	2018	Alpha Gas
DSME Minerva #1	DSME	GT NO 96	173400	MEGI	01/03/2021	2018	Minerva Marine
DSME Minerva #2	DSME	GT NO 96	173400	MEGI	01/07/2021	2018	Minerva Marine

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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 = 6th June 2018

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 / Lucia Ambition	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 (ex Surya Satsuma)	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	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang

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*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 = 18th July 2018

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2016	JS Ineos Indepence	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Innvovation	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Inspiration	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	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
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 EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	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	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
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas

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