

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

11 October 2018

Pipeline expansion key for Russian gas exports

Global gas demand will steadily grow in the next five years, Gazprom's head Alexey Miller said in a speech at last week's St Petersburg International Gas Forum.

He expected global gas demand to increase by 17%, or 635 bill cu m, through 2025 with about 30% of the total demand emanating from China.

According to Gazprom's estimates, Chinese demand will grow by 80% until 2025, adding almost 200 bill cu m of gas.

However, the key market for Gazprom is Europe, which has been the number one market for 50 years, Miller stressed.

Russian gas deliveries to Europe totalled 194.4 bill cu m last year - an increase of 8.4% over 2016, while this year, Gazprom expects to set a new record, coming close to, or may even reaching, 205 bill cu m of gas. "We now have a seller's market in the gas sector. This is new. We didn't have that 10 or five years ago," he said.

Much of the demand for Russian gas is met by pipelines, he explained, commenting that the northern Nord Stream 2 gas pipeline is already under construction and is due to start supplying gas from 1st January, 2020.

As for the TurkStream gas pipeline, the new export corridor to the south, in two months, the offshore section will be completed and construction is ahead of schedule, Miller said.

“It should be stressed ... that our reserves will allow us to fully meet the demand from Russian and European consumers in the 21st century.”

- Alexey Miller, Gazprom



Gazprom head Alexey Miller gives his speech

Gazprom has 35 trill cu m of gas in recoverable reserves. "It should be stressed once again that our reserves will allow us to fully meet the demand from Russian and European consumers in the 21st century. Of course, we are talking about pipeline gas above all. Pipeline gas is key to Europe's gas balance, its energy mix," he said.

LNG deliveries

In terms of gas imports, LNG accounted for only 12% in the first eight months of this year and total LNG deliveries to Europe has decreased by 4.5 bill cu m thus far this year.

Even though the gas prices in Europe have risen by almost 20% since 1st January, 2018, the price of LNG is higher. Crucially, LNG

prices in Asia are a third higher than those in Europe. "Essentially, LNG continues to overflow from Europe to Asia. This trend has been going on for years. Moreover, experts have started to call Europe 'the last resort' for LNG," he said.

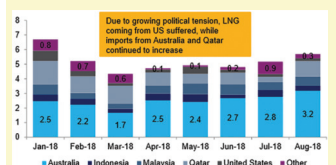
Growing demand for Russian gas in Europe is primarily due to the decline in European production, plus the coal exit programmes adopted by a number of countries, such as France by 2022 and in the UK by 2025. In France, the share of nuclear power generation, which was substantial, will shrink from 70% to 50% by 2025.

The Asian market is generating the soaring demand for LNG, he said with China being a major source. China's gas demand grew by 15.3% last year and has added another 17.5% this year.

While Chinese indigenous production grew by 8.5% last year, the total imports of LNG and pipeline gas increased by 27%. "We expect that the annual imports to China will reach 120 bill cu m this year alone," he added.

SHIPPING NEWS AGENDA

MARKETING



- China and the US 2
- Argentina to export LNG 2
- Qatar to increase exports 3

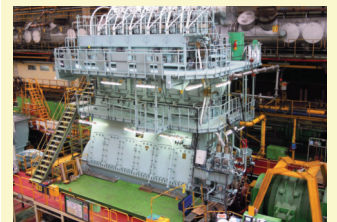
BUSINESS

- Bahrain FSU arrives 3
- Hahn buys LNGCs 3
- Bangladesh cancels projects 3

FINANCE

- Small-scale take up 4

TECHNOLOGY



- DNV GL helps Flex LNG 6
- Woodside appoints Bechtel 6
- Canadian contracts placed 7

LNG ORDERBOOK

- LNG carrier orderbook 10
- LNG small scale fleet 12

China to cope without US LNG imports

On 24th September, China released a second list of goods, which will be hit by a 10% tariff on imports from the US.

LNG did not feature in the first list, but it was included in the second. China also indicated that it may eventually impose a 25% tariff on the US LNG imports.

Drewry Shipping Consultants looked at how China is preparing to cope without US LNG imports, and what are the implications for US LNG exporters.

In 2017, Chinese LNG imports

from the US created theoretical demand for just five LNGCs, so it could be argued that the imposition of a tariff on LNG imports from the US is more symbolic than material.

Certainly, imports from the US will be more expensive, as a 10% tariff will push the costs of US LNG to over \$11 per MMBtu. At this price, Chinese buyers will

look for alternatives, which is precisely the purpose of the tariff.

New suppliers

China is already substituting US LNG with supplies from Qatar and Australia, both of which have shorter shipping distances.

New LNG suppliers are now marketing aggressively to Chinese buyers and as a result, PetroChina has recently signed an agreement with Qatar Petroleum to buy 3.4 mill tonnes of LNG annually for the next 20 years.

Qatar Petroleum has also decided to add a fourth liquefaction train and it has lifted its self-imposed moratorium on expansion of LNG liquefaction capacity, which will see its liquefaction capacity rise from 77 mill tonnes per year in 2018 to 110 mill tonnes per year by 2023 (see page 3).

US LNG suppliers can take

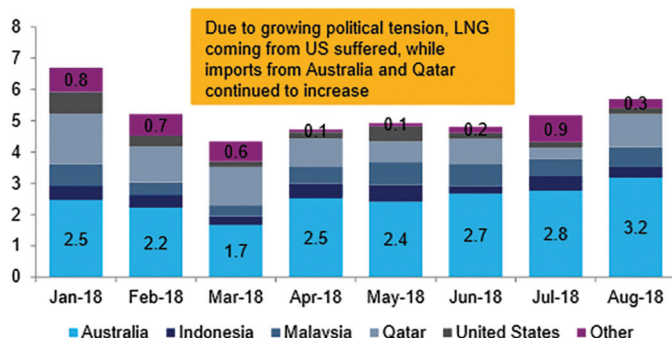
some comfort from the fact that demand for LNG in other Asian countries continues to grow.

In the first half of this year, Asian importers accounted for 55% of total US LNG exports. US LNG is an attractive option for Asian importers, such as India, Japan and South Korea, as US sale and purchase (SPA) contracts are flexible and are not linked to crude oil prices, which effectively shields LNG sales from wild fluctuations in price.

While there is clear evidence that US LNG movements to China have declined in 2018, there is equally a growth pattern being seen to other Asian destinations.

Drewry saw Taiwan and South Korea as the main growth markets for US LNG, and growth in trade on these routes will more than compensate for reduced trade between the US and China. ■

China's LNG Imports (mill tonnes)



Source: Drewry Maritime Research.

Argentina proposes to build first LNG export terminal

The Argentine Government is looking to start construction of the country's first LNG liquefaction terminal in the second half of 2019.

Once built, this will enable the increasing surplus of production from the giant Vaca Muerta shale field to be exported, a government official reportedly said.

"We are confident that the decision to push the button on this project will come after the next presidential election in October, 2019," Daniel Dreizzen, Argentina's secretary of energy planning, said at a Moody's finance seminar in Buenos Aires last week, reported Platts.

He said that companies had forwarded proposals to build the terminal, which will be evaluated.

Recently, the country's biggest gas transporter, Transportadora de Gas del Sur (TGS), and Texas-based Exceleerate Energy, which operates two floating LNG import terminals in Argentina, agreed to study the possibility of building a liquefaction project in Buenos Aires province.

They said they would present the proposal to the government by the end of this year for evaluation.

But if nobody is ready to construct the project by next year, Dreizzen said the government will hold an auction to find a builder and operator for the project.

The terminal will have six trains for export and should start operations by 2023. The initial capacity will be to ship an initial 40 mill cu m per day from Vaca Muerta, Dreizzen told S&P Global Platts on the sidelines of the event.

He also said that the likely location for the terminal will be at Bahia Blanca, a deepwater port in southern Buenos Aires province.

The department forecast that Vaca Muerta will lead to a tripling of the country's total gas output to 400 mill cu m per day in 2030 from 132 mill cu m this year, well

above the current daily average demand of 140 million cu m.

This will allow gas exports to reach 180 mill cu m per day in 2025, with 60 mill shipped to Brazil and Chile and the remaining 120 mill to the global market as LNG.

The production growth will also make it possible to phase out LNG imports by 2023, which were running at around 13.1 mill cu m per day in 2017, followed by Bolivian imports by 2026, which averaged 18.8 mill cu m per day in 2017, according to the Argentine Energy Secretariat data. ■

LNG Shipping News

1st Floor, 30 Warner Street
London EC1R 5EX
United Kingdom
www.lngjournal.com
Tel: +44 (0)20 7253 2700

Publisher

Stuart Fryer

Editor

Ian Cochran
+44 (0) 7748144265
cochran@tankeroperator.com

Ad sales enquiries

Narges Jodeyri
+44 (0)20 7017 3406
narges@lngjournal.com

Subscriptions

Gabi Weck
Tel: +44 (0) 20 7253 2700
gabi@lngjournal.com

Production

Vivian Chee
Tel: +44 (0) 20 8995 5540
chee@btconnect.com

No part of this publication may be reproduced or stored in any form by any mechanical, electronic, photocopying, recording or any other means without the prior written consent of the publisher. Whilst the information and articles in LNG Shipping News are published in good faith and every effort is made to check accuracy, readers should verify facts and statements direct with official sources before acting on them as the publisher can accept no responsibility in this respect. Any opinions expressed in this publication should not be construed as those of the publisher."

Bangladesh mini-FSRU projects dead

Bangladesh has shelved plans for three small-scale FSRUs, following objections from the country's main port authority, and as LNG imports at its first full-sized FSRU ramp up.

Commodity traders and shipping companies were believed to be in talks with state-run national oil company Petrobangla to build small-scale LNG projects or in supplying gas to them.

The relatively high cost of small-scale LNG projects, the cost of gas supplies from terminals and delays from interested sponsors, contributed to the shelving of the project by the energy ministry, according to industry executives, talking with Platts.

"We are not considering these small FSRUs now as the previously planned floating LNG terminal has already been commissioned, and is supplying re-gasified LNG to consumers," Petrobangla's chairman, Abul Mansur Md Faizullah, told S&P Global Platts last week.

Faizullah said commodity traders Trafigura, Gunvor and

Vitol, as well as Belgium-based shipping company Exmar were in final talks with Petrobangla and its subsidiary, Rupantarita Prakritik Gas Co, to build the small FSRUs and sell the gas to Petrobangla.

In December last year, Petrobangla signed preliminary agreements with Trafigura and Gunvor for the supply of around 200,000 mill cu ft per day of regasified-LNG each for over 10 years.

In early May, Petrobangla abandoned a preliminary deal with Trafigura, due to delays in agreeing to the terms of the SPA, including the LNG specification and the location for any potential dispute settlement. In addition, a preliminary deal with Gunvor did not progress further, Platts reported.

"We don't have any binding

agreement with any of these firms to award contracts to build small FSRUs and supply re-gasified LNG to us," Faizullah explained.

The small-scale FSRUs were meant to supply gas ahead of the commissioning of Excelsite Energy's 'Moheshkhali' FSRU in the Bay of Bengal, according to Petrobangla.

The Chittagong Port Authority had warned that navigation on the adjacent River Karnaphuli might be badly affected if the small FSRUs were moored there, a senior official at the country's energy ministry said last week.

Petrobangla started LNG imports from Qatar's RasGas on 9th September via Excelsite Energy's FSRU 'Excellence', which is Bangladesh's first LNG import facility, located at Moheshkhali Island in the Bay of Bengal. ■

Qatar to build fourth LNG train

Qatar Petroleum (QP) is to build a fourth mega-LNG train, boosting the country's future LNG production capacity to 110 mill tonnes per year.

This is in addition to three new 7.8 mill tonnes per year trains already planned.

In a statement, QP's CEO, Saad Sherida al-Kaabi, said the new capacity increase would "further strengthen our leading position as the world's largest LNG producer and exporter."

The energy company had previously revealed plans to raise the country's LNG production capacity from 77 mill tonnes per year to 100 mill, with the first LNG production from the new trains due on stream by the end of 2023.

This move followed the lifting of the moratorium on the development of the giant offshore North Field.

"Based on the good results obtained through recent additional appraisal and testing, we have decided to add a fourth LNG mega-train and include it in the ongoing front end engineering of the project.

"We believe that LNG has bright prospects, and that the new expansion project reflects Qatar Petroleum's commitment to meeting its worldwide customers' growing needs for this reliable and environmentally friendly fuel," al-Kaabi explained.

With the addition of the fourth train, the new project will produce about 32 mill tonnes per year of LNG, 4,000 tonnes per day of ethane, 260,000 barrels per day of condensate, and 11,000 tonnes per day of LPG, QP said. ■

'Bahrain Spirit' commences Bahrain LNG charter

'Bahrain Spirit', Teekay LNG's first FSU, has been delivered to charterer Bahrain LNG.

The vessel was delivered by Daewoo Shipbuilding & Marine Engineering (DSME) shipyard at the end of August, before going on charter on 19th September, 2018.

She will be used at an LNG receiving and regasification terminal in Bahrain.

A joint venture, Bahrain LNG is 30% owned by Teekay LNG Part-

ners and is expected to start commercial operation in early 2019. In addition to Teekay, Bahrain LNG is owned by Noga-holding (30%), Samsung (20%) and GIC (20%).

The project comprises an FSU, an offshore LNG receiving jetty and breakwater, an adjacent regasification platform, subsea gas

pipelines from the platform to the shore, an onshore gas receiving facility, and an onshore nitrogen production facility.

It will have a capacity of 800 mill standard cu ft per day and will be owned and operated under a 20-year agreement, which commenced on 15th July, 2018. ■

Hahn snaps up SK Shipping's LNGCs

South Korean private equity firm Hahn & Co was reported to have acquired a 90% stake in SK Shipping for about \$1.35 bill.

Hahn already owns H-Line Shipping, another South Korean owner involved in the drybulk and liquefied gas sectors with four LNGCs, formerly owned by

bankrupt Hanjin Shipping.

The company is now said to own 16 LNGCs, once the 12 gas ships originally owned by SK Shipping are included.

Twelve LNGCs are on long-term charters to Korea Gas Corp (KOGAS), taking LNG imports to South Korea.

SK Shipping's gas fleet in-

cludes 10 vessels in operation and two 180,000 cu m LNGCs under construction at Hyundai Heavy Industries (HHI) for delivery in 2019.

Upon their completion, the newbuildings will go on charter to SK E&S to lift cargoes from the Freeport LNG terminal in Texas, local sources said. ■

Small-scale start up gets financed

Höegh LNG, Stolt-Nielsen (SNL) and Golar LNG are to jointly invest \$182 mill in Avenir LNG.

Avenir, which was established by SNL last year, was formed to cater to the LNG market in stranded gas and to develop small-scale LNG bunkering capabilities.

Of the total investment, \$24.75 mill will be provided by Höegh LNG.

The investment, which will be made in the form of cash and equity-in-kind, will be used to build up to six small-scale LNGCs, a small-scale storage terminal and regasification facilities.

The LNGCs are expected to ship gas to the terminals, while the regasification facilities will be used to distribute LNG by land into local network grids.

As part of the agreement, Golar LNG and Höegh LNG will each hold a 25% share in Avenir, while SNL will remain the largest shareholder with a 50% stake.

The joint investment will enable SNL to consolidate its entire LNG activities into Avenir, the company said.

Newbuildings

SNL's original LNG activities comprised four LNGC small-scale newbuildings ordered at Keppel Singmarine in Nantong, China, as well as a joint-venture LNG terminal and distribution facility to be built at Oristano, Sardinia.

Since this announcement was made, Keppel has confirmed the signing of another two contracts with SNL, following the firming up of options.

The deal, signed through the companies' subsidiaries, Keppel Singmarine and Stolt-Nielsen Gas, is worth a total of around \$105 mill.

Three options were granted to Stolt-Nielsen Gas as part of the original contract signed in May, 2017 between Keppel Singmarine and Stolt-Nielsen Gas to build two LNGCs. The first option lapsed in November 2017, while the second

and third options have now been exercised.

"These LNG carriers will be the fourth and fifth vessels capable of LNG bunkering as well as the 11th and 12th LNG powered vessels that Keppel will be building. We look forward to furthering this track record as the industry increasingly adopts LNG as a marine fuel," Abu Bakar, Managing Director (Gas & Specialised vessels), Keppel O&M, said.

Similar to the original two orders, the latest LNGCs ordered will each have a capacity of 7,500 cu m, and will be fitted with engines that can run on both diesel and LNG. To be completed in the fourth quarter of 2020 and the first quarter of 2021 respectively, the carriers will have a class notation for bunkering.

SNL CEO, Niels Stolt-Nielsen, said: "The combination of Stolt-Nielsen's logistics capabilities and our partners' experience in LNG carriers, FSRUs and FLNGs positions Avenir as an emerging leader in small-scale LNG logistics for the power, bunkering, trucking and industrials markets.

"With the implementation of the IMO's 2020 emissions regulations approaching, demand for LNG as a cleaner, low-sulfur marine fuel is increasing. Each of the LNG newbuildings is designed to perform safe and efficient ship-to-ship LNG bunkering, which Avenir LNG plans to introduce at key strategic ports," he said.

Höegh LNG President and CEO, Sveinung Støhle, commented: "Due to the size and location of our FSRU fleet, Höegh LNG has for some time seen small-scale LNG services as an attractive complement to our core offering of full-scale FSRUs."

Avenir also plans to raise an additional \$10 mill through strategic investors.

Höegh LNG Holdings was advised by Watson Farley & Williams. ■

Baltic bunkering vessel ordered

A contract was signed between the parent company of Eesti Gaas (Estonia's energy company) and Damen Shipyards Group to build the first of a series of short-sea LNG bunker vessels.

The LGC 6000 LNG class vessel, scheduled for delivery in September, 2020, will operate in the Baltic to provide the first ship-to-ship distribution services.

Of 100 m in length, she will be built at Damen Yichang Shipyard in China and will have a capacity of 6,000 cu m in two type-C tanks.

Currently, Eesti Gaas is refuelling the LNG-fuelled ropax 'Megastar' by truck at Tallinn, with 11 required for a single operation. The LGC 6000 LNG will be able to refuel the ferry in a single, efficient and much faster procedure, while she is alongside her regular berth, loading and unloading passengers and vehicles, the company said.

She will also be built to ICE class 1A notation and to a green ship notation. A dual fuel propulsion system will be used for boil-off gas (BOG) management in combination with a gas burner.

Eesti Gaas will operate the vessel under a long-term charter from its parent company Infotat, which will be the owner of the vessel.

Since 2016, Eesti Gaas has expanded its LNG transport and

bunkering capacity by entering long-term LNG supply contracts with shipping companies and industrial consumers. As the adoption of LNG as a marine fuel gains momentum, it is anticipated that additional LGC 6000 LNG vessels will be needed.

"This new vessel will help us to move significantly closer towards a clean and pollution-free Baltic Sea," said Ain Hanschmidt, Chairman of the Supervisory Board of Eesti Gaas. "With the introduction of the first LGC 6000 LNG scheduled for 2020, vessel operators in the region can now consider adopting LNG propulsion systems in their new and existing vessels, confident that they can access fast and efficient bunkering services."

"We at Damen Shipyards are honoured with the faith that Eesti Gaas has put in our company by purchasing this LNG bunkering vessel built at our shipyard," added Peter Anssems, Damen's Sales Manager for East Europe. "This will be the first LNG bunkering vessel built by Damen Shipyards Gorinchem." ■



Estonia has ordered a Damen LGC 6000 type bunker vessel

NEWS NUDGE

Teekay LNG Partners declares distribution

Teekay GP LLC, the general partner of Teekay LNG Partners LP has declared a cash distribution of \$0.14 per common unit

for the quarter ended 30th September, 2018. The cash distribution is payable on 9th November, 2018 to all common unitholders of record as at 2nd November, 2018. ■

LNG Solutions for the Marine Industry



Chart's maritime LNG solutions reduce operating costs while dramatically improving emissions for compliance with today's stringent requirements in the marine industry.

Cryogenic Solutions for:

- LNG ship fueling systems
- FLNG
- FSRUs
- Bunkering vessels
- Bunkering stations
- Port power applications

www.ChartLNG.com
LNG@ChartIndustries.com



Innovation. Experience. Performance.®

Flex LNG looks to technology for the future

DNV GL has partnered with Flex LNG to facilitate safe implementation and operation of new shipboard technologies.

“Technology is the key differentiator for Flex LNG,” explained Flex LNG CEO, Øystein Kalleklev. “We started from scratch, with no legacy issues to consider. This allowed us to invest fully in the technology that can set us apart from the competition.”

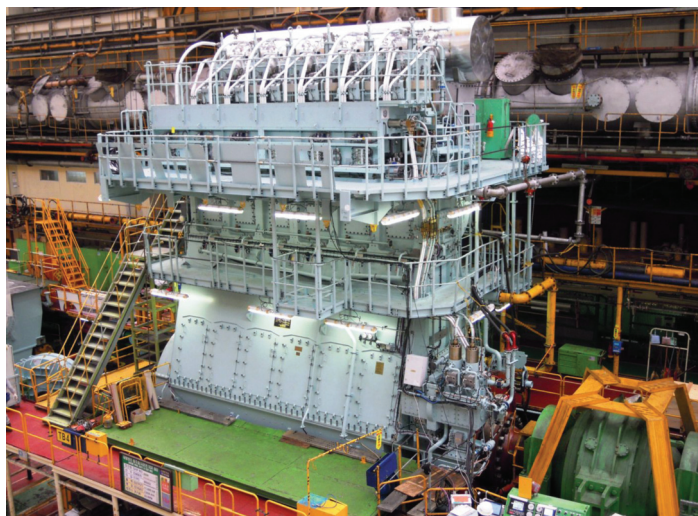
For example, steam turbines have remained in favour as power plants for LNGCs, due to the ample supply of boil-off fuel (BOG) from their cargo. But as insulation technologies have improved, BOG has been reduced and more efficient engines now cover the same voyages using less fuel.

“When boil-off was as high as 0.2%, you did not really need a highly efficient propulsion system. The move from steam turbines to 4-stroke diesel electric came in around 2006, and that was a great improvement. But now boil-off is down to around 0.07%, and even less with reliquification plants, so we are employing the most efficient, modern slow-speed 2-stroke engines.

“Not only do the new engines burn less fuel, they are also smaller than the old technology, which means there is more room for cargo,” he said.

This adds up to newer ships being more attractive on the charter market, one of the main reasons that Kalleklev said Flex LNG was bullish on this segment’s future.

Flex LNG has taken delivery of four new vessels as of autumn 2018, with two additional MEGI



Flex LNG has opted for WinGD X-DF and MEGI engines for its LNGCs

vessels set for delivery from DMSE in mid-2019, and two X-DF vessels due from Hyundai Samho in 2020.

In addition, Flex LNG’s main shareholder, the John Fredriksen family, ordered five more LNGCs through a private company, Seatankers, in 2018, scheduled for delivery in 2020/21. This brings the Group’s total of modern LNGCs up to 13, if the eight Flex LNG vessels are included.

All the ships are equipped with slow-speed 2-stroke propulsion (MEGI or X-DF), giving about 30% lower fuel consumption than tri- or dual-fuel diesel electric vessels. The X-DF newbuildings will be fitted with selective catalytic reduction (SCR) systems to comply with IMO Tier III regulations both in gas and liquid mode, giving them high trading flexibility.

The X-DF vessels will be classed with DNV GL. “Flex LNG and our

affiliated companies, Frontline, Golden Ocean, Ship Finance and Seatankers, use many different class societies in order to learn best practices and benchmark performance. As we have good experience partnering with DNV GL, we are pleased to have them on board for the four X-DF carriers under construction,” Kalleklev said.

Johan Petter Tuttoren, DNV GL’s Business Segment Director Gas Carrier, added: “For DNV GL, energy optimisation and efficiency have always been among our main focus areas. Charterers are looking for the most energy efficient LNGC, since they are the ones who will pay for the fuel.

“By investing in new and innovative technology to reduce fuel consumption and make assets even more environmentally friendly, owners give themselves an advantage in the market,” he said. ■

Woodside opts for Bechtel to develop Pluto Train 2

Woodside has appointed Bechtel as the preferred execution contractor for the proposed expansion of its Pluto LNG facility in Western Australia.

The company said it will work closely with Bechtel to prepare for awarding of the contract for the front end engineering and design (FEED) phase for Train 2.

Activities will include continuing to refine the concept and costs. The FEED contract award will also include the option for the full execute phase contract, subject to a positive final investment decision (FID).

Woodside CEO, Peter Coleman, said expanding the Pluto LNG facility is key to realising the company’s vision for the Burrup Hub.

“Expanding Pluto LNG will provide the necessary infrastructure to commercialise Western Australian gas resources for years to come. We look forward to progressing Train 2 concept definition work and continuing to build our relationship with Bechtel,” he said.

Woodside said it proposes a brownfield expansion of the Pluto LNG facility, including construction of a second LNG train with a targeted capacity of 4-5 mill tonnes per year (100% project), to facilitate development of the 7.3 trill cu ft Scarborough gas resource.

The company is targeting FEED entry in 1Q19 and FID in 2020, with Train 2 targeted to be ready for start-up in 2024.

These targets are subject to all necessary joint venture approvals, regulatory approvals and/or appropriate commercial arrangements being finalised, Woodside stressed. ■

Cyprus LNG import terminal tender issued

Cyprus’ natural gas public company (DEFA) has published tender documents for the design, construction, and operation of the proposed Vassilikos LNG import terminal.

Following the publication of the tender documents last Friday, DEFA Chairman, Symeon Kassianides, said, “This is an

important milestone for DEFA, and for the people of Cyprus, who will soon benefit from the cost savings and environmental benefits from the use of natural gas. We expect to issue a request for expressions of interest for the supply of LNG in the coming weeks and a full tender early in 2019.”

The LNG Terminal will include an FSRU, a jetty, a gas pipeline connecting with the jetty and related infrastructure.

The facility will be completed in 2020 and has secured funding of up to €101 mill -40% of the capex - from the EU under the Connecting Europe Facility (CEF) financial instruments. ■

LNG Canada contracts placed

Royal Boskalis Westminster (Boskalis) has won the dredging contract for the development of the first large-scale LNG export facility in Kitimat, Canada (LNG Canada) following the final investment decision (FID) by the shareholders announced last week.

The Boskalis contract is worth about €100 mill and entails the removal and remediation of contaminated and non-contaminated sediments at the site in order to provide the required area and marine access for the construction of

LNG Canada's facilities.

Boskalis was involved from the early stages of the development, illustrating the early cyclical exposure dredging has on green field LNG developments, the company said. The dredging activities are

expected to continue into 2020.

Other contracts announced include a joint venture between Fluor and JGC Corp for the estimated \$14 bill engineering, procurement, fabrication and construction for the LNG export site.

"Fluor remains focused on delivering capital efficiency for our clients and we are excited that our joint venture team's innovative solutions have helped to enable LNG Canada to achieve the final investment decision," Fluor Chairman and CEO, David Seaton said. "We are committed to closely collaborating with LNG Canada and the local community to develop this project safely and sustainably and to meet client needs."

"The LNG Canada project is one of the largest projects ever

awarded to JGC, a leading global contractor," Tadashi Ishizuka, JGC's representative director, president and COO, said. "JGC will draw on its accumulated capabilities and track record of successfully delivering LNG plant construction projects."

The project will initially consist of two liquefaction trains with a total LNG production capacity of around 14 mill tonnes per year. LNG Canada - a joint venture between Shell (40%), Petronas (15%), Mitsubishi Corp (15%) and KOGAS (5%) - has the option to expand the facility to four trains.

In addition, TransCanada announced that it will proceed with the construction of the Coastal Gaslink pipeline project after the decision to sanction LNG Canada. ■



Contracts have been placed for the LNG Canada export project

NYK to build LNGC for Total

On 28th September, NYK signed a contract with Total Gas & Power Chartering Limited (TGPCL), a subsidiary of Total, to charter a newly built LNGC for seven years with an option for a further year.

NYK has ordered the new vessel at Samsung Heavy Industries for delivery in 2021.

She will be equipped with a WinGD X-DF dual-fuel slow-speed diesel engine that is claimed to have superior fuel-consumption efficiency and can operate on marine gas oil or boil-off gas (BOG) from the cargo tank.

The LNGC will be of 174,000 cu m capacity and will be fitted with a GTT Mark III membrane-type containment system that will make use of advanced insulating materials to suppress the boil-off rate.

She will also be fitted with a re-liquefaction system that can use surplus BOG effectively.

In addition, NYK has held a naming ceremony for a newbuilding LNGC at JMU's Tsu shipyard.

Named 'Energy Glory', the 165,000 cu m vessel will be long term chartered to Tokyo LNG Tanker, a wholly-owned subsidiary

of Tokyo Gas.

'Energy Glory' is the third LNGC to be jointly owned by NYK (30%) and Tokyo LNG Tanker (70%) and she will be mainly used for the next 20 years to ship LNG from the US Cove Point LNG project.

This new carrier will be equipped with an SPB design containment tanks and will also be fitted with a tri-fuel diesel-electric propulsion system that can use low-sulfur fuel. ■



NYK has taken delivery of the 165,000 cu m 'Energy Glory'. She will go on a long term charter to a Tokyo Gas subsidiary

Suez LNGC transits get rebates

To encourage more LNGCs to transit the Suez Canal, the Suez Canal Authority (SCA) has issued an amendment to circular 7/2017.

This concerns gas carriers operating between the American Gulf, Arabian Gulf, India and its eastern ports who make use of the Suez Canal.

Suez Canal Authority has

decided the following:

"LNGCs whether laden or ballast operating between the American Gulf (starting from Miami Port and its western ports within the American Gulf also ports located southern of the American Gulf) from one side and Singapore and its eastern ports from the other side, shall be granted a

rebate of 65% from the Suez Canal's normal tolls."

This amendment came into effect on 1st October, 2018 and will last for 12 months.

LNGCs now have three routes to Asia/pacific, depending on their destinations - Suez Canal, Panama Canal and Northern Sea Route. ■

Four LNGCs transit Panama Canal in one day

On 1st October, the Panama Canal handled four LNG ship transits in a single day through the Neopanamax locks.

With this milestone, the Panama Canal broke the record set on 17th April, 2018, when three LNGCs transited through the waterway on the same day.

The 173,000 cu m 'Ribera del Duero Knutsen' and the 174,000 cu m 'Maran Gas Pericles' transited northbound, while the 174,000 cu m 'Torben Spirit' and the 155,300 cu m 'Oceanic Breeze' transited southbound.

As a result of experience acquired with the transit of more than 4,200 Neopanamax vessels, the Panama Canal introduced changes to its transit reservation system to offer two slots per day to LNGCs.

These modifications have al-



Four LNGCs recently transited the Panama Canal in 24 hours

lowed the optimisation of the expanded canal's capacity, in order to meet specific demands, such as the transit of four LNGCs.

The modifications - announced in August, 2018 and which also came into effect on 1st October - also allow for the lifting of certain LNGC daylight restrictions, as well as the passing of LNGCs,

sailing in opposite directions in the Gatun Lake.

"The transit of these four LNG ships in just one day demonstrates the Panama Canal's commitment to maximising the efficiency, flexibility and reliability of its service to all customers," said Panama Canal Administrator, Jorge Quijano.

FERC issues LNG project edicts

The US Federal Energy Regulatory Commission (FERC) has issued a draft environmental impact statement (EIS) for the Port Arthur Liquefaction project proposed by Port Arthur LNG and PALNG Common Facilities Co (PALNG).

The EIS also includes the Texas Connector and Louisiana Connector projects proposed by Port Arthur Pipeline (PAPL).

These proposed projects would include a new LNG export terminal in Jefferson County, Texas and about 165 miles of 42 inch diameter pipeline in Jefferson and Orange Counties, Texas, plus Cameron, Calcasieu, Beauregard, Allen, Evangeline, and St Landry Parishes, Louisiana.

The Port Arthur Liquefaction project includes the following facilities:

- Two liquefaction trains, each with a capacity of 6.73 mill tonnes per annum of LNG for export.
- Three LNG storage tanks, each with a capacity of 160,000 cu m.
- A refrigerant storage area and

truck unloading facilities.

- A condensate storage area and truck loading facilities.
- A new marine facility with two LNGC berths, an LNGC and support vessel manoeuvring area, and an LNG transfer system.
- A materials off-loading facility and pioneer dock.

Input from the US Army Corps of Engineers, US Coast Guard, US Department of Transportation, US Environmental Protection Agency, and US Department of Energy as co-operating agencies was considered during the development of the conclusions and recommendations.

However, FERC pointed out that these agencies could develop their own conclusions and recommendations and would adopt the final EIS, where applicable if,

after an independent review of the document, they concluded that their permitting requirements had been satisfied.

FERC concluded that construction and operation of the projects would result in some adverse environmental impacts, but these impacts would be reduced to less-than-significant levels.

This response was based on a review of the information provided by PALNG and PAPL and further developed from data requests; field investigations; scoping; literature research; alternatives analyses; and contacts with the federal, state, and local agencies, native American tribes, and other stakeholders.

The draft EIS comment period is due to close on 19th November, 2018.

NEWS NUDGE

GTT receives Celsius tank design order

GTT has won another order from Samsung Heavy Industries (SHI) to design the tanks of two recent LNGC orders.

Each offering a capacity of 180,000 cu m, these units will be built on behalf of the European shipowner Celsius and the tanks will be fitted with the Mark III Flex containment system.

The vessels' delivery is expected by the end of 2020.

"We are very pleased to continue our excellent partnership with SHI with these two new orders and to accompany Celsius in its entry into the LNG industry," commented Philippe Bertierotière, GTT Chairman and CEO.

Veteran LNGC for the torch

The 125,568 cu m Moss type LNGC 'Adriatic Energy', built as the 'Echigo Maru' in 1983, has been reported sold to unknown interests for recycling with full Indian sub-continent options.

She has been laid up in Labuan since late 2015 and has a high nickel content.

The price was said to be \$551 per ldt and she will be towed to her final destination, brokers said.

Yamal reaches another milestone

On 25th September, 2018, Sovcomflot's Arc7 'Christophe de Margerie' loaded the five millionth tonne of LNG at Yamal LNG's Sabetta port.

Yamal LNG's first train commenced production in December, 2017, with the inaugural cargo of LNG transported by the same vessel.

In August, 2018, another of Sovcomflot's LNGCs, 'Pskov', shipped the first cargo of LNG produced at the second Yamal LNG train, which was commissioned ahead of schedule.

'Toscana' launches peak shaving tender

OLT Offshore LNG Toscana has announced the availability of a peak shaving tender.

Starting from 2nd October and running to 16th October, 2018, all the documents necessary to participate in the public tender procedure is now on the website - www.oltoffshore.it

The winner of the tender will supply an LNG cargo to be dis-

charged at the OLT terminal between 1st November and 31st December, 2018.

This service is one of the emergency measures established by an Italian Ministry of the Economic Development decree within the 'emergency plan' to

face unfavourable events for the national gas system, which may occur during the winter period of the gas year 2018/2019, and to guarantee the security of the Italian gas system.

In case of an emergency, this service would allow, from 1st

January to 31st March, 2019, previously unloaded gas stored in the terminal's tanks to be transferred to the network at short notice, with the aim at facing peak requests for a limited period of time. ■

SEA\LNG meets with more success

Norway's Skangas and the Maritime and Port Authority of Singapore (MPA) are among the latest companies to join the SEA\LNG coalition.

Skangas is involved in LNG and infrastructure supply in support of SEA\LNG's vision - the creation of a competitive global LNG value chain for cleaner maritime shipping by 2020.

A leading LNG provider in Northern Europe, Skangas brings expertise of LNG production and sourcing, and the construction of key LNG infrastructure for seaborne deliveries, from land-based infrastructure to LNG bunkering vessels (LGBVs).

Its fleet includes the LGBV 'Coralus', which conducts ship-to-ship operations primarily in the North and Baltic Seas.

'Coralus' is one of six LGBVs currently in operation - three of

which have been commissioned by SEA\LNG members - while another 13 are under development.

SEA\LNG also welcomed the Maritime and Port Authority of Singapore (MPA) to its membership coalition during last week's SIBCON conference.

The MPA becomes the third port to join the initiative, alongside the Port of Rotterdam and Yokohama/Kawasaki International Port Corp (YKIP).

Peter Keller, SEA\LNG chairman and executive vice president, TOTE, said: "We're very pleased to welcome the Singapore MPA to our growing coalition. Ports play a crucial role in improving the industry's confidence in LNG as a

marine fuel, and MPA is a driving force behind the uptake of LNG bunkers in the Asia/Pacific region, both through the development of infrastructure and providing incentives for other key industry players operating in the region."

MPA has embarked on its LNG Bunkering Pilot Programme (LBPP) since 2017 to test operational protocols and accumulate experience to ensure LNG bunkering operations are conducted safely, efficiently, and reliably.

To bring Singapore to the next stage of LNG bunkering, the MPA also awarded a total of Sing\$6 mill to two companies to co-fund the building of two LNG bunker vessels. To be delivered as early as

2020, these would be the first of their kind in Asia and will facilitate ship-to-ship LNG bunkering in Singapore.

Andrew Tan, MPA CEO, commented: "We are glad to partner with SEA\LNG to promote LNG as a cleaner fuel for the shipping industry. LNG is a tested, proven, and available fuel that can reduce nitrogen oxides (NOx), sulphur oxides (SOx), and particulate matter (PM).

"As the world's largest bunkering hub, Singapore is committed to providing cleaner fuels for the maritime industry in line with the IMO's efforts to promote shipping that is not only efficient, but clean and sustainable," he said. ■

The whole LNG Market at your fingertips

- Increased market visibility through a quick "lowdown of the market" on Monday morning and detailed "bird's eye" view of the past month
- Break-down and illustration of complex LNG trade relations backed by real data to increase feel for the market
- Access to pre-digested primary market data
- Consistent & systematic market perspectives
- Market and fleet overview in one convenient package

www.lngunlimited.com

LNG Unlimited



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

LNG Journal & Gas to Power Journal Subscription Package

The journals' comprehensive coverage is dedicated to the entire gas-value-chain. In addition to our LNG Journal & Gas to Power Journal Daily newsletters, each platform provides exclusive, accurate and up-to-date news and analysis divided in the following sector-focused publications:

- ➔ LNG Journal - Monthly issues
- ➔ Gas to Power Journal - Daily e-newsletter + PDF
- ➔ Gas Power Tech Quarterly - Quarterly PDF
- ➔ LNG Unlimited - Weekly magazine + PDF
- ➔ LNG Shipping News - Fortnightly e-newspaper + PDF
- ➔ LNG North America - Monthly e-newspaper + PDF
- ➔ LNG Fuelling - Quarterly e-newspaper + PDF

United Kingdom **GBP 750**
Europe and Africa **EUR 925**
Asia and Americas **USD 1150**

**Multiuser options under request* **new subscribers only*



For further information on subscribing please contact us at gabi@lngjournal.com or + 44 20 7253 2700

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
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

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 = 2nd October 2018

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
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	Coralus	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	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
2021	Stolt TBN (option)	7,500	LNG		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 = 2nd October 2018