

# LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

27 June 2019

## Mozambique offshore Area 1 reaches FID

A final investment decision (FID) was recently taken on the Area 1 Mozambique LNG project.

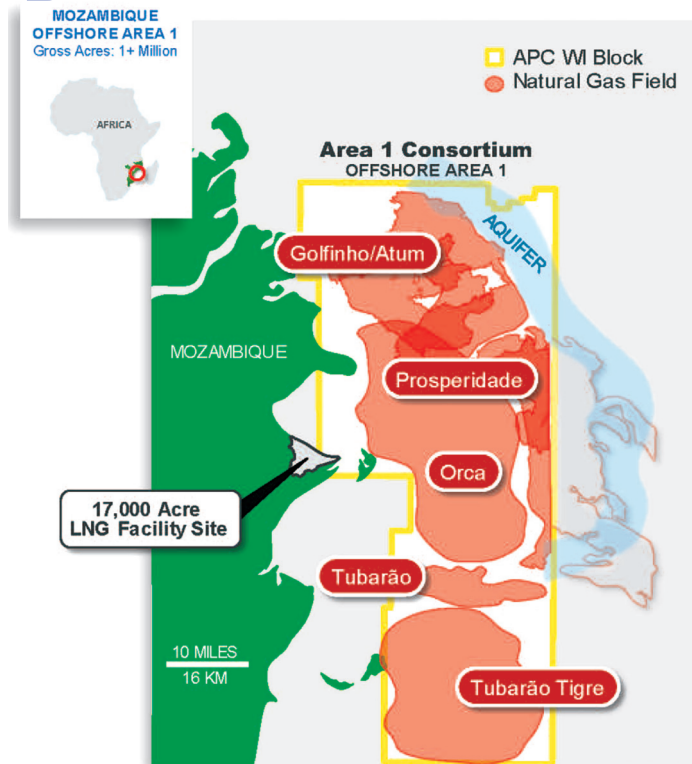
Anadarko Petroleum Corp and the co-venturers in Mozambique's Offshore Area 1, confirmed that the Area 1 development plan is now effective.

A notice was sent to the Mozambique Government saying that all conditions have been fulfilled, and the project can now advance to the construction phase, Anadarko said.

"This is a historic day for the people of Mozambique," said HE Mozambique President, Filipe Nyusi. "Today's sanctioning of the Anadarko-led Area 1 Mozambique LNG project solidifies a path toward the creation of thousands of jobs for our people, significant economic growth for our nation, and the potential to be one of the world's largest providers of cleaner energy for decades to come. It is truly one of the most important and transformational projects in our country's history."

"This is an exciting day for Mozambique and for our partnership, bringing us a step closer to making Mozambique's first onshore LNG facility a reality," said Anadarko Chairman and CEO, Al Walker. "The Anadarko-led Area 1 Mozambique LNG project has come a long way from our first discovery to FID for the construction of the initial two-train development project.

"As the world increasingly seeks cleaner forms of energy, the Anadarko-led Area 1 Mozambique LNG project is ideally located to meet growing demand, particu-



### The Mozambique project has reached a major milestone

larly in expanding Asian and European markets. We look forward to safely executing the next phase of this project for the long-term benefit of Mozambique, its people, our partnership, and our customers," he said.

### Two trains

Area 1 Mozambique LNG project will be Mozambique's first onshore LNG development, initially consisting of two LNG trains with total nameplate capacity of 12.88 mill tonnes per annum to support the development of the Golfinho/Atum fields located within Offshore Area 1.

The project has secured a total of 11.1 mill tonnes per annum of long-term LNG sales (representing 86% of the plant's nameplate capacity) with LNG

buyers in Asia and in Europe.

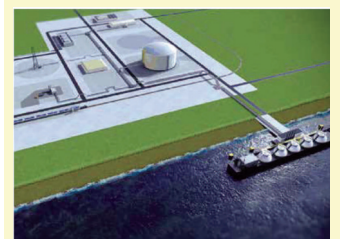
In addition, the project is expected to have a significant domestic gas component for in-country consumption to help fuel future economic development.

The project was designated as 'First Mover' by the Mozambique Government, meaning Area 1 will also be responsible for constructing the support facilities to be shared between Area 1 and Area 4 projects, which will include the materials offloading facility and the LNG marine terminal.

Following the FID signing ceremony, Notices to Proceed under the terms of the previously executed engineering, construction, procurement (EPC) will soon be issued together with installation contracts and the finalising of finance.

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# German LNG Terminal starts EPC pre-qualification

German LNG Terminal, the joint venture behind the LNG terminal project to be located at Brunsbuettel, Northern Germany, is to start the engineering, procurement and construction (EPC) pre-qualification process this month.

Potential EPC contractors who have expressed interest in participating in the project on or before 1st July, 2019 will receive a pre-qualification package. Binding (lump-sum) offers will need to be

prepared and submitted by pre-qualified bidders between August and October, 2019.

The winning bidder(s) will be announced during the first quarter of 2020, followed by

the release of a nearly or limited notice to proceed on scheduled early activities.

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

Vopak and Gasunie have already joined forces to build and operate the GATE terminal in Rotterdam.

The joint venture plans to build, own and independently operate a combined import and distribution LNG terminal at Brunsbuettel. The terminal will provide multi-purpose services, as well as open access to its capacity.

## Advantages

Brunsbuettel benefits from several advantages, the joint venture claimed:

a) Its location near the North Sea

along the Elbe river, and close to the Kiel Canal, therefore will have easy access to markets in Northwest Europe, Scandinavia and the Baltics;

b) Close proximity to the port of Hamburg with its LNG bunker potential;

c) Location within the ChemCoast Park that includes industrial customers with high energy need;

d) Strong support of both local and regional governments.

The market's reaction to the project has been positive with interest from future customers reflected in the execution of several Heads of Agreements, the joint venture claimed.

The application for exemption from regulated third party access and the permit application are based on 8 bill cu m terminal capacity.



What Brunsbuettel's new terminal may look like

# Awilco loses charter contract

Following collision damage, which necessitated a visit to a Singapore shipyard, 'WilForce's' charterer has advised Awilco LNG that it will cancel the remaining charter period.

'WilForce' currently remains at the yard for hull repairs, which are progressing as planned. They are expected to be completed by end-August/early September, Awilco said. The costs are covered by insurance.

When she was allegedly struck by another vessel, 'WilForce' was employed on a nine to 12 month timecharter, which commenced in September, 2018.

The charterer notified Awilco

LNG of its decision, due to the prolonged off-hire period required to repair the vessel in accordance with the c/p terms.

She has loss of hire insurance in line with market rate levels, which will compensate for most of the lost timecharter hire.

Awilco stressed that based on a preliminary assessment of the facts, the company held the other vessel fully and completely liable for the collision, and expects to

be able to recover all costs and expenses, including insurance deductibles, off-hire and lost timecharter hire in due course.

'WilForce' is expected to be available for charter ahead of the seasonally stronger Northern Hemisphere winter period, the company added.

Awilco also said that it foresaw the chartering market tightening during the fourth quarter of this year on the back of newbuilding

deliveries tapering off in the second half of 2019, coupled with most of the new LNG production capacity scheduled for start up in 2019 being commissioned in the second half of the year and increased demand ahead of winter.

This view was supported by the current soft rates for prompt vessels, compared to higher rates obtainable for contracts starting in 4Q19, Awilco claimed.

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## Latvian LNG terminal planned

A plan to build an LNG terminal and associated pipeline in Skulte, a small Latvian port in the Gulf of Riga, is being discussed at public fora this month and next.

Skulte LNG Terminal Co plans to build the gas terminal in the northwestern part of Skulte Port, some 2.5 Km offshore.

Once built, the terminal would be able to handle LNGCs with a capacity of 40,000 to 174,000 cu m.

Also included is the construction of a 39.5 km long pipeline for shipping gas from Skulte to the Incukalna underground gas storage

facility located outside Riga.

Skulte LNG Terminal representatives said that the project is still in an early development stage and that it is therefore too early to comment on a completion schedule and investments.

Information might be released in the next few months, they said.

Skulte LNG Terminal Co was established in 2016. ■



An artist's impression of Latvia's Skulte terminal

## Interest expressed in Bangladesh import terminal project

A joint venture involving Qatar Petroleum and Exxon-Mobil is among 12 interests vying to build Bangladesh's first onshore LNG import terminal.

According to an official document seen by Reuters, also on the list are companies attached to Shell, Total and Samsung, as well as major Japanese trading houses.

Earlier this year, Rupantarita Prakritik Gas Co, part of state-owned oil and gas company, Petrobangla, requested expressions of interest (EOI) from potential terminal developers for a land-based LNG regasification terminal at Matarbari in the Cox's Bazar district of southern Bangladesh.

The project calls for the design, engineering, procurement, construction (EPC) and commissioning of an onshore terminal to be able to handle 7.5 mill tonnes per year of LNG, which will include receiving, unloading, storage and regasification facilities.

Another company on the list,

according to Reuters, is Poly-GCL Petroleum Group Holdings, an overseas umbrella of China's privately-owned GCL Group Holding, which operates at least three power plants in China.

GCL is also planning an LNG export project at Djibouti, as well as a LNG receiving terminal in east China.

The Bangladesh project is on a 'build-own-operate' basis lasting 20 years, after which, ownership will be transferred at no cost to the Bangladeshi Government, or a company nominated by the Government.

A committee is expected to evaluate the proposals before shortlisting companies. This could take more than a year to complete before awarding the contract for the terminal. ■

## MOL to supply FSRU for Hong Kong LNG import project

Mitsui OSK Lines (MOL) has signed a long-term charter contract with Hong Kong LNG Terminal Limited for an FSRU.

Under the terms of the deal, MOL will supply the unit, as well as jetty operations, maintenance and port services for the Hong Kong Offshore LNG Terminal project.

MOL will charter out the 2017-built 'MOL FSRU Challenger', which has a storage capacity of

263,000 cu m. The FSRU is currently employed on a mid-term charter for a Turkish project.

The FSRU will arrive in Hong Kong to begin testing and commissioning when the facility is built, currently expected in 2021.

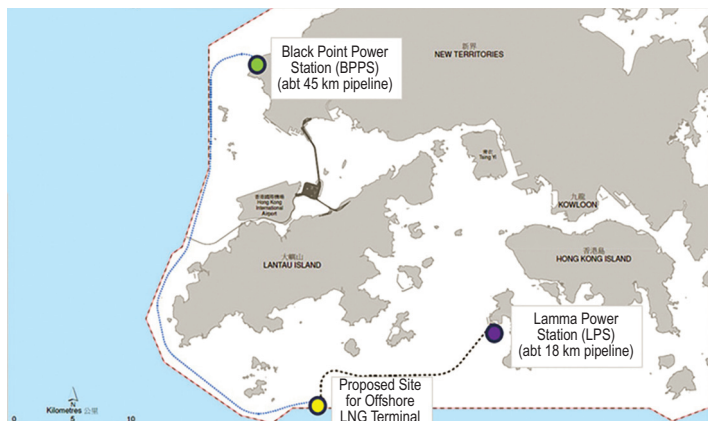
It will supply gas to two utilities

in Hong Kong, the Black Point Power Station located in the New Territories and Lamma Power Station located on Lamma Island.

In addition, MOL has entered into an agreement with Vopak to assist in the development of the jetty operations and maintenance services.

Hong Kong LNG Terminal Limited is a joint venture between Castle Peak Power Co Limited (CAPCO) and Hongkong Electric Co, Limited. In turn, CAPCO is a joint venture between CLP Power Hong Kong Limited and China Southern Power Grid International (HK) Co, Limited.

The Hong Kong joint venture has also signed an agreement with Shell Eastern Trading (Pte) Ltd, a subsidiary of Royal Dutch Shell, to supply gas to the FSRU. ■



MOL's FSRU will service Black Point and Lamma Island

## NEWS NUDGE

### US updates

The US Federal Energy Regulatory Commission (FERC) is to prepare a supplemental environmental impact statement (SEIS) on Magnolia LNG's proposal to increase the production capacity of its facility in Calcasieu, Louisiana.

Comments must be received by 8th July, FERC said.

Elsewhere, the US Department of Energy (DOE) has issued a notice stating that it received an applications from Freeport LNG Development, LP and Cameron LNG LLC seeking authorisation to export LNG previously imported into the US.

Comments on both applications must be received by 19th July. ■

## PGNiG agrees to buy more US LNG

Polish Oil and Gas Company (PGNiG) has agreed to purchase an additional 1.5 mill tonnes per annum of LNG from Venture Global LNG.

The accord was signed during the state visit of the President of Poland, Andrzej Duda to Washington (DC).

Both US Secretary of Energy, Rick Perry and Polish Secretary of State for Strategic Energy Infrastructure, Piotr Naimski, attended the signing ceremony.

Under this agreement, the Plaquemines terminal's LNG volume will increase from 1 to 2.5 mill tonnes per year. Deliveries will commence on the commercial operation date, currently expected in 2023.

This new amendment raises PGNiG's total commitment with Venture Global LNG projects to

3.5 mill tonnes, sourced from Calcasieu Pass (1 mill tonnes) and Plaquemines LNG (2.5 mill tonnes per annum).

US Secretary of Energy, Perry, said: "Poland and the US have a strong and strategic alliance and friendship which is fortified by a shared commitment to energy security and an understanding that true energy security is achieved through energy diversity. Today's announcement of the significant expansion of the existing LNG partnership between Venture Global and PGNiG further solidifies that goal. Under President Trump's leadership, our two nations have launched the

US/Poland Strategic Energy Dialogue which fosters and supports partnerships just like this. We look forward to even more in the months and years to come."

"We are increasing our LNG portfolio in terms of volumes, which we will receive from the US after 2022, ie after the expiration of the Yamal contract. Thanks to good relations with our American partners and effective negotiations, we have achieved a highly competitive LNG supply from the Plaquemines terminal," said Piotr Woźniak, PGNiG Management Board President.

"From 2022 and 2023, we will receive a total of 3.5 mill tonnes of LNG per year from Venture Global LNG's export facilities (both in the state of Louisiana on the Gulf of Mexico) which equals approximately 4.73 bill cu m of natural gas per year following regasification. American LNG is becoming more competitive, which is confirmed by consecutive quarters of increased imports by Europe," added Maciej Woźniak, Vice-President of PGNiG Management Board for Trade.

Mike Sabel and Bob Pender, co-CEOs of Venture Global LNG,

jointly announced: "We are delighted to expand our existing strategic partnership with Poland and PGNiG, one of Europe's most important international oil and gas companies. With Calcasieu Pass already under construction and progressing on schedule, this agreement further demonstrates our ability to offer low-cost LNG from our Plaquemines project to our international partners. Plaquemines LNG uses the same highly efficient and reliable process system as Calcasieu Pass, provided by Baker Hughes, a GE company (BHGE).

"We are also delighted that our project's steam turbines and the generators for those turbines will be manufactured in Poland, a global centre of manufacturing excellence," they added.

On 3rd May, 2019, the US Federal Energy Regulatory Commission (FERC) issued a Final Environmental Impact Statement (FEIS) for both the Plaquemines LNG facility and the associated Gator Express Pipeline.

PGNiG contracts with Venture Global LNG projects were originally concluded in September, 2018 for 20 years in the FOB (Free-on-Board) formula. ■



PGNiG has held a signing ceremony to increase its US gas imports

## Gunvor signs SPA with Commonwealth

Commonwealth LNG, LLC and Gunvor Singapore Pte Ltd, have signed a heads of agreement (HOA) towards a definitive 15-year LNG sale and purchase agreement (SPA).

This agreement is for the supply of 1.5 mill tonnes per annum of LNG offtake from the Commonwealth LNG export project under development in Cameron Parish, Louisiana.

Kalpesh Patel, Gunvor Co-Head of LNG Trading, said, "The agreement with Commonwealth LNG is a significant step in executing Gunvor's overall strategy of uncovering and securing low cost

resources and seamlessly delivering them to high value markets. We look forward to working with the Commonwealth team as they continue to progress their project."

"We are proud to be entering into an agreement for a portion of our LNG offtake with the Gunvor Group - one of the world's premier commodities trading houses," said Paul Varello, Common-

wealth's President and CEO. "Our mantra is to develop LNG solutions for the next generation; in Gunvor, we have found a commercial partner who not only shares that vision, but through its creativity and innovation exemplifies it."

Commonwealth LNG expects to take a final investment decision (FID) on the project later next year. ■

## NEWS NUDGE

### Dynagas newbuildings to be fitted with GTT systems

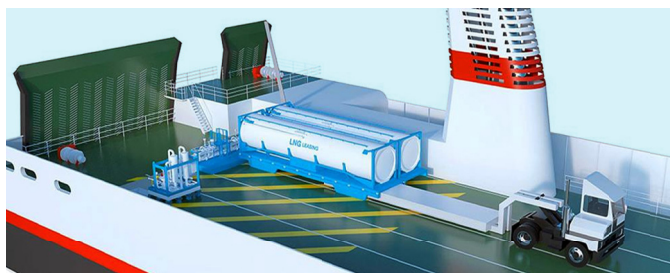
GTT has received an order from Hyundai Heavy Industries (HHI) for the tank design of two LNGCs ordered by Dynagas.

These 180,000 cu m units will be equipped with tanks fitted with the Mark III Flex+ containment system.

Vessel deliveries are expected during the first semester of 2022. ■

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# DSME receives class approvals for Solidus

Daewoo Shipbuilding & Marine Engineering (DSME) has received general approval for ship application from class society DNV GL for its Solidus LNGC cargo containment system.

A general approval for ship application (GASA) is the full approval of the technology under DNV GL rules, which examines a typical installation of the technology in a vessel.

"DNV GL's approval of Solidus is a great milestone for DSME, marking our leadership in LNG technology," said DSME President and CEO, Sung-Geun Lee. "The Solidus design improves the newbuilding productivity and significantly reduces costs, making it a big step forward in developing the LNG carrier industry for shipbuilders and suppliers."

Solidus uses a high-performance insulation material developed in co-operation with Germany's BASF to lower LNG boil-off rates. To optimise the safety of the system and prevent LNG leakage, the Solidus LNG cargo containment system also incorporates two metallic barriers around the insulation.

GASA follows a framework agreement between DNV GL and DSME to co-operate on projects to develop advanced technologies to maximise the safety and efficiency of ships and offshore units.

The two organisations also plan to conduct joint studies on 3D model hull approval, estimating the allowable wave heights for a 174,000 cu m FSRU, and a structural safety assessment for the Solidus LNG cargo containment system.

"DSME and DNV GL have a long history of co-operation," said DNV GL President and CEO, Remi Eriksen. "The agreement is an extension of the technical partnership that has been in place for decades. Developing sustainable and economically feasible tech-

nologies has always been a challenge. We look forward to the successful results of the JDPs for both parties and contributing to the industries by offering the best solutions." ■



Signing the framework agreement - DSME President & CEO Sung-Geun Lee (left) and DNV GL Group President & CEO Remi Eriksen (right) at the DNV GL headquarters in Høvik

## INPEX moves Abadi's goal posts

INPEX Masela, Ltd, a subsidiary of INPEX Corp, has submitted a revised plan of development (POD) to the Indonesian Government for the Abadi LNG project.

The revised POD is based on an onshore LNG development scheme with an annual LNG production capacity of 9.5 mill tonnes instead of an offshore facility.

The project involves developing the Abadi gas field in the Masela Block located in the Arafura Sea in Indonesia.

A submission of a revised POD follows a series of dialogues between the authorities and INPEX, as the operator of the project on behalf of the joint venture - INPEX Masela and Shell Upstream Overseas - to secure its competitiveness through a Heads of Agreement

(HOA) signed with the authorities on 16th June, 2019.

INPEX said that it anticipated that the revised POD will be approved at an early stage, after which the company will work in partnership with Shell toward reaching FID and ultimately commencing production, with the co-operation of the Indonesian Government.

Li P'ing Yu, Shell's Vice President for Abadi, said of the new submission, "Shell is pleased with the progress made by the joint venture, led by INPEX as operator, towards the development of the Abadi pro-

ject. The submission of the revised POD is a significant milestone for the project, which advances the joint venture closer to delivering a major National Strategic Project for Indonesia."

"Utilising the knowledge and experience gained through operating the Ichthys LNG Project in Australia, INPEX will continue to work closely with its partner Shell to make the necessary preparations to commence FEED work at an early stage, following the authorities' approval of the revised POD, and aims for the production startup in latter half of 2020s," INPEX said. ■

## Delfin asks for more time

It has been reported that Delfin LNG has asked US federal energy regulators for a three-year and six-month extension until 28th March, 2023 to build facilities to connect up to four FLNGs off the coast of Louisiana:

The US Federal Energy Regulatory Commission (FERC) issued an order on 28th September, 2017 authorising Delfin to build and operate the facilities to transport and deliver natural gas to FLNGs moored in federal waters off Cameron Parish in Louisiana.

This order required Delfin to complete the facilities within two years of the signing date.

Due to the detailed nature of the engineering design of the offshore facilities, which includes floating liquefaction technology, and the complexity of developing the necessary commercial arrangements, progress on the project, including the onshore facilities, has been slower than originally anticipated, Delfin reportedly said, according to Reuters.

In March, the company said plans to construct an FLNG in China, which may also provide funding and buy part of its output, were moving ahead despite trade tension between the countries.

Delfin was designed to produce up to 13 mill tonnes per annum of LNG or about 1.7 bill cu ft per day of natural gas. ■

## Anthony Veder expands hybrid fleet

Anthony Veder is to take on the commercial management for five gas carriers operated by GATX Corp.

The vessels will start trading in the company's gas pool this month.

Anthony Veder said that this move further strengthened its position as a liquefied gas shipping company now operating 38 ethylene, LPG and LNG carriers.

They were previously in the Norgas pool and will be renamed with the prefix 'Coral'. Three will transport LPG and petrochemical gases, such as ethylene, while the other two, of 10,000 cu m capacity

each, will also transport LNG, as well as ethylene.

Jan Valkier, Anthony Veder CEO, said: "We have a strong position in both the LNG and petrochemical market. Expanding our fleet with these five combined gas carriers is a great opportunity with which we can offer our customers even more flexible services. With the addition of the LNG carriers we boost our LNG trading fleet to 10 vessels in sizes between 5,800 cu m and 30,000 cu m."

### New additions

| Name          | Type    | Capacity (cu m) | DoB  |
|---------------|---------|-----------------|------|
| Coral Alameda | LEG/LPG | 8,500           | 2003 |
| Coral Orinda  | LEG/LPG | 8,500           | 2002 |
| Coral Shasta  | LEG/LPG | 10,200          | 2003 |
| Coral Fraseri | LNG/LEG | 10,000          | 2010 |
| Coral Furcata | LNG/LEG | 10,000          | 2011 |

(Source: Anthony Veder)

## GasLog and SQLearn SA collaboration, a major success!

SQLearn has collaborated with GasLog Ltd to provide e-learning services from its Dolphin Platforms for the entire fleet of 27 LNGCs.

"Through our strategic co-operation with SQLearn, and its innovative suite of e-learning products and services, we are able to provide our crew with specialised training, while at the same time we can manage all e-learning activities on board and ashore," said GasLog Ltd's Competency Assurance Manager, Archontia Leni.

SQLearn's Dolphin Library - part of Dolphin Platforms - consists of interactive e-learning courses. The courses are based on STCW topics that cover national, international and flag

requirements.

Dolphin System is a web-based e-learning system, specifically designed for the shipping industry, offered via a hardware solution for on board training.

"Through our e-learning courses, seafarers' training becomes effective and user-friendly, incorporating flexible, interactive and reflective learning techniques. Our co-operation with GasLog is greatly appreciated and we look forward to continuing it," said Spyros Goumas, SQLearn's CEO.

## Small scale LNGC berths at Murgados

Reganosa's Murgados terminal has played host to the smallest vessel to berth to date.

The 137 m long 'Coral Fungia' unloaded 9,500 cu m of LNG from Novatek's Cryogas liquefaction plant at Vysotsk in Baltic Russia.

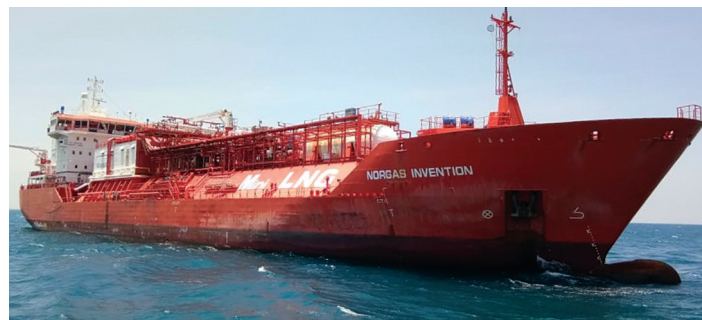
This operation is a step forward for small-scale vessel activity, an area in which a large increase is expected with the introduction of LNG as a fuel in shipping, the terminal operator said.

Apart from serving conventional plants such as Murgados, the LNGC is able to transport lower quantities of LNG to smaller terminals, meaning it can directly

bunker a ship thanks to its double manifold system located at different heights.

The Vysotsk plant began exporting gas in April this year. It has an annual capacity of 640,000 tonnes of GNL per year.

Reganosa is also adapting the berth for small-scale vessels. As a result, it will be equipped with suitable connections for receiving and supplying LNG to small gas tankers that can supply satellite gas plants or to other vessels as fuel.



'Coral Fungia', ex 'Norgas Invention', has become the smallest LNGC to call at the Murgados LNG terminal

## Pavilion snaps up Iberdrola's LNG assets

Singapore-based Pavilion Energy is to purchase the entire LNG assets of Spanish energy company, Iberdrola.

The portfolio comprises about 4 mill tonnes per annum of Iberdrola's long-term sale and supply LNG contracts, plus long-term regasification of around 2 mill tonnes per annum at the Grain LNG terminal in the UK, regasification access in Spain and the Spanish-France border pipeline capacity, as well as the timecharter of a newbuilding MEGI LNGC.

In a related transaction, both parties have concluded a gas sales agreement allowing Pavilion Energy to supply natural gas in Spain to Iberdrola Generación Espana.

"Building on Pavilion Energy's success in Singapore and in the Asia/Pacific basin, this acquisition brings us a portfolio of prime as-

sets primarily in Europe and the Atlantic Basin. The combined portfolio achieves global reach with the scale and flexibility required to outperform," said Frédéric Barnaud, Group CEO of Pavilion Energy. "Today is a critical step towards our vision to be a leading global LNG player, leveraging our LNG portfolio with deep access to strategic gas markets in Singapore, Spain, and the UK, combined with sophisticated optimisation and risk management skills."

The acquisition was entered into by Pavilion Energy Trading & Supply Pte Ltd, a wholly-owned subsidiary of Pavilion Energy.

The closing is expected on 1st January, 2020.

# Expanded Marmara terminal handles first Q-Flex

**Qatargas has delivered the largest single LNG cargo to date to the Marmara LNG Terminal in Turkey.**

The LNG was shipped on the Q-Flex 'Al Sheehaniya', which was also the first vessel of this size to call at the recently expanded Marmara LNG Terminal.

Khalid bin Khalifa Al Thani, Qatargas CEO, said: "The recent expansion of Marmara LNG Terminal allows Qatargas to send the world's largest LNG vessels to yet another LNG terminal in Turkey.

"With 14 LNG trains and a total annual production capacity of 77 mill tonnes, Qatargas is ideally positioned to meet increasing cus-

tomers demand for reliable LNG, and capture the economies of scale afforded by Q-Flex and Q-Max LNG vessels," he said.

Marmara LNG terminal is owned by Turkish state integrated gas company, BOTAS. The terminal was originally designed to accommodate conventional size LNGCs, but was recently upgraded to accommodate both Q-Flex and Q-Max vessels.

'Al Sheehaniya' loaded 207,000 cu m of LNG at the Ras Laffan terminal in Qatar on 30th May, 2019 before sailing for Marmara. ■



**The Q-Flex 'Al Sheehaniya' is the largest LNGC to call at the Marmara LNG terminal**

## NEWS NUDGE

### Charters, newbuildings, etc

A GasLog Partners company has timechartered the 'GasLog Shanghai' to Clearlake Shipping Pte Ltd, a subsidiary of Gunvor Group Ltd for three and a half years.

The charter, which is expected to commence this month, will be at a variable rate of hire across the charter period, based upon an agreed range.

'GasLog Shanghai' is a 155,000 cu m TFE LNGC built in 2013 and is currently operating in the spot market.

Andrew Orekar, GasLog Partners CEO, stated, "I am very pleased to announce this three-and-a-half-year charter agree-

ment with Gunvor, a new and high-quality counterparty for GasLog Partners.

"The charter delivers on our commitment to secure term employment for the 'GasLog Shanghai', strengthens the cash flow visibility of the Partnership and supports our year-on-year distribution growth guidance of 2% to 4% in 2019," he said.

In addition, Mitsui OSK Lines (MOL) has secured a short-term charter agreement from GAIL, for an LNGC.

No further details were given about the deal.

MOL said that it is expected that demand for gas will be increasing continuously in India, registering significant economic growth.

In the newbuilding sector, JP Morgan was said to have ordered

two 174,000 cu m LNGCs at Samsung for \$190.5 mill each.

They are due to be delivered next year.

### Japan receives first Yamal cargo

Yamal LNG has shipped its first LNG cargo to Japan in accordance under a long-term offtake agreement with Total.

The cargo was unloaded at the Tobata LNG terminal in accordance with the buyers lifting and delivery schedule, Yamal operator NOVATEK said.

"Commencing LNG shipments to the Japanese market represents an important milestone for the company, as Japan is an important LNG market and one of the priority destinations in our LNG marketing strategy," said Leonid Mikhelson, NOVATEK's

Chairman of the Management Board. "Further development of our logistical chain using the Northern Sea Route and a transshipment terminal in Kamchatka will expand LNG supplies to Japan, as well as strengthen trade and economic links between our respective countries."

### Vietnam to get first LNG receiving terminal

Samsung C&T has formed a joint venture with PetroVietnam Technical Services to build a \$180 mill LNG terminal.

The project will be Vietnam's first LNG terminal and will be paid for by PetroVietnam Gas, the state-run energy utility.

To be named Thi Vail, it will be located about 70 km south-east of Ho Chi Minh City.

It includes a 180,000 cu m LNG storage tank, a vaporisation transmission facility, and a berth. Construction is scheduled to begin on 30th June and is to be completed in October, 2022.

The terminal will supply the proposed Nhon Trach combined-cycle thermal power plant.

Vietnam plans to have six LNG terminals by 2035 to cater to its offshore gas reserves, local sources said. ■

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## WORLD LNG CARRIER ORDERBOOK

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

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit  
Data last updated = 4th April 2019

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

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

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit  
Data last updated = 4th April 2019



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## WORLD SMALL SCALE LNG FLEET\*

| Built | Name                    | CBM    | Cargo Type       | Trading area              | Trading in LNG?      | Ship Owner / Operator      |
|-------|-------------------------|--------|------------------|---------------------------|----------------------|----------------------------|
| 1974  | Seagas                  | 187    | LNG              | Sweden                    | Yes                  | AGA                        |
| 1988  | Kayoh Maru              | 1,517  | LNG              | Japan                     | Yes                  | Daiichi                    |
| 1993  | Aman Bintulu            | 18,928 | LNG              | Malaysia - Japan          | Yes                  | Perbadanan/NYK             |
| 1996  | Surya Aki               | 19,475 | LNG              | Indonesia - Japan         | Yes                  | MCGC                       |
| 1997  | Aman Sendai             | 18,928 | LNG              | Malaysia - Japan          | Yes                  | Perbadanan/NYK             |
| 1998  | Aman Hakata             | 18,800 | LNG              | Malaysia - Japan          | Yes                  | Perbadanan/NYK             |
| 2000  | Triputra                | 23,096 | LNG              | Indonesia - Japan         | Yes                  | MCGC                       |
| 2003  | Pioneer Knutsen         | 1,100  | LNG              | Norway                    | Yes                  | Knutsen                    |
| 2003  | Shinju Maru No.1        | 2,540  | LNG              | Japan                     | Yes                  | Shinwa                     |
| 2005  | North Pioneer           | 2,500  | LNG              | Japan                     | Yes                  | Japan Liquid Gas           |
| 2007  | Sun Arrows              | 19,531 | LNG              | Malaysia - Russia - Japan | Yes                  | Mitsui                     |
| 2008  | Kakurei Maru            | 2,536  | LNG              | Japan                     | Yes                  | Hogaki Zosen               |
| 2008  | Shinju Maru No.2        | 2,540  | LNG              | Japan                     | Yes                  | Shinwa                     |
| 2009  | Coral Methane           | 7,551  | LNG/LPG/Ethylene | Northwest Europe/Baltics  | Yes, sometimes       | Anthony Veder              |
| 2010  | Norgas Creation         | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Norgas Carriers            |
| 2010  | Norgas Innovation       | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Norgas Carriers            |
| 2011  | Akebono Maru            | 3,556  | LNG              | Japan                     | Yes                  | Chuo Kaiun                 |
| 2011  | Norgas Conception       | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Norgas Carriers            |
| 2011  | Norgas Invention        | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Norgas Carriers            |
| 2011  | Vision Spirit           | 12,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Teekay                     |
| 2011  | Unikum Spirit           | 12,000 | LNG/LPG/Ethylene | Worldwide                 | No                   | Teekay                     |
| 2012  | Coral Energy            | 15,600 | LNG              | Northwest Europe/Baltics  | Yes                  | Anthony Veder              |
| 2013  | JX Energy TBN           | 2,500  | LNG              | Japan                     | Yes                  | JX Energy                  |
| 2013  | Kakuyu Maru             | 2,500  | LNG              | Japan                     | Yes                  | Tsurumi Sunmarine          |
| 2013  | Coral Anthelia          | 6,500  | LNG/Ethylene     |                           |                      | Anthony Veder              |
| 2014  | LNG-Oil combi**         | 2,000  | LNG              | Germany                   | Yes                  | Veka                       |
| 2014  | Short Sea LNG Tanker ** | 4,000  | LNG              | Germany                   | Yes                  | Veka                       |
| 2015  | LNG Inland bunker**     | 800    | LNG              | Germany                   | Yes                  | Veka                       |
| 2015  | LNG bunker barge 1†     | 2,250  | LNG              | China                     | Yes                  | Anhui Huaqiang Natural Gas |
| 2015  | LNG bunker barge 2†     | 2,250  | LNG              | China                     | Yes                  | Anhui Huaqiang Natural Gas |
| 2015  | LNG bunker barge 3†     | 2,250  | LNG              | China                     | Yes                  | Anhui Huaqiang Natural Gas |
| 2015  | LNG Barge TBN           | 3,000  | LNG              | US Coast                  | Yes                  | LNG America                |
| 2015  | 10 small carriers TBN** | 5,000  | LNG              |                           |                      | Bimantara Group            |
| 2015  | Jahre TBN**             | 6,200  | LNG              | Norway                    | Yes                  | Donsotank/Jahre Marine     |
| 2015  | Norgas TBN**            | 17,000 | LNG/LPG/Ethylene | Worldwide                 |                      | Norgas Carriers            |
| 2015  | Norgas TBN**            | 17,000 | LNG/LPG/Ethylene | Worldwide                 |                      | Norgas Carriers            |
| 2015  | JS Ineos Ingenuity      | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2015  | JS Ineos Insight        | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2015  | JS Ineos Intrepid       | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2015  | TBN 1                   | 27,500 | LNG              | China?                    |                      | Danyang?                   |
| 2015  | TBN 2                   | 27,500 | LNG              | China?                    |                      | Danyang?                   |
| 2015  | TBN 3                   | 27,500 | LNG              | China?                    |                      | Danyang?                   |
| 2015  | PetroChina TBN          | 30,000 | LNG              | China                     |                      | PetroChina                 |
| 2016  | Clean Jacksonville      | 2,200  | LNG              | US Coast                  | Yes                  | CME                        |
| 2016  | LNG Prime               | 2,250  | LNG              | Northwest Europe          | Yes                  | Veka Deen LNG              |
| 2016  | JS Ineos Indepence      | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2016  | JS Ineos Innvation      | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2016  | JS Ineos Inspiration    | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos    | Evergas                    |
| 2016  | Hai Yang Shi You 301    | 30,000 | LNG              | Bali FSU                  | Yes                  | CETS (CNOOC)               |
| 2016  | Navigator Aurora        | 35,000 | Ethane/Ethylene  | Markus Hood - Stenungsund | Ethane, for Borealis | Navigator                  |
| 2016  | Gaschem Beluga          | 36,000 | Ethane/Ethylene  | US - Teeside              | Ethane, for Sabic    | Gaschem Services           |
| 2016  | Gaschem Orca            | 36,000 | Ethane/Ethylene  | US - Teeside              | Ethane, for Sabic    | Gaschem Services           |

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

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

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

\*\* = project shelved † =Data to be verified Data last updated = 4th March 2019

| Built | Name                     | CBM    | Cargo Type      | Trading area             | Trading in LNG?   | Ship Owner / Operator       |
|-------|--------------------------|--------|-----------------|--------------------------|-------------------|-----------------------------|
| 2016  | Ocean Yield TBN**        | 36,000 | Ethane/Ethylene | US - Teeside             | Ethane, for Sabic | Gaschem Services            |
| 2017  | Oizmendi                 | 600    | LNG             | Bilbao                   | Yes               | Itsas Gas                   |
| 2017  | CME TBN†                 | 2,200  | LNG             | US Coast                 | Yes               | CME                         |
| 2017  | CME TBN†                 | 2,200  | LNG             | US Coast                 | Yes               | CME                         |
| 2017  | ENGIE Zeebrugge          | 5,000  | LNG             | Northwest Europe         | Yes               | NYK                         |
| 2017  | Coralius                 | 5,800  | LNG             | Northwest Europe/Baltics | Yes, for Skangas  | Anthony Veder               |
| 2017  | Cardissa                 | 6,500  | LNG             | Northwest Europe         | Yes               | Shell                       |
| 2017  | LNG-Gorskaya TBN         | 7,300  | LNG             | Russia                   | Yes               | LNG-Gorskaya                |
| 2017  | LNG-Gorskaya TBN         | 7,300  | LNG             | Russia                   | Yes               | LNG-Gorskaya                |
| 2017  | LNG-Gorskaya TBN         | 7,300  | LNG             | Russia                   | Yes               | LNG-Gorskaya                |
| 2017  | Coral EnergyICE          | 18,000 | LNG             | Northwest Europe/Baltics | Yes               | Anthony Veder               |
| 2017  | JS Ineos Invention       | 27,500 | LNG/Ethylene    | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2017  | JS Ineos Intuition       | 27,500 | LNG/Ethylene    | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2017  | Yuan He 1                | 30,000 | LNG             | China                    | Yes               | CSR                         |
| 2017  | Navigator Eclipse        | 35,000 | Ethane/Ethylene | US                       | Ethane            | Navigator                   |
| 2017  | Navigator Nova           | 35,000 | Ethane/Ethylene | US                       | Ethane            | Navigator                   |
| 2017  | Navigator Prominence     | 35,000 | Ethane/Ethylene | US                       | Ethane            | Navigator                   |
| 2018  | HUA XIANG 8              | 13,720 | LNG             | China                    | Yes               | Zhejiang Huaxiang           |
| 2018  | CME TBN†                 | 2,200  | LNG             | US Coast                 | Yes               | CME                         |
| 2018  | Shell Bunker Barge TBN 4 | 3,000  | LNG             | Northwest Europe         | Yes               | Shell                       |
| 2018  | Shell Bunker Barge TBN 2 | 6,500  | LNG             | Northwest Europe         | Yes               | Shell                       |
| 2018  | Shell Bunker Barge TBN 3 | 6,500  | LNG             | Northwest Europe         | Yes               | Shell                       |
| 2018  | Kairos                   | 7,500  | LNG             | Baltic                   | Yes               | Bernhard Schulte            |
| 2018  | Qi Yuan                  | 28,000 | LNG             | China                    | Yes               | Dalian Inteh Group          |
| 2018  | Evergas TBN              | 32,000 | Ethane/Ethylene | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2018  | Evergas TBN              | 32,000 | Ethane/Ethylene | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2018  | Evergas TBN              | 32,000 | Ethane/Ethylene | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2018  | Evergas TBN              | 32,000 | Ethane/Ethylene | Markus Hook - Rafnes     | Ethane, for Ineos | Evergas                     |
| 2018  | Bunker Breeze            | 0      | LNG             | Barcelona                | Yes               | Suardiaz Energy Shipping    |
| 2019  | KLine TBN                | 7,500  | LNG             | Korea                    | Yes               | Korea Line                  |
| 2019  | KLine TBN                | 7,500  | LNG             | Korea                    | Yes               | Korea Line                  |
| 2019  | Stolt TBN                | 7,500  | LNG             | Mediterranean            | Yes               | Stolt-Nielsen Gas           |
| 2019  | Stolt TBN                | 7,500  | LNG             | Mediterranean            | Yes               | Stolt-Nielsen Gas           |
| 2020  | Shell Bunker Barge       | 4,000  | LNG             | US Coast                 | Yes               | Q-LNG Transport/Harvey Gulf |
| 2020  | Stolt TBN (option) **    | 7,500  | LNG             |                          | Yes               | Stolt-Nielsen Gas           |
| 2020  | Stolt TBN (option)       | 7,500  | LNG             |                          | Yes               | Stolt-Nielsen Gas           |
| 2020  | Total TBN                | 18,600 | LNG             | NWE                      | Yes               | MOL                         |
| 2020  | FuelLNG TBN              | 7,500  | LNG             | Singapore                | Yes               | FuelLNG                     |
| 2020  | CLS TBN                  | 3,500  | LNG             | Japan                    | Yes               | CLS                         |
| 2020  | Eesti Gaas TBN           | 6,000  | LNG             | NWE                      | Yes               | Eesti Gaas                  |
| 2020  | ENN TBN                  | 8,500  | LNG             | China                    | Yes               | ENN                         |
| 2021  | Stolt TBN (option)       | 7,500  | LNG             |                          | Yes               | Stolt-Nielsen Gas           |
| 2021  | Knutsen TBN              | 30,000 | LNG             | Mediterranean            | Yes               | Knutsen OAS                 |
| 2021  | Gazprom Neft TBN         | 5,800  | LNG             | Russia                   | Yes               | Gazprom Neft                |
| 2021  | PE TBN                   | 12,000 | LNG             | Singapore                | Yes               | MOL                         |
| 2021  | JMU TBN                  | 2,500  | LNG             | Japan                    | Yes               | JMU                         |
| 2022  | Stolt TBN                | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |
| 2022  | Stolt TBN                | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |
| 2024  | Stolt TBN (option)       | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |
| 2024  | Stolt TBN (option)       | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |
| 2026  | Stolt TBN (option)       | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |
| 2026  | Stolt TBN (option)       | 20,000 | LNG             | Worldwide                | Yes               | Stolt-Nielsen Gas           |

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

\*Includes multi-gas, ethylene and LNG bunker ships with 40,000 cubic metres LNG cargo capacity or less  
TBN = To Be Nominated indicates ships are still at construction/planning stage

\*\* = project shelved † = Data to be verified Data last updated = 4th March 2019