

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

7 December 2017

The future is FSRUs - Støhle

LNG supply is growing rapidly on the back of expanding production capacity.

Supply will increase by another 100 mill tonnes, or 35% by 2020, claimed Sveinung Støhle president and CEO of Høegh LNG in an interview with GasTech Insights.

FSRUs hold the key to unlocking the majority of new markets, due to their effectiveness as floating regasification solutions in terms of cost and time when compared to land-based solutions.

He said that the current market is biased towards buyers, as it is long on supplies and competitively priced. The standard trading model is changing from primarily long term SPAs to more spot and short term volumes.

The trading pattern is also changing with new US gas supplies being shipped to Europe, South America and Asia, while new volumes out of Australia will add to the Asian mix.

Giving Egypt as an example, Støhle said that even medium to large regasification terminals with a base load gas send out of in excess of 1.2 bill cu ft per day were possible to put in operation in less than 12 months through the use of

FSRUs (two units). A similar land-based terminal would take around five or six years to build and cost considerably more.

Egypt, Turkey and Pakistan were examples of countries that were using FSRUs to fill gas deficits with competitively priced LNG, while markets such as Poland and Hong Kong were looking to install an FSRU for various strategic reasons, he said.

Mature technology

He also said that FSRU technology was now mature and was constantly improving. The previous scepticism against ship-to-ship cargo transfers (STS) with hoses and loading arms was today an accepted and standard operation.

Storage capacity was an argument heard against using FSRUs, as it was believed to interfere with the import capacity of the terminal. However, large FSRUs with a capacity of 174,000 cu m have proved that this is not an issue.

There is also a demand for LNG to be moved in smaller quantities



Sveinung JS Støhle Høegh LNG's President and CEO

to new regional and local markets with no, or limited access to pipeline infrastructure. In markets, such as South America and Southeast Asia where the total FSRU gas send-out and storage capacity sometimes exceeds the initial local market demand, there are excellent opportunities for marketing excess FSRU re-load and storage capacity to increase the economic attractiveness of a project, Støhle stressed.

Six FSRU contracts were awarded in 2016 and interest remained high this year, he concluded.

SHIPPING NEWS AGENDA

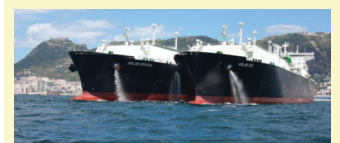
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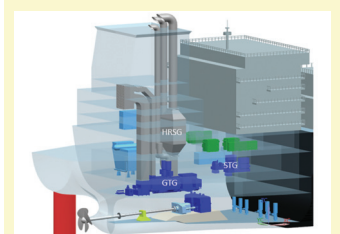
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Merged LNG producers to start operations next year

Qatar Petroleum's (QP) merged entity involving LNG producers and exporters, Qatargas and RasGas, is due to commence operations on 1st January.

According to a Reuters report, an email was sent inviting staff to a convention at the Sheraton in Doha to be held on 6th December. QP CEO, Khalid Khalifa Al Thani, reportedly told

staff to expect an update on the strategy and leadership team for the new company.

In late November, the two LNG giants began implementing job cuts that had previously been postponed, due to the diplomatic row between Qatar and its neighbouring states.

QP's CEO had said that the merger of RasGas and Qatargas

would help to cut operating costs by hundreds of millions of dollars for the world's largest LNG producer.

The combined company will handle all of Qatar's 77 mill tonnes of nameplate LNG production capacity annually, sold through a mix of joint venture agreements with Western oil majors.

Poland to buy US gas

Polish Oil and Gas Co Group (PGNiG) has signed a five-year contract to import LNG from Cheniere Energy's Sabine Pass LNG terminal.

The deal was signed with Centrica LNG Co Limited last month.

The contract is on a DES delivery basis and will begin in 2018. Up to nine cargoes will be delivered during the period to the President Lech Kaczyński LNG terminal in Świnoujście, at which PGNiG recently booked additional regasification capacity.

This is the first medium-term LNG agreement to be signed by PGNiG Supply & Trading's London branch office, which is dedicated to global LNG trading.

Reliable supplies

This agreement forms part of PGNiG's strategy of securing reliable and diversified gas supplies for Poland and its growing trading capability in the European market. It is also the first mid-term contract for US LNG bound for Central and Eastern Europe.

"Preceded by the long term contract for LNG deliveries from Qatar and several spot deliveries in 2017, this agreement shows that we are stepping into a new level of global LNG market activity. This five-year agreement for



The Swinoujscie receiving terminal will soon see US gas imports

American LNG deliveries is based on gas market conditions. We look forward to working with Centrica as a partner to continue to provide diversified supply into Poland," said Piotr Woźniak, PGNiG's CEO and President.

"This agreement is the first of its kind in PGNiG's planned portfolio of medium-term LNG agreements. Most of these LNG supply agreements will be dedicated to the gas markets of Poland and other Central European countries in order to increase the energy security of this region, which has historically been dominated by

Russian gas," Woźniak added.

"We are extremely pleased to have concluded this mid-term contract with PGNiG as part of Centrica's strategy to build our global LNG portfolio. Our reliability, experience and trading capabilities mean we are well placed to deliver LNG into an ever growing number of markets around the world. We really look forward to working with the team at PGNiG over the coming years," commented Jonathan Westby, Centrica's Managing Director of Energy Marketing & Trading.

First Nigerian gas arrives in Pakistan

A Nigerian LNG shipment has arrived at Port Qasim's second import terminal.

The LNGC 'Golar Kevin', carrying 70,000 tonnes of gas, arrived from Nigeria at the end of last month to discharge at the FSRU.

Pakistan had been importing LNG from Qatar since March, 2015.

Swiss-based commodity trader Gunvor brought the Nigerian LNG cargo to the second LNG terminal, which was inaugurated by Prime Minister Shahid Khaqan Abbasi on 20th November.

The second LNG terminal, with a 600 mill cu ft per day handling capacity, was developed by Pakistan GasPort Limited, representing an investment of \$500 mill.

Two more terminals are also planned for Port Qasim, which are expected to be commissioned in the second and third quarters of 2018.

Tokyo Gas goes back to Alaska

Tokyo Gas has signed a Letter of Intent (LoI) to purchase LNG from a new project to be developed by Alaska Gasline Development Corp, a company wholly owned by the State of Alaska.

Alaska Gasline will treat the natural gas produced from the North Slope gas field in Alaska, US, and transport the gas to the Nikiski LNG terminal where it will be liquefied. Around 20 mill tonnes of

LNG is expected to be produced per annum.

Tokyo Gas has a strong relationship with Alaska, as in 1969 the energy company became the first Japanese buyer of Alaskan

LNG thus kicking off Japanese imports.

The cargo was shipped in the 'Polar Alaska', which arrived at the Negishi LNG receiving terminal from Nikiski.

NEWS NUDGE

Sabetta to open this week

Novatek said earlier this week that its Yamal LNG plant had commenced gas production with the aim of shipping the first cargo on 8th December from the Arctic port of Sabetta.

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

Elena Fuentes
Tel: +44 (0) 20 7253 2700
elena@lngjournal.com

Production

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

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Golar remains in the red

Golar Ltd has reported a third quarter 2017 operating loss of \$22.9 mill, compared to a loss of \$24 mill in the previous quarter.

A pick-up in utilisation toward the end of the quarter resulted in a small rise in timecharter revenues, which increased \$1 mill to \$25 mill in 3Q17.

Voyage expenses increased from \$11.8 mill in 2Q17 to \$13.1 mill in 3Q17. This was largely attributable to repositioning and cool-down costs for the 'Golar Tundra', which left Ghana in September to be prepared for service as an LNGC.

As a result of higher fleet management and general vessel maintenance costs, vessel operating expenses increased \$1.7 mill to \$13.8 mill in 3Q17. Administration and depreciation and amortisation costs at \$11 mill and \$17.4 mill, respectively, were in line with 2Q17.

Net loss

In 3Q17, the company suffered a net loss of \$43.9 mill. Notable contributors to this were:

- * The \$7.1 mill decrease in interest expense is the result of an adjustment to reflect capitalisation of deemed interest of \$7.4 mill in connection with Golar's equity investment in



Golar is still suffering despite a market hike. Photo credit- Port of Gibraltar

Golar Power. This was partly offset by additional interest charges as a result of an increase in LIBOR.

- * Other financial items reported 3Q17 income of \$4.4 mill. This non-cash income was derived from a mark-to-market gain on the three million total return swap (TRS) shares following a \$0.36 quarter-on-quarter increase in the company's share price, an increase in swap rates resulting in mark-to-market interest rate swap gains and a \$2.5 mill mark-to-market gain on the IDR earn-out units derivative.
- * The \$5.9 mill 3Q17 equity in net losses of affiliates is primarily comprised of the following:
 - a \$5 mill loss in respect of Golar's 50% share in Golar Power.
 - a \$2.1 mill loss in respect of Golar's 51% share in OneLNG.
 - an income of \$1.1 mill in respect of Golar's stake in Golar Partners.

Golar Partners reported a substantial drop in 3Q17 net income, primarily due to recognition of the 'Golar Spirit' termination fee in 2Q17 and the loss of earnings from this FSRU post 23rd June, 2017.

Golar's \$8.4 mill 3Q17 share of net earnings in the Partnership was offset by amortisation, principally of the fair value gain on deconsolidation of Golar Partners, currently equivalent to \$7.3 mill. At \$12.9 mill, the quarterly cash distribution received from the Partnership is in line with previous quarters.

The company's unrestricted cash position as at 30th September, 2017 was \$286.6 mill.

Discussions have started with Golar Partners with respect to the possible dropdown of the second 50% of 'Hilli's' contracted capacity.

The Partnership claimed that it was financially well positioned for this following completion of its series A preferred unit offering. ■

Fortuna FLNG hit by financing problems

Due to finance discussions with a consortium of Chinese banks taking longer than expected, Ophir Energy and its partners are looking for alternative funding sources for the Equatorial Guinea Fortuna FLNG project.

These alternative options are now at an advanced stage, Ophir said, adding that it expected to be able to select one of these options and to finalise the financing arrangements for the project by the middle of this month.

Ophir has agreed a 12-month extension to the Block R licence, in which the project will be located.

Once the financing arrangements have been agreed, Ophir will promptly seek approval for the project from its shareholders and the project stakeholders. The Final Investment Decision (FID), based on the approvals, would be expected to take place during the first quarter of 2018, the company said.

Nick Cooper, Ophir CEO, commented: "The discussions we have had in recent weeks make us more confident than ever that shareholders will realise significant value from Fortuna." ■

'Höegh Grace' acquisition finalised

Höegh LNG completed the transfer of the remaining 49% interest in the FSRU 'Höegh Grace' to Höegh LNG Partners on 1st December.

Under the agreement, reached between the parties in mid-November, Höegh LNG has transferred the remaining ownership interest in Höegh LNG Colombia Holding, the sole owner of the entities that own and operate the FSRU.

Höegh had earlier said that the stake would be sold for \$172.5 mill, less \$86.6 mill in pro-rata debt related to 'Höegh Grace', which was expected to be outstanding at the

closing date of the transaction.

Höegh LNG Partners was to pay the purchase price with a combination of cash at hand and a drawing under its revolving credit facility granted by Höegh LNG.

HMLP purchased the initial 51% ownership interest in Grace Holding in January, 2017 for \$188.7 mill, less \$96.9 mill, the pro-rata amount of debt attached to the vessel. ■



Höegh LNG Partners has finalised the acquisition of the 'Höegh Grace'

Lower operating revenues and a drydocking hits Dynagas

Dynagas LNG Partners has reported a sharp fall in net income for the three months ended 30th September 30, 2017 to \$4 mill, compared to \$17.3 mill recorded in the corresponding period of 2016.

The decrease was mainly due to (i) a decrease in period operating revenues, (ii) the increased interest costs for servicing the Term Loan B and (iii) the scheduled expenditures for the 'Amur River' that underwent her special survey and drydock repairs in 3Q17.

Adjusted net income for 3Q17 was \$7 mill, compared to \$19.1 mill in the corresponding period of 2016. The decrease in adjusted net income, which eliminates the effect of non-cash and non-recurring items, was mainly due the lower utilisation and the lower revenues earned on some of the Partnership's LNGCs and higher financing costs.

Adjusted EBITDA for 3Q17 decreased by 25.4% to \$26.4 mill, compared to 3Q16 adjusted EBITDA of \$35.4 mill.

Voyage revenues were \$33.5

mill for the quarter, compared to \$43.1 mill for 3Q16, which represents a decrease of \$9.6 mill, or 22.3%. This decrease was primarily due to (i) lower utilisation and lower charter rate earned for the 'Clean Energy' while trading in the spot market during the period in comparison to 3Q16, (ii) the charter hire reductions on the 'Yenisei River' and 'Lena River', with effect from November, 2016, and (iii) the anticipated off-hire period for the 'Amur River' that completed its scheduled drydock in July, 2017, as opposed to no off-hire days in the same quarter of last year.

Charter hire down

The Partnership reported average daily charter hire gross of commissions of around \$65,200 per day per vessel in 3Q17, compared to

about \$81,300 per day per vessel in the same period of 2016. During the period, the Partnership's vessels operated at 97% utilisation, compared to 100% in the same period of 2016.

Tony Lauritzen, the Partnership's CEO, commented: "Our reported earnings for the third quarter of 2017 were, as expected, below those of the third quarter of 2016 and were impacted by the following: (i) the class surveys and related drydockings of the 'Amur River', as described above, (ii) the temporary employment of the 'Clean Energy' on the spot market until July, 2018, when she will commence an approximate eight-year time charter with Gazprom, and (iii) the longer term nature of our contracts following our decision to reduce the charter hire rate on

two vessels, the 'Yenisei River' and the 'Lena River', with effect from November, 2016, in exchange for securing a long-term charter on the 'Clean Energy' with an approximate eight year term. These transactions contributed substantially to our contracted backlog, which at the time increased from approximately \$1.5 bill to \$1.6 bill, thereby enhancing significantly our revenue visibility.

"With our fleet 92% contracted through 2017 and 75% contracted through each of 2018 and 2019, and with an estimated fleet-wide average remaining contract duration of 10 years, we believe we have significant cash flow visibility. We expect to increase contract coverage going forward on the back of an improving LNG Shipping market," he said. ■

Labuan LNG STS service contract signed

Petronas LNG Ltd (PLL), a subsidiary of Petronas LNG Sdn Bhd, has signed a two-year service agreement with Argo Engineering and Eastport Marine to provide LNG ship-to-ship transfer (STS) services in Labuan.

"This ship-to-ship transfer service agreement is Petronas' first collaboration in providing flexible delivery solutions that goes beyond the conventional selling and delivering of LNG," said PLL chairman, Ahmad Adly Alias in a statement.

"LNG ship-to-ship transfer services is an emerging trend to cater to the needs of small scale LNG requirements."

Combining Argo and Eastport's shipping expertise with Petronas' LNG portfolio, the partnership will

enable PLL to respond to new market requirements in the changing LNG industry landscape, which includes LNG shipping solutions, the company said.

Argo has experience in LNG shipping operations supported by a

network of technical personnel in the LNG shipping sector.

Eastport is involved in handling bunkering and STS operations, in addition to possessing the sole license to provide LNG bunkering and STS services at Brunei Bay, Labuan. ■

NEWS NUDGE

Charter rates fizz

On the back of higher gas prices and increased demand to cover the winter period, charter rates for LNGCs have increased to \$70,000 for a 160,000 cu m unit, brokers said, compared to \$30,000 per day in April this year.

In 2015, the average daily rate was \$36,038 and last year - \$33,528.

An example of the rapid charter expansion is the news that Cheniere Energy had reportedly fixed the LNGCs 'Golar Snow',

'Golar Tundra', 'Energy Atlantic', 'Maran Gas Troy', 'Wilforce', 'Corcovado', and 'Clean Horizon' and now has 22 gas carriers in operation, either on a single trip basis or on long term charters.

More LNGC orders in the pipeline

Hyundai Heavy Industries is believed to be in advanced negotiations with Russia's Sovcomflot and Greece's TMS Tankers over contracts to build LNGCs.

French energy giant Total has

agreed a medium-term charter contract with the two companies and as a result, they are planning to order one 174,000 cu m LNGC each with an option for one more vessel.

OLT Offshore LNG Toscana to amend regasification code

OLT Offshore LNG Toscana said that starting from 4th December, 2017, it is possible to view on its website, the proposal to amend the regasification code transposing resolution 660/2017/R/gas,

published on 28th September, 2017.

This introduces auction-based mechanism for the allocation of regasification capacity.

Comments on the amendments can be sent by 14th January, 2018, the company explained.

Veteran LNGC sold

Brokers have reported the sale of the 1983-built 125,568 cu m 'Echigo Maru' to Sinokor for \$15 mill.

She has been laid up for two years at Labuan. ■

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ERMA FIRST wins large Golar contract

Golar LNG has agreed to install ERMA FIRST's ballast water treatment systems (BWTS) on up to 16 LNGCs.

The first installation of ERMA FIRST BWTS is set to take place during the company's next dry-docking scheduled, due in the second quarter of 2018. The installation of the system will continue until the end of 2022, according to the shipping company's drydocking schedule.

"We decided to install ERMA FIRST BWTS, which is designed and produced in Greece, starting at an early stage which provides us with certain commercial and financial advantages, including availability of equipment, minimisation of downtime, unrestricted worldwide trading in the following years and the financial benefits of a block order," said Oistein Dahl Golar LNG COO.

The shipping company also said that it had worked with ERMA FIRST for the past few months to enhance and adapt the system to the company's vessels.

ERMA FIRST BWTS received a United States Coast Guard (USCG) type approval certificate in October, 2017. ■

NEWS NUDGE

Pavilion Energy appoints new CEO

Pavilion Energy has announced that Frédéric Barnaud will succeed Seah Moon Ming as CEO of both Pavilion Energy and its subsidiary, Pavilion Gas, on 1st February, 2018.

Pavilion Energy Chairman, Tan Sri Mohd Hassan Marican, thanked Seah for the pivotal role he played in the creation and success of the company and expressed his confidence that the Group would transition well to its new leadership.

Barnaud, a French national, is currently the Chief Commer-

Dreifa's floating regas concept wins DNV GL AiP

Dreifa Energy's floating regasification unit concept (Dreifa FRU) gained an Approval in Principle (AiP) from DNV GL last month.

The AiP is based on DNV GL's examination of the basic engineering package developed by Dreifa Energy throughout the second and third quarters of 2017, the company explained.

In addition to confirming the design's compliance with the rules of the society at the current engineering stage, the AiP provides

clarity on the regulatory framework and classification procedure towards final approval.

This is an important step forward in Dreifa Energy's efforts to be prepared to enter into contracts for equipment and conversion, the company claimed.

Dreifa is developing and marketing a floating regasification

terminal for mid-scale LNG imports.

The terminal concept consists of regasification and related utilities sited on a floating structure (FRU), operating in combination with a standard LNGC acting as the

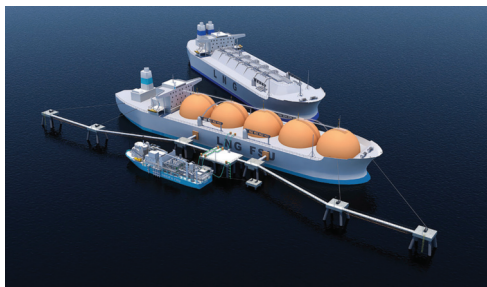
floating storage unit (FSU).

In December last year, Dreifa announced a tie-up with Bernhard Schulte Shipmanagement (BSM) by way of an operational partner agreement.

Dreifa and BSM said that they will co-operate through the different phases of an LNG regas project, allowing the partnership to create long-term value for clients.

BSM will be actively involved to ensure -

- i) Safe and reliable design based on best practices from decades of experience.
- ii) Successful execution of the conversion project.
- iii) High quality operation of the Dreifa Terminals. ■



The Dreifa FRU concept has been awarded an AiP from DNV GL

GE and DSIC jointly develop LNGC propulsion conversion

GE's Marine Solutions and Dalian Shipbuilding Industry (DSIC) have completed a preliminary design for the conversion of a steam turbine powered LNGC to a gas turbine-based propulsion system.

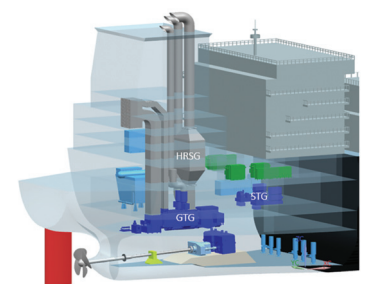
The study is aimed at steam powered LNGCs that offer low fuel efficiency but are not ready to be retired from service thus far.

The new design features GE's compact Combined Gas turbine, Electric and Steam (COGES) system.

"We are delighted to work with the DSIC team to develop this new concept of a LNGC power system conversion," said GE's Brian Bolsinger, Vice President, Marine Operations. "This feasibility study provides shipowners a competitive

retrofit solution for 10 to 15 year-old steam-powered LNG carriers."

According to Yingbin Ma, DSIC Deputy Technical Director, "A gas turbine's smaller footprint allows for the minimum necessary conversion work required by the shipyard. By converting to a COGES power system, the fuel efficiency of the ship will be improved by 30%. This allows shipowners to increase the charter rate and win back opportunities in a market dominated by dual-fuel diesel engines.



GE has joined together with DSIC to offer LNGC propulsion conversions

"This study achievement is based on a 138,000 cu m LNGC powered by a steam turbine, but it can be applied on other similar size ships," he added.

Separately, GE and Hudong-Zhonghua have already received an AiP from ABS for a jointly developed LNGC design.

This new 178,000 cu m LNGC uses GE's COGES system for all power and propulsion. The compact and lightweight COGES arrangement allows an additional 4,000 cu m of LNG cargo space versus a traditional 174,000 cu m LNGC powered by dual fuel diesel engines.

Since the GE gas turbine is fuel flexible and dual fuel capable, it can operate either on the carrier's cargo of Boil Off Gas (BOG) or on Marine Gas Oil (MGO). ■

cial Officer of LNG, Oil/LPG & Shipping at Gazprom Marketing

& Trading Group, based in London. ■

LNG Shipping News

This the last LNG Shipping News of 2017.

We would like to take this opportunity to thank our readers and advertisers and wish

everyone a good holiday and best wishes for 2018.

The next issue of LNG SN will be published on 3rd January, 2018. ■

WORLD LNG CARRIER ORDERBOOK

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Pacific Breeze	Kawasaki	Moss	180000	TFDE	30/11/2017	2013	K-Line
Eduard Toll	DSME	GT NO 96	172410	TFDE - Azipod	01/12/2017	2014	Teekay LNG
Daewoo 2424	DSME	GT NO 96	172410	TFDE - Azipod	01/12/2017	2014	MOL
Bw Tulip	DSME	GT NO 96	173000	MEGI	01/12/2017	2014	BWGas
Bishu Maru	Kawasaki	Moss	164700	TFDE	31/12/2017	2013	K-Line
Kawasaki Sakaide 1731	Kawasaki	Moss	177000	TFDE	01/01/2018	2015	MOL
Castillo De Merida	Imabari	TZ Mk. III	178000	MEGI	01/01/2018	2014	Elcano
CESI Wenzhou	Hudong-Zhonghua	Membrane	174000	TFDE	01/01/2018	2013	China LNG Shipping Holdings
Sk Serenity	Samsung	KC-1	174000	TFDE	01/01/2018	2014	SK Shipping
SK Resolute	Samsung	TZ Mk. III	182000	XDF	01/01/2018	2013	SK Shipping
Pan Americas	Hudong-Zhonghua	GT NO 96	174000	TFDE	01/01/2018	2014	Teekay LNG
Gaslog Houston	Hyundai Heavy	TZ Mk. III	174000	XDF	01/01/2018	2014	GasLog
Patris	DSME	GT NO 96	174000	MEGI	05/01/2018	2014	Chandris
Flex Endeavour	DSME	GT NO 96	172400	MEGI	10/01/2018	2014	Flex LNG
Flex Enterprise	DSME	GT NO 96	172400	MEGI	10/01/2018	2014	Flex LNG
Seri Camar	Hyundai Heavy	Moss	150000	STRH	01/02/2018	2013	MISC
Magdala	DSME	GT NO 96	173400	MEGI	01/02/2018	2014	Teekay LNG
Samsung 2148	Samsung	GTT Mark III Flex	177000	TFDE	01/02/2018	2014	MOL
Gaslog Hong Kong	Hyundai Heavy	TZ Mk. III	174000	XDF	01/02/2018	2014	GasLog
Castillo De Caldelas	Imabari	TZ Mk. III	178000	MEGI	01/03/2018	2014	Elcano
Energy Liberty	Japan Marine United Corp SPB		165000	TFDE	01/03/2018	2014	MOL
Sk Spica	Samsung	KC-1	174000	TFDE	01/03/2018	2014	SK Shipping
Mitsubishi Nagasaki 2316	Mitsubishi H.I.	Moss	153000	STRH	01/03/2018	2014	NYK
Gaslog Genoa	Samsung	TZ Mk. III	174000	XDF	01/03/2018	2014	GasLog
Bw Lilac	DSME	GT NO 96	173000	MEGI	01/03/2018	2014	BWGas
Oceanic Breeze	Mitsubishi H.I.	Moss	155300	STRH	31/03/2018	2013	K-Line
Myrina	DSME	GT NO 96	173400	MEGI	01/04/2018	2014	Teekay LNG
Seri Cemara	Hyundai Heavy	Moss	150000	STRH	01/04/2018	2014	MISC
Daewoo 2441	DSME	GT NO 96	173400	MEGI	01/04/2018	2014	BP
CESI Lianyungang	Hudong-Zhonghua	Membrane	174000	TFDE	01/05/2018	2012	China LNG Shipping Holdings
Samsung 2149	Samsung	GTT Mark III Flex	177000	TFDE	01/05/2018	2014	MOL
Flex Ranger	Samsung	TZ Mk. III	174000	MEGI	01/05/2018	2013	Flex LNG
Kawasaki Sakaide 1734	Kawasaki	Moss	177000	STaGE	01/06/2018	2015	MOL
Kawasaki Sakaide 1720	Kawasaki	Moss	164000	TFDE	01/06/2018	2014	K-Line
Kawasaki Sakaide 1728	Kawasaki	Moss	155000	STRH	01/06/2018	2014	MOL
Diamond Gas Orchid	Mitsubishi H.I.	Moss	165000	STaGE	01/06/2018	2015	NYK
Kawasaki Sakaide 1729	Kawasaki	Moss	155000	STRH	01/06/2018	2014	MOL
Pan Europe	Hudong-Zhonghua	GT NO 96	174000	TFDE	01/06/2018	2014	Teekay LNG
Mitsubishi Nagasaki 2325	Mitsubishi H.I.	Moss	165000	STaGE	01/06/2018	2015	NYK
Mitsubishi Nagasaki 2326	Mitsubishi H.I.	Moss	180000	STaGE	01/06/2018	2015	NYK
Mitsubishi Nagasaki 2327	Mitsubishi H.I.	Moss	180000	STRH	01/06/2018	2015	NYK
Megara	DSME	GT NO 96	173400	MEGI	01/07/2018	2014	Teekay LNG
Flex Rainbow	Samsung	TZ Mk. III	174000	MEGI	25/07/2018	2013	Flex LNG
Jmu Tsu 5071	Japan Marine United Corp SPB		165000	TFDE	31/07/2018	2014	NYK
Rudolf Samoylovich	DSME	GT NO 96	172410	TFDE - Azipod	01/08/2018	2014	Teekay LNG
Samsung 2150	Samsung	GTT Mark III Flex	177000	TFDE	01/08/2018	2014	MOL
Mitsubishi Nagasaki 2323	Mitsubishi H.I.	Moss	180000	STaGE	01/08/2018	2015	MOL
Kawasaki Sakaide 1735	Kawasaki	Moss	177000	STaGE	01/09/2018	2015	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 = 26 October 2017

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
Daewoo 2462 MOL E.On	DSME	GT NO 96	180000	TFDE	01/09/2018	2015	MOL
Daewoo 2426	DSME	GT NO 96	172410	TFDE - Azipod	01/09/2018	2014	MOL
Kinisis	DSME	GT NO 96	173400	MEGI	30/09/2018	2015	Chandris
Daewoo 2442	DSME	GT NO 96	173400	MEGI	01/10/2018	2014	BP
Daewoo 2427	DSME	GT NO 96	172410	TFDE - Azipod	01/10/2018	2014	Dynagas
Daewoo 2443	DSME	GT NO 96	173400	MEGI	01/11/2018	2014	BP
Daewoo 2428	DSME	GT NO 96	172410	TFDE - Azipod	01/11/2018	2014	Dynagas
Jmu Tsu 5073	Japan Marine United Corp SPB		165000	TFDE	30/11/2018	2014	MOL
Mitsubishi Nagasaki 2321	Mitsubishi H.I.	Moss	177000	STaGE	01/12/2018	2015	NYK
Daewoo 2429	DSME	GT NO 96	172410	TFDE - Azipod	01/12/2018	2014	Dynagas
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
Maran Gas Chios	DSME	GT NO 96	173400	MEGI	01/01/2019	2015	Maran Gas Maritime
Pan Africa	Hudong-Zhonghua	GT NO 96	174000	TFDE	01/01/2019	2014	Teekay LNG
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
Samsung 2131	Samsung	TZ Mk. III	174000	XDF	01/01/2019	2014	GasLog
Hyundai Samho S857	Hyundai Heavy	TZ Mk. III	174000	MEGI	01/01/2019	2015	Teekay LNG
Hyundai Ulsan 2937	Hyundai Heavy	GTT Mark III Flex	180000	XDF	01/02/2019	2016	SK Shipping
Daewoo 2445	DSME	GT NO 96	173400	MEGI	01/02/2019	2014	BP
Daewoo 2489	DSME	GT NO 96	173400	MEGI	01/02/2019	2015	BWGas
Mitsubishi Nagasaki 2332	Mitsubishi H.I.		165000	STaGE	01/02/2019	2015	Mitsubishi
Daewoo 2446	DSME	GT NO 96	173400	MEGI	01/03/2019	2014	BP
Jmu Tsu 5072	Japan Marine United Corp SPB		165000	TFDE	31/03/2019	2014	MOL
Hyundai Ulsan 2938	Hyundai Heavy	GTT Mark III Flex	180000	XDF	01/04/2019	2016	SK Shipping
Maran Gas Syros	DSME	GT NO 96	173400	MEGI	01/04/2019	2014	Maran Gas Maritime
Hyundai Ulsan 2964	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	01/05/2019	2017	Knutzen
Mitsubishi Nagasaki 2322	Mitsubishi H.I.	Moss	177000	STaGE	01/06/2019	2015	MOL
Samsung 2212	Samsung	GTT Mark V	180000	XDF	01/06/2019	2016	GasLog
Flex Constellation	DSME	GT NO 96	173400	MEGI	01/06/2019	2017	John Fredriksen
Hyundai Ulsan 2963	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	01/06/2019	2017	Knutzen
Daewoo 2430	DSME	GT NO 96	172410	TFDE - Azipod	01/07/2019	2014	Teekay LNG
MOL Hudong-Zhonghua 1/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/07/2019	2017	MOL
Daewoo 2431	DSME	GT NO 96	172410	TFDE - Azipod	01/08/2019	2014	Teekay LNG
Flex Courageous	DSME	GT NO 96	173400	MEGI	01/08/2019	2017	John Fredriksen
Daewoo 2432	DSME	GT NO 96	172410	TFDE - Azipod	01/09/2019	2014	MOL
Samsung 2213	Samsung	GTT Mark V	180000	XDF	01/09/2019	2016	GasLog
Daewoo 2466	DSME	GT NO 96	173400	MEGI	01/10/2019	2016	Maran Gas Maritime
Daewoo 2433	DSME	GT NO 96	172410	TFDE - Azipod	01/10/2019	2014	Teekay LNG
MOL Hudong-Zhonghua 2/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/10/2019	2017	MOL
Daewoo 2467	DSME	GT NO 96	173400	MEGI	01/11/2019	2016	Maran Gas Maritime
Daewoo 2434	DSME	GT NO 96	172410	TFDE - Azipod	01/11/2019	2014	Teekay LNG
Imabari Saijo 8200	Imabari	GTT Mark III Flex	178000	MEGI	01/01/2020	2015	K-Line
MOL Hudong-Zhonghua 3/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/01/2020	2017	MOL
MOL Hudong-Zhonghua 4/4	Hudong-Zhonghua	GT NO 96	174000	MEGI	01/04/2020	2017	MOL

WORLD SMALL SCALE LNG FLEET*

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu / Lucia Ambition	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1998	Aman Hakata	18,800	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
2000	Tripura (ex Surya Satsuma)	23,096	LNG	Indonesia - Japan	Yes	MCGC
2003	Pioneer Knutsen	1,100	LNG	Norway	Yes	Knutsen
2003	Shinju Maru No.1	2,540	LNG	Japan	Yes	Shinwa
2005	North Pioneer	2,500	LNG	Japan	Yes	Japan Liquid Gas
2007	Sun Arrows	19,531	LNG	Malaysia - Russia - Japan	Yes	Mitsui
2008	Kakurei Maru	2,536	LNG	Japan	Yes	Hogaki Zosen
2008	Shinju Maru No.2	2,540	LNG	Japan	Yes	Shinwa
2009	Coral Methane	7,551	LNG/LPG/Ethylene	Northwest Europe/Baltics	Yes, sometimes	Anthony Veder
2010	Norgas Creation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2010	Norgas Innovation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
2011	Norgas Bahrain Vision	12,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
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	Norgas Unikum	12,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2014	LNG-Oil combi**	2,000	LNG	Germany	Yes	Veka
2014	Short Sea LNG Tanker **	4,000	LNG	Germany	Yes	Veka
2015	10 small carriers TBN**	5,000	LNG			Bimantara Group
2015	Jahre TBN**	6,200	LNG	Norway	Yes	Donsotank/Jahre Marine
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	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
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 Inland bunker**	800	LNG	Germany	Yes	Veka
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	PetroChina TBN	30,000	LNG	China		PetroChina
2015	TBN	14,000	LNG	China	Yes	Zhejiang Huaxiang
2015	TBN 1	27,500	LNG	China?		Danyang?
2015	TBN 2	27,500	LNG	China?		Danyang?
2015	TBN 3	27,500	LNG	China?		Danyang?
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	Dalian TBN	28,000	LNG	China	Yes	Dalian Inteh Group
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
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	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
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 = 9th November 2017

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	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2017	Yuan He 1	30,000	LNG	China	Yes	CSR
2017	ENGIE Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	Coral EnergICE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	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	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	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	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	Shell Bunker Barge TBN 4	3,000	LNG	Northwest Europe	Yes	Shell
2018	Bernhard Schulte TBN	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	CME TBN†	2,200	LNG	US Coast	Yes	CME
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
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	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Shell Bunker Barge	4,000	LNG	US Coast	Yes	Q-LNG Transport / Harvey Gulf
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas

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