

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

4 January 2018

India scraps plan to build LNGCs in local yards

The Indian Government has abandoned plans to build LNGCs in domestic shipyards.

This about turn comes after GAIL (India) said it no longer wanted to charter nine new LNGCs for up to 19 years, due to the potential change in natural gas sourcing from the US, local sources said.

GAIL reportedly told a Government-backed review meeting last month that it had already swapped small quantities of LNG and was in the process of swapping larger quantities of expensive US LNG with other sellers.

Under this arrangement, GAIL would sell a large percentage of the US LNG to buyers who would become responsible for shipping the cargo. In turn, GAIL would buy similar quantities from other suppliers, such as Qatar, who would ship the cargo, the Hindu Business Line reported.

"GAIL told the meeting that it



Cochin Shipyard has lost the opportunity to build LNGCs

won't need such large number of LNG ships estimated initially, as it would not be in a position to employ them, due to swapping of cargoes," a Shipping Ministry official reportedly said.

GAIL has chartered one LNGC for three years, which was due to start lifting cargoes from 1st January, 2018.

A technology transfer agreement signed between Samsung Heavy Industries and state-run Cochin Shipyard ended on 31st December. Cochin Shipyard had also secured a licence from GTT to use

its patented Mark-III LNG containment systems.

The high cost of building LNGCs in India and the prospect of having to extend Government counter-guarantees to the project had led to a rift within India's policy managers on the viability of the project. It was estimated that Indian built LNGCs would cost around \$100 mill more than elsewhere to build.

GAIL also wanted Samsung to guarantee the quality of LNGCs built locally, the Indian media outlet reported.

Giant Marseille repair dock re-enters service

On 4th December, 2017, the largest drydock in the Mediterranean was re-inaugurated.

The giant drydock No 10 at Marseille was originally built to handle ULCCs and large offshore structures.

Operated by Chantiers Naval de Marseille, part of Genoa-based San Giorgio del Porto group, this is the largest of three drydocks located within the port area and is being marketed to LNGC operators, plus other ship types.

LNGCs call at nearby Fos,

where there are two gas receiving terminals.

"With this inauguration, we officially kick start a new development phase for our business and for the city of Marseille. When San Giorgio del Porto arrived here in July, 2010, we took over an area that had largely suffered from the crisis, but thanks to our determination and to the vision of the Port and the local authorities, we have relaunched the shiprepair industry in Marseille. Now we can work to consolidate and further

develop our activities as we can finally exploit the full potential of these infrastructures, turning Chantier Naval de Marseille into a key logistical hub for all kind of vessels," said Ferdinando Garrè, CEO of San Giorgio del Porto. "This is a moment of great joy and pride for me and for San Giorgio del Porto as a whole as we become one of the key players of the economic relaunch of the port of Marseille."

The dock measures 465 m in length and is 85 m wide.

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First LNGC arrives at Cove Point

US Dominion Energy's Cove Point LNG export terminal in Maryland received its first LNGC during the middle of December.

US Coast Guard inspectors boarded the 'Maran Gas Delphi' as the vessel was being moored at the facility on 14th December.

Data from cFlow, Platts trade flow software, showed the LNGC was fully laden and its last destination was reported to be Nigeria.

It was thought that the cargo arrived to cool down the land side tanks with LNG before they begin commissioning cargoes. Shell is scheduled to take Dominion's commissioning cargoes.

Dominion, which is set to become the second US exporter of LNG produced from shale gas after Cheniere, did not confirm where Shell plans to export the first cargo.

Cove Point has long-term ser-



In mid-December, Dominion's Cove point terminal welcomed its first LNGC

vice agreements with GAIL India and ST Cove Point, which is a joint venture between Japan's Sumitomo and Tokyo Gas, to supply LNG produced from the facility.

Since those agreements cover substantially all of the LNG capacity from the facility, Dominion said that it was not likely to ship spot cargoes, unlike Cheniere. ■

Dynagas in LNGC charter extensions

Dynagas LNG Partners has negotiated charter extensions for two LNGCs.

The company said that it had entered into a further three-year charter agreement with Statoil to employ the 2013-built 'Arctic Aurora'.

The 155,000 cu m, tri-fuel diesel engine, Ice Class LNGC has



Dynagas has extended the charters of two LNGCs, which included the 'Clean Energy'

been on charter to the Norwegian energy giant since 2013.

Dynagas said that the extended charter was expected to commence in the third quarter of 2018 in direct continuation. Statoil will have the option to extend the new charter by two consecutive 12-month periods at escalating rates.

In addition, PetroChina International (Singapore) has extended the current charter period of the 'Clean Energy' by a minimum period of about four months.

The 2007-built, 150,000 cu m LNGC was delivered to PetroChina in October last year.

She is now expected to be redelivered to Dynagas at the earliest, in May, 2018 and at latest, in June, 2018, prior to her delivery

to Gazprom Marketing & Trading Singapore in July, 2018, under a period charter, which is due to run for about eight years.

The extension of these two charters increases the partnership's estimated contracted backlog to around \$1.51 bill with average remaining contract duration of about 10.6 years, Dynagas said.

"Statoil is an important partner for Dynagas that further solidifies our operation of LNG carriers in subzero and ice bound areas. The charter with PetroChina strengthens an important cooperation that provides cleaner energy in a rapidly growing Chinese gas market," Tony Lauritzen, CEO of Dynagas LNG, commented. "As

Qatargas signs OMV LNG supply deal

Qatargas has signed a sale and purchase agreement (SPA) to deliver up to 1.1 mill tonnes of LNG per year to Austrian-based OMV Gas Marketing & Trading (OMV) for a period of five years.

Under the deal, which is due to commence in January, 2019, LNG will be supplied from Qatar Liquefied Gas Company Limited (4) (Qatargas 4), a joint venture between Qatar Petroleum and Shell.

The gas will be delivered to the Gate LNG Terminal at Rotterdam using Qatargas' chartered LNGCs, Qatargas said.

"We are very pleased to announce this new deal with OMV. OMV provides major European customers and distributors with tailored natural gas solutions, and we look forward to supplying them with Qatari LNG," Saad Sherida Al-Kaabi, President and CEO of Qatar Petroleum and Chairman of the Qatargas Board of Directors, commented.

"The agreement is in line with OMV's gas strategy to ensure security of supply for Europe and it supports our efforts to employ our LNG infrastructure, including the GATE terminal in Rotterdam," Manfred Leitner, OMV Executive Board member responsible for Downstream, said. ■

previously communicated we have been executing on our strategy of securing term employment for part of our availability in 2018 on the back of an improving LNG shipping market." ■

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FLEX LNG wins charter for first newbuilding

FLEX LNG has signed a timecharter contract for the newbuilding, 'FLEX Endeavour', with German-based Uniper Global Commodities.

'FLEX Endeavour' is currently nearing completion at Daewoo and is a 173,400 cu m capacity LNGC equipped with the new high efficiency MEGI propulsion system.

The timecharter period is for 15 - 18 months commencing immediately upon the vessel's delivery from the shipyard this month. This agreement formalises the arrangement that was agreed for the extension of the chartered-in vessel

from April, 2018 and brings forward the delivery date to coincide with the handing over of the vessel.

In addition, the company has fulfilled the closing conditions for the term loan facility for the first three LNGC newbuildings and will use the loan in connection with the deliveries of these vessels.

CEO Jonathan Cook, commented: "We are pleased to have

secured a timecharter contract ex-yard with a first class charterer for our first newbuilding. The deal will provide FLEX LNG with full utilisation of the vessel from day one without idle time or costs normally associated with the maiden voyage for a newbuild LNG carrier. The charter period is in line with our chartering strategy and brings increased earnings visibility for 2018."

EXMAR sells share of four FSRUs

Excelerate Energy has acquired the 50% shares held by EXMAR in four companies - Excelerate NV, Explorer NV, Express NV and Excelsior BVBA, owners of the respective FSRUs registered under the same names.

All four FSRUs were under a long-term timecharter to Excelerate Energy.

The first three companies transactions were completed last year and the proceeds were used to pay back the outstanding third party loans, with a balance paid on EXMAR's account.

The sale of EXMAR's shares in the fourth company, Excelsior BVBA, was subject to approval by the other joint venture partner, Teekay LNG, and the lenders to the company at the middle of December.

By finalising this transaction, Excelerate Energy said that it further consolidated its leading position in the FSRU market and optimises its asset portfolio, while EXMAR's debt position was significantly reduced and as a result, is now fully geared for further growth.

This transaction will generate around \$100 mill of cash after debt repayment and a profit of about \$90 mill for EXMAR.

EXMAR Shipmanagement, a 100% affiliate of EXMAR, will continue to perform shipmanagement services for the nine FSRUs owned by Excelerate Energy.

Nicolas Saverys, EXMAR CEO said: "It has been a true honour and a pleasure to collaborate with Excelerate Energy over the past 15 years as joint pioneers in the FSRU market and we wish Excelerate Energy all the best in their further development. With this capital reallocation EXMAR will be perfectly positioned to further focus on re-gasification barges, shipping and offshore."

George Kaiser, majority owner of Excelerate Energy, added: "We are pleased through this transaction to increase and enhance our

investment in Excelerate Energy and its floating LNG regasification business, as we continue to see great opportunities in the coming years. We appreciate our long-term relationship with EXMAR and wish them the best of success in their continuing endeavours."

FSRU barge delivered

In another move, EXMAR has taken delivery of the world's first barge-based floating LNG storage and re-gasification unit (FSRU) from the Wison Shipyard in Nantong.

The unit has a re-gasification capacity of up to 600 mill cu ft per day and a storage capacity of 26,000 cu m of LNG.

In addition, EXMAR has secured long-term employment for the FSRU with a reputable counterpart and hire will start from mid-2018 onwards. The company said it will give further details regarding this contract in the near future in co-ordination with the customer.

Nicolas Saverys, EXMAR CEO, said: "The delivery of the FSRU is a testimony of EXMAR's commitment to continuously improve the solutions we offer to the LNG supply chain industry. I am very pleased and honoured that long-term employment for the FSRU was secured prior to delivery."

EU invests in Croatian terminal

The EU is to invest €101.4 mill in the construction of an LNG terminal in Krk, Croatia.

A grant agreement under the Connecting Europe Facility (CEF) was signed at the Energy Council on 18th December, which will contribute to the terminal's overall estimated cost of €383.6 mill.

The construction of the LNG terminal, which will initially operate as an FSRU with an annual capacity of at least 2 bill cu m, will increase the security of gas supply in Central and Southeastern Europe.

In September, 2017, the project developer, LNG Croatia, called for bids for the supply of an FSRU, as well as for the design and construction of jetty, connecting gas pipeline and high-pressure installations for the unit.

NEWS NUDGE

Maran Gas returns to DSME

Maran Gas Maritime has placed orders for an FSRU and an LNGC at Daewoo Shipbuilding & Marine Engineering (DSME), firming up options.

In a regulatory filing, DSME said the contracts were worth a combined Won430.5 bill (abt \$395 mill).

Maran Gas parent, the Angelicoussis Shipping Group, has placed orders at DSME to build nine ships last year alone, equivalent to 36% of its order book for the year.

KPC in Shell deal

Kuwait Petroleum Corp (KPC) has signed a 15-year LNG import deal with Shell.

The sales purchasing agreement with Shell International Trading Middle East Ltd will start in 2020.

The contract will cover 2-3 mill tonnes of LNG per year.



EXMAR has sold its interests in four FSRUs to Excelerate Energy

Teekay LNG secures long term financing

Teekay LNG Partners has completed an \$816 mill long-term debt facility to finance all six of the Partnership's 50% owned Arc7 LNGC newbuildings.

The debt facility was negotiated based on Teekay's 50% ownership of the six LNGCs.

The first vessel is scheduled to be delivered in January, 2018, and the remaining vessels through to early-2020. These newbuildings will service the Yamal LNG project under charter to 2045, plus option periods.

"Together with our joint venture partner, China LNG Shipping, we are pleased to announce this significant project milestone for our Arc7 LNG carrier newbuildings for the Yamal LNG project, which

has successfully commenced producing LNG at the first train and recently completed its first LNG cargo loading," commented Brody Speers, Teekay Gas Group CFO.

"With the long-term financing for all six of our 50% owned Arc7 vessels now in place, we look forward to the expected delivery and charter contract commencement of our first Arc7 LNG carrier newbuilding in January, 2018.

"With the completion of this Arc7 financing, the Partnership has now completed \$2.2 bill in debt financing for our newbuild-

ings in the past 12 months and has financed 14 of its remaining 15 LNG carrier newbuildings, which includes one floating storage unit," he said.

WFW advice

International law firm Watson Farley & Williams (WFW) said it had advised Teekay LNG Partners and its joint venture partner China LNG Shipping (Holdings) Limited (CLNG) on the \$1.6 bill long-term financing for the construction of the six Arc7s.

The WFW project team was led

by Partner David Osborne assisted by Senior Associate Patrick Smith and Associate Natalia Golovataya.

Osborne commented: "We are very pleased to have assisted our valued client Teekay LNG and their joint venture partner China LNG in concluding this financing for these Arc7 LNG carrier newbuildings".

WFW Chairman, Nigel Thomas, added: "Over the past 12 months, WFW is delighted to have advised Teekay LNG on around \$2.2 bill in debt financings for its various LNG carrier growth projects." ■

ME-GI/ME-LGI DF engines reach 100,000 operating hours

MAN Diesel & Turbo (MDT) has announced that its low-speed ME-GI (gas injection) and ME-LGI (liquid gas injection) dual-fuel engines have registered a cumulative total of 100,000 operating hours.

Teekay Gas, a daughter company of Teekay Corp, has ordered the largest number of ME-GI engines with eight on board four of its LNGCs, with further ME-GI orders imminent. Teekay's ME-GI engines have operated 80% of the time on LNG.

Teekay was an early adopter of the ME-GI concept and originally began looking into dual-fuel technology through its Vancouver-based strategic development department in November, 2012.

Graham Cattley - Technical Manager, Projects, Teekay Gas - attended the annual ME-GI operators' forum, hosted in November, last year by MDT's low speed business unit in Copenhagen.

He said: "The biggest benefit really is the economics of the vessel; it's got a very low fuel consumption compared to rival propulsion designs and it also meets emissions regulations when we're burning gas, as well as fuel oil. With the ME-GI, we also avoid the problem of methane slip, so we are very well placed for any future emission regulations."

Teekay's experience has been that the ME-GI operates just as well on gas as it does on fuel oil

and the company hasn't encountered any major differences between the fuels when in heavy weather, nor experienced any issues with different gas qualities, combustion, or knocking.

Early adopter

Cattley also addressed the question of being an early adopter of the ME-GI, and said: "When the first ship came into service, obviously there were teething issues. There's always a risk involved with new technology but we also knew that MAN Diesel & Turbo was the furthest on with the design and development of these engines so

it gave us confidence."

He praised the technical support that Teekay has received from MDT since inception and commented on the subsequent amount of innovation and changes to the engine, which has continued to evolve since coming into service.

As an example, Cattley cited MDT's engineers retuning the ME-GI's fuel boosters and the resultant reduction in pilot-fuel consumption of at least one tonne per day.

Cattley concluded: "It's been a very exciting time with the ME-GI and there's been a lot of knowledge learnt as well. You've got to take a risk to be a leader in the

market and we wanted the vessels with the best fuel consumption. We felt the ME-GI was the right choice at the time."

Teekay recently entered into a long-term EMC (engine management concept) agreement with MAN PrimeServ - MDT's after-sales division. This covers ME-GI engine maintenance on board Teekay's 173,400 cu m LNGC series, 'Oak Spirit', 'Creole Spirit' and 'Torben Spirit'.

The agreement covers the provision of spare-parts, maintenance management and the servicing of each vessel's two 5G70ME-GI dual-fuel main engines. ■



MAN PrimeServ has signed up three Teekay LNGCs

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NEWS NUDGE

Teekay LNG Partners declares distributions

Teekay GP LLC, the general partner of Teekay LNG Partners, has declared cash distributions of \$0.5625 per unit on the Partnership's Series A preferred units.

This cash distribution is from 1st October, 2017 to 31st December, 2017.

In addition, a cash distribution of \$0.40139 per unit was agreed for the Partnership's Series B preferred units for 23rd October, 2017 to 31st December, 2017.

The cash distributions are payable on 15th January, 2018 to all unit holders of record as at 29th December, 2017.

'LNG Sakura' named at Kawasaki's Sakaide shipyard

Kawasaki Heavy Industries held a naming ceremony last month for a new LNGC, jointly owned by NYK and Kansai Electric Power Co (KEPCO).

She was named 'LNG Sakura' and is the first vessel to be co-owned by KEPCO, which is the majority owner of the vessel with 70% stake, and NYK, which holds the remaining 30% ownership in the ship.

Once delivered, the ship will transport LNG sourced from North America and various other locations, as part of a 20-year charter agreement.

The Bahamas-flagged ship is fitted with a moss-type tank, which is claimed to be the largest in the industry, having a capacity of about 177,000 cu m.

In addition, the 300 m long ship is equipped with a new twin-screw and a dual-fuel diesel electric propulsion unit that is claimed to improve fuel consumption and propulsion performance.

GTT to design LNGC newbuildings tanks

GTT has received an order from a South Korean shipyard to design the LNG containment tanks of three new 174,000 cu m LNGC newbuildings.

The deliveries are due in the first semester of 2020.

The tanks will be equipped with the membrane containment system Mark III Flex. This insulation system guarantees a boil-off rate of 0.085%V per day.

This system has already been fitted on 48 LNGCs in service thus far.

GTT said that the shipowner and shipyard would not be disclosed for now.

Service agreement

Earlier, GTT announced it had signed a five-year master service agreement with Chevron Transport Corp under which GTT will support Chevron's maintenance and opera-

tion of 10 LNGCs equipped with the Mark III and NO96 technologies.

This agreement includes GTT on-site technical assistance for inspection, maintenance and repairs, provision of TAMIIM (thermal assessment of membrane integrity) tests, GTT support in training and workshops with Chevron crews and superintendents, as well as access to the HEARS hotline.

HEARS is an emergency hotline, which enables shipowners and their crews to contact GTT's experts 24/7 to respond to operational queries.

For several years, GTT has enlarged its range of services to

support the operations of LNGCs, FLNGs, FSRUs and other LNG-related structures in order to shorten drydocking time, assist crews and assure operational efficiency, and is now accelerating its 'Smart shipping' solutions development with its acquisition of Ascenz.

GTT acquired 75% of the share capital of Ascenz from Chia Yoong Hui and Sia Teck Chong, its two founders, and from several investment funds.

Based in Singapore and specialising in 'smart shipping', the company employs around 40 people and designs operational monitoring and performance optimisation systems for vessels. ■

LR supports LNGC project

At last month's Marintec the results were announced of a joint development project (JDP) between China Merchants Heavy Industry (CMHI), GTT, Gabadi, Shanghai Merchant Ship Design Research Institute (SDARI) and Lloyd's Register (LR) to build LNGCs.

The initial goal of the JDP was for CMHI to develop an 80,000 cu m LNGC design, and to develop and then verify the capability to build a ship with GTT membrane tank technology.

After receiving encouraging results from the first phases of the JDP, the scope was extended to include the development of a 175,000 cu m LNGC design.

At Marintec, LR presented an approval in principle (AiP) for both designs.

Whereas typical JDP projects focus on solely developing designs, a unique feature of this JDP is that the scope of collaboration included both design and construction aspects, LR said.

At the request of the project partners, LR also undertook an assessment of the capability of CMHI, working together with GTT licensee Gabadi, to build LNGCs using GTT membrane tanks.

This assessment covered several

areas of LNG ship construction, including fabrication, design, project management, procurement, and importantly, the proposed interface between Gabadi and CMHI for the outfitting of the GTT tanks.

LR's findings are now being used by the project partners as a road map for further development of their capabilities.

Gap analysis

Based on the encouraging results of the LNGC construction assessment, CMHI and LR conducted a gap analysis of CMHI's welding & NDE practices and quality for all ship types. As per the LNG assessment, the results were claimed to be very encouraging and CMHI satisfied all 23 assessment criteria specified by LR within the gap analysis.

Ralph Wang CMHI LNG Technology head, commented: "Over the last five years in building up resources, technology, design, train-

ing facilities and in joint co-operation with strategic partners to develop new designs for LNG carriers. CMHI is now ready and capable for construction of LNG newbuild vessels."

Jose Navarro, LR Marine & Offshore Principal Gas Technology Specialist, added: "During the LNG carrier diagnosis assessment carried out by LR principal specialists, CMHI staff demonstrated their commitment and capabilities for the successful completion of LNG carriers."

"The results of the shipyard assessment were satisfactory and the LR specialists did not identify any major hurdle or barrier for CMHI to proceed with the construction of a large size membrane LNG carrier (about 180,000 cu m) considering the expected EPC support of the GTT licensed outfitter Gabadi and under the assistance of a well experienced classification society in such vessel type." ■

A step closer to ballast-free LNGCs

GTT and Dalian Shipbuilding Industry (DSIC) have received approval in principle (AiP) from Lloyd's Register (LR) for their 30,000 cu m B-FREE (ballast free) LNGC design.

The award was given at a ceremony held at last month's Marintec exhibition.

The innovative design is claimed to have several advantages over conventional designs (based on Type C cargo tanks and using ballast), combining environmentally-friendly features with increased efficiency, as well as predicted lower build and operating costs.

Savings in build cost are expected through the avoidance of fitting a ballast water treatment system (BWTS) and not having to comply with the Performance Standard for Protective Coatings (PSPC) for ballast tanks, ballast piping, pumps and valves.

Operational savings should also accrue from not having to, for example, run and maintain a BWTS, ballast systems and maintain ballast tank coatings. Initial predictions also show lower fuel consumption compared to 'standard' designs as well as lower LNG boil-off, due to the GTT membrane, compared to a Type C tank.

Ma Yingbin, DSIC's Vice Chief Engineer, commented: "While we are still in the initial stage of the project and the design is subject to ongoing change, the initial results are indicating that we will meet our goal of having a ballast-free ship that is equal to, or better than existing conventional designs.

"The cumulative improvements in operating costs coming from the combination of the various innovations and new ideas applied to the design are better than we anticipated, although we should be mindful that this is only the preliminary results phase and we need phase two to further refine and validate the design, we are hopeful this will result in more efficient small-scale LNG carriers.

"Interest received from owners and operators so far has exceeded our expectations. We have been consulting some experienced owners for their thoughts and feedback," he said.

David Colson, GTT's Commercial Vice President, said: "The bal-

last-free was an old idea that GTT had in mind several years ago and we are excited to see it now materialised in a conceptual design thanks to the excellent work from DSIC R&D institute and the very strong support and advice of LR. The good teamwork between the three parties in China enabled us to move forward with the design to this stage.

"The first results show that this ballast-free design has also introduced complimentary advantages such as a reduction in the number of cargo tanks, handling equipment, engine power, and more. We are excited to move forward with the next phase," he concluded. ■

NEWS NUDGE

Wison granted DNV GL AiP

Wison Offshore & Marine has received an approval in principle (AiP) from classification society DNV GL for its LNG Distributor (LNGD) design.

This AiP was granted upon the validation of LNGD design with a specification of 10,000 cu m storage capacity.

Wison LNGD is a multifunctional LNG distribution project, designed to deliver small LNG parcels to multiple locations. It is intended for applications in milk run type and regional LNG hub distribution projects.

New Wheatstone LNGC named

On 13th December, a naming ceremony was held at the Nagasaki yard of Mitsubishi Heavy Industries for a new LNGC ordered by NYK.

She was named 'Pacific Mimosas', and will ship LNG for JERA from Chevron's Wheatstone LNG project in Australia.

The order was placed in 2014

to MI LNG, a joint venture of Mitsubishi Heavy Industries and Imabari Shipbuilding.

The 288 m long vessel's delivery is expected in March, 2018. LNG Marine Transport, set up by JERA (70%), Mitsubishi Corp (15%), and NYK (15%), will jointly operate the vessel.

Kawasaki delivers LNGC to K Line

Japanese shipbuilder Kawasaki Heavy Industries has delivered the 164,700 cu m 'Bishu Maru' to Kawasaki Kisen Kaisha (K Line).

'Bishu Maru' is the second LNGC developed by the shipbuilder to transit the expanded Panama Canal.

Featuring four LNG tanks, the ship is 293 m long and 48.9 m wide.



K Line has taken delivery of the 'Bishu Maru'

"By increasing the size of the cargo tank and increasing the load of LNG while maintaining the hull size of conventional ships that can enter the world's major LNG terminals, it is possible to reduce LNG transportation costs," the shipbuilder said in a statement.

In 2015, K Line said that the new LNG would ship gas from Australia to Japan.

First LNGC arrives at Soma

MISC's 137,000 cu m LNGC 'Puteri Intan Satu' arrived at the Japan Petroleum Export (JAPEX) owned Soma LNG terminal at Fukushima Prefecture last month.

She brought the first LNG cargo to the terminal, comprising 60,000 tonnes from Malaysia.

The Soma LNG terminal is a large scale gas terminal, comprised of a 100,000 tonne capacity LNG storage tank, two berths for ocean-going and domestic vessels, LNG vaporisation equipment, and loading facilities for tank trucks.

Commissioning of the terminal took effect from 1st December, 2017 and full commencement of operations is scheduled for

March, 2018.

Using the LNG delivered by 'Puteri Intan Satu', JAPEX started the commissioning of the terminal.

GasLog orders another LNGC

GasLog Ltd has ordered a 180,000 cu m vessel from Samsung HI for an estimated \$197 mill.

The LNGC will be fitted with an XDF propulsion unit and is scheduled for delivery in the third quarter of 2019. She is currently unchartered but its early delivery means that it is expected to enter a strong LNG shipping market, the company said.

CEO Paul Wogan, commented, "I am very pleased to announce this expansion in our fleet. We have secured this vessel at a very attractive cost and she will be equipped with the latest propulsion and cargo containment technology, which will result in highly competitive unit freight costs.

"The vessel is expected to deliver into a strong LNG shipping market which, according to our estimates, will be short of capacity by the winter of 2019/2020," he added.

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
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
Daewoo 2462 MOL E.On	DSME	GT NO 96	180000	TFDE	01/09/2018	2015	MOL

Name	Yard	Containment System	Capacity	Propulsion	Delivery Date	Ordered	Primary Owner
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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