

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

25 May 2017

Structural versus spot availability

On the back of global LNG trade growth, shipping activity has picked up, illustrated by many spot and term tenders continuing to circulate on the market, a leading broking house claimed.

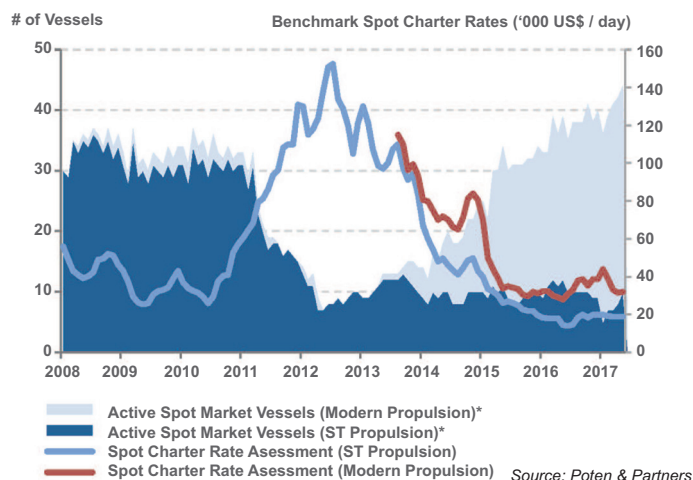
So why do headline spot charter rates remain at historical lows? In an industry note, Poten & Partners said that the obvious answer was vessel overcapacity. However, a more detailed study of vessel make-up can provide clues to a market recovery.

Poten considered two types of vessel availability - structural and spot. Structurally available vessels are described as those considered available for term employment, not including 24 LNGCs in layup, which is projected to grow to 55 by the end of this year as existing charters come to an end.

As the name suggests, spot vessel availability looks at the number of LNGCs in the spot market, either employed or seeking employment. Unlike the structural availability, Poten's assessment of spot market availability includes vessels that are relet by their commercial operators and is a better indicator of headline spot charter rates.

As the number of spot market vessels grew from 37 to 46 since the beginning of this year to early May, largely due to LNGCs coming off term charters, spot charter rates remained low.

Looking at the possibility of spot rates firming, Poten said that there were two important considerations on how the spot market supply is estimated. These are -



Active Spot Market Vessels vs Headline Spot Charter Rates

*First, active spot market vessels include those that are either idle or committed to a spot charter.

*Second, the association between spot LNGC rates and vessel supply includes a two-month lag period. Spot charter rates are not based on current vessel supply during a current week, but on market sentiment where vessel supply may be one or two months ahead. Thus, the current spot market rate fall is mainly due to an expectation of future vessel growth.

Changing market

Using structural availability as a guide for future spot vessel availability, spot charter rates could remain low through the rest of this year, however, there are several signs of a changing market, Poten said.

If charterers rush back to term fixing, existing LNGCs vessels will be pulled out of the spot market and thus rates should rise. There is already some evidence of this occurring. During the past few years, more than eight term shipping requirements by charterers have been reduced and delayed on the assumption of continued vessel availability.

If global LNG trade continues to grow, charterers may quickly reverse their strategies. Assuming a 1.3 times shipping demand multiplier, global LNG trade of a predicted 296 mill tonnes per year implies a demand for 385 LNGCs, compared to a conventional LNGC fleet of 405 vessels, which is not a comfortable surplus margin for most charterers, Poten concluded.

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Fujairah plans LNG ship-to-ship transfers

The Port of Fujairah is aiming to introduce LNG ship-to-ship transfers, trading and operations, according to a report by Platts.

Port of Fujairah General Manager Mousa Murad told S&P

Global Platts: "We are working on regulations, safety procedures and towage for this [LNG ship-to-ship transfer] operation.

"As far as energy to the country (UAE) is concerned, we will

liaise with Emirates LNG ...

second option is that we will liaise with private players for LNG trading and bunkering activities," said Murad, without elaborating further.

Teekay LNG results in line with expectations

Teekay LNG Partners has reported GAAP net income attributable to the partners and preferred unitholders of \$29.1 mill and adjusted net income of \$21.1 mill for the first quarter of 2017.

This compares to \$84.4 mill and \$29 mill in 4Q16, respectively.

The Teekay Parent daughter company generated distributable cash flow of \$43.2 mill, or \$0.54 per common unit, in 1Q17, compared to \$50.2 mill in 4Q16 and \$54.4 mill in 1Q16.

Voyage revenues for 1Q17 were \$101.2 mill, compared with \$100.8 mill in 4Q16 and \$95.8 mill in 1Q16.

"During the first quarter, the Partnership's results were in-line with our expectations," said Mark Kremin, President and CEO of Teekay Gas Group Ltd. "This included a one-month contribution from the delivery of our third MEGI LNG carrier newbuilding, the 'Torben Spirit', named after Teekay's late-founder, J Torben Karlshøj, which commenced its charter contract in early-March 2017.

"Since reporting earnings in February, 2017, we continued to execute on our portfolio of committed growth projects and opportunistically acquired a mid-size LPG carrier newbuilding through our 50%-owned Exmar LPG joint venture. In addition, we have now completed or are nearing completion of financing for all the Partnership's committed growth projects delivering through mid-2018 with the recent progress on approximately \$640 mill in new long-term financings. We expect to secure the remainder of the required long-term financings for the Partnership's committed growth projects



Recently delivered LNGC 'Torben Spirit'

within the second half of 2017," he concluded.

In the Partnership's LNGC segment, In April and May 2017, it completed around \$355 mill in new long-term financings for its committed growth projects, including: (i) a \$175 mill sale-leaseback transaction for one of the Partnership's MEGI LNGC newbuildings scheduled to deliver in 2017, and (ii) a \$180 mill sale-leaseback transaction for one of its MEGI LNGC newbuildings scheduled to deliver in 2018.

Leaseback

Furthermore, it is nearing completion on a \$285 million sale-leaseback transaction for two of the Partnership's 50%-owned ARC7 Ice-Class LNGC newbuildings for the Yamal LNG project, which are scheduled to deliver in 2018.

In March 2017, the 52%-owned

joint venture with Marubeni Corp (MALT LNG Joint Venture) completed a refinancing of four LNGCs with a new \$335 mill debt facility.

In May, 2017, the MALT LNG Joint Venture signed an 18-month charter contract (plus one-year extension option) with a major Japanese utility company, commencing in 4Q18. This charter contract will be serviced by one of the MALT LNG Joint Venture's existing vessels currently trading in the short-term market.

In April, 2017, the Partnership commenced charter extension and deferral negotiations with Awilco LNG (see page 4) regarding two modern LNGCs chartered to Awilco LNG, which include purchase obligations allowing Awilco to acquire the vessels in November, 2017 and September, 2018. These negotiations are expected to conclude in 2Q17. ■

GAC Qatar opens at Ras Laffan

GAC Qatar has set up an office at the world's largest LNG export port - Ras Laffan.

It now claims to be one of the few companies offering full agency services at the port, which is operated and managed by Qatar Petroleum.

Previously, GAC handled operations at Ras Laffan in an OPA (owners' protecting agency) capacity.

"The Port of Ras Laffan receives nearly 1,200 port calls from LNG, LPG and hydrocarbon-carrying vessels yearly," said Daniel Nordberg, GAC Qatar general manager. "This is a market with vast potential and being one of the first few ship agencies in the country to enter this market marks exciting times ahead for us."

Fredrik Nystrom, GAC Group Vice President for the Middle East, said: "Once again, GAC's proven track record of excellence puts us at the forefront of the industry, at a time when agency work at this important port is opening up to the private sector."

The new GAC operations office is operated by a team of 10.

GAC Qatar has more future plans, including the development of upstream oil & gas yards at Ras Laffan to support field operators and EPC contractors. ■

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Pétrolia and Pieridae to form Amalco

On 15th May, Pétrolia Inc entered into a definitive agreement by which the company will merge with Pieridae to form a new entity to be named Pieridae Energy Limited (Amalco).

The completion of the arrangement will result in a reverse takeover of the company subject to, among other things, the approval of the Stock Exchange and approval from Pétrolia and Pieridae shareholders.

This arrangement will enable Amalco to strategically position itself in the North American equity markets as a developing fully integrated energy company, from upstream production to the sale of LNG.

One of the main assets is Pieridae's Goldboro LNG facility project, which could become Canada's only integrated LNG facility. It already holds key permits and approvals for its current stage of development.

Amalco will maintain offices in

Calgary, Québec City and Halifax.

Laurentian Bank Securities Inc is acting as exclusive financial advisor to Pieridae.

Pieridae is a privately held Canadian corporation based in Calgary, Alberta, focused on the development of the Goldboro LNG Project. With its first acquisition of resources in New Brunswick, to this merger with Pétrolia, Pieridae seeks to build a long term portfolio of natural gas to supply the Goldboro LNG Project, the company said.

Pieridae is targeting the next wave of worldwide LNG production, post 2020, and has sold 50% of the initial capacity of the Goldboro LNG Project in a 20-year, take-or-pay contract with Uniper Global Commodities, a 100% sub-

siary of Uniper, one of Europe's leading gas companies.

The Goldboro LNG project is located on the Atlantic coast, around two kilometres from the communities of Goldboro in the west, and Drum Head in the east in Goldboro, Guysborough County, Nova Scotia. It is located on the same site as the LNG regasification component of the formerly assessed Keltic Petrochemicals and LNG Facility Project.

Once built, it will include storage tanks, marine structures and gas processing equipment. Initial permits allow for up to 10 mill tonnes per annum (MMTPA) of LNG production capacity and the facility will be equipped to handle LNGCs of up to 250,000 cu m.

It has obtained an Environment Assessment Approval from the

Nova Scotia Minister of Environment, National Energy Board of Canada LNG export licence, US Department of Energy LNG Free Trade Agreement and Non-Free Trade Agreement licences and US Department of Energy Statement on Energy in Transit between Canada and the US.

Goldboro is the only project on the Canadian East Coast that has both key permits for its current stage of development and a credit worthy offtake customer, Pieridae claimed. Along with its strategic partners - General Electric, CB&I and ORLEN Upstream Canada, a wholly-owned subsidiary of Poland's PKN ORLEN, it is positioned to become the first LNG liquefaction project to be constructed in Canada. ■

First LNG STS in the Philippines

Koch Supply & Trading (KS&T) has completed the first of a series of ship-to-ship (STS) LNG transfers with private Chinese company JOVO and Malaysian shipowner MISC.

This agreement is a first for KS&T, JOVO and MISC and is the first LNG STS transfer to have occurred in Philippine waters.

With LNG STS transfers traditionally serving more of an operational role, this project represents a key commercial milestone, as a recurring STS transfer demonstrates the commercial potential of such activities, KS&T said. Such operations open new markets for exporters and provide new supply sources to those with LNG requirements.

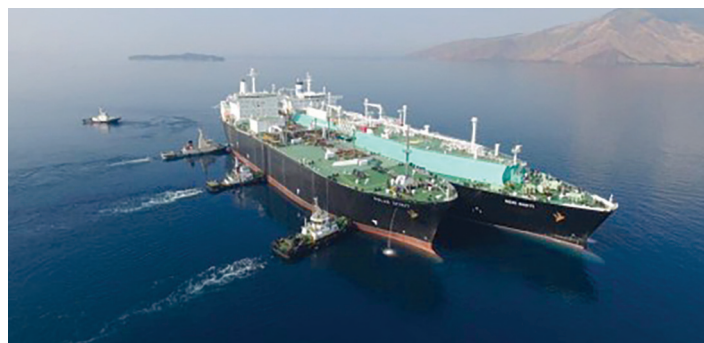
In this operation, the mother vessel loaded cargo in Australia before transferring it to a smaller daughter vessel at Subic Bay in the Philippines. The operation was managed by Teekay Marine Solutions with Teekay and MISC providing their experience to undertake a safe and successful transfer. The cargo was then delivered to JOVO's Chinese terminal where it was distributed by truck to one of

many industrial or commercial customers in Southern China.

"This partnership between first class shipowners, industry leading STS service providers and innovative LNG consumers allows companies in developing markets to gain new access to global volumes and a wider variety of logistics and infrastructure players," said Peter Leoni, KS&T's director of trading.

"Looking at how the LNG market is developing," Tim Mendelssohn, KS&T's LNG freight and operations manager, continued, "we are challenging the existing business model as a problem-solving, solution-oriented agent for LNG ship-to-ship transfers in emerging economies around the globe, reducing barriers to market entry."

"This project's complexity, along with a commitment to safe and compliant operations have created an inherently multina-



First LNG STS in Philippines occurred at Subic Bay

tional agreement involving multiple 'best in class' stakeholders including MISC, Teekay Marine Solutions, KLAU LNG and JOVO," said Chris Huang, JOVO international manager.

Lu Yuan, general manager of international business for JOVO, added, "We appreciate the significant role played by Koch Supply & Trading in orchestrating this historic agreement. Together, we are showing that it is possible for multinational corporations to work together to achieve mutual benefit for society. We hope this arrangement with Koch will be the first of many such innovations in

the industry."

Stephen Davidson, vice president - LNG, Teekay Marine Solutions, stated, "We welcomed this opportunity to work with Koch to bring this project online, and in working with all entities to ensure the operation was conducted in a safe manner, following all industry guidelines and recommendations. We hope this is the start of a new long term partnership with all parties building on the work that has already been completed to bring this first historic job to fruition. We are pleased to be involved in yet another groundbreaking project for the LNG industry." ■

Awilco attempts to put its house in order

Awilco LNG has agreed a comprehensive refinancing package to strengthen its balance sheet.

This includes an amended and more flexible agreement with its main creditor Teekay LNG Partners and an equity issue.

Awilco LNG retained ABG Sundal Collier as manager to advise on and effect a private placement of new shares with gross proceeds totalling NOK215 mill (around \$25 mill) aimed at existing shareholders and potential new Norwegian and international investors.

The main shareholders, Awilco, Uthalden and Astrup Fearnley, will participate in the private placement and have committed to vote in favour of the necessary corporate resolutions to complete the placement at an Extraordinary General Meeting scheduled for on or about 12th June, 2017, to be called for shortly after completion of the placement. In addition, the manager has received significant pre-commitments from other existing shareholders.

In connection with the placement, Awilco has agreed with Teekay LNG to restructure the bareboat charterparties for the two LNGCs ('WilForce' and 'WilPride') to 31st December, 2019 and through options, retain the flexibility to terminate the char-

terparties early to enable the company to refinance the vessels at any time before the charters mature.

Furthermore, this agreement also includes a reduction in the bareboat rate payable to Teekay through the deferral of up to \$29 mill in charter hire due. The deferred amounts will become payable on the maturity of the contracts. The contract amendments with Teekay are subject to, inter alia, completion of the placement to the minimum amount of \$25 mill.

Share allocations

Two Awilco primary insiders were subsequently allocated shares in connection with the placement:

*Jon Skule Storheill, Awilco CEO, was allocated 100,000 shares at NOK3.50 per share. Upon completion of the placement, Storheill will own 140,000 shares, representing around 0.11% of the total number of shares outstanding after the placement.

*Fiducia, a company owned by board member Jon-Aksel Torgersen, was allocated 285,714 shares at the same price and on completion of the placement,

Fiducia will own 427,564 shares, representing around 0.33% of the total number of shares outstanding.

In addition, Awilco was allocated 27 mill shares at the same price and on completion of the placement, Awilco will own 51,114,080 shares, representing about 39.57% of the total number outstanding.

Astrup Fearnley was allocated 4,132,220 shares at the same price per share and on completion of the placement, the company will own 8,692,270 shares, representing about 6.73% of the total number of outstanding after the placement.

A subsequent offering of up to 5,715,000 new shares in the company for gross proceeds of up to NOK20 mill, will, on the basis of a prospectus to be approved by the Norwegian Financial Supervisory Authority, expected by the end of June, 2017, be directed towards shareholders who (i) are shareholders in the company as of 18th May, 2017, (ii) were not offered to participate in the private placement and (iii) are not resident in a jurisdiction where such offering would be unlawful or, for jurisdictions other than Norway, would require any prospectus, filing, registration or similar action.

These eligible shareholders will be granted non-tradable subscription rights. ■

Dynagas raises the cash

Dynagas LNG Partners has closed a \$480 mill senior secured term loan B facility by its wholly-owned subsidiary, Arctic LNG Carriers.

This facility is secured by, among other collateral, first priority mortgages on the vessels owned by borrower subsidiary guarantors and is guaranteed by the partnership and certain of its subsidiaries.

The loan has a six year term and was priced at LIBOR plus 450 basis points. The partnership said that it intends to use the net proceeds of the facility to (i) repay in full its existing secured debt, (ii) pay transaction fees and expenses and (iii) for general corporate purposes.

Seward & Kissel represented the Partnership and certain of its subsidiaries, as borrowers under the term loan B facility. These were wholly-owned subsidiaries Arctic LNG Carriers and Dynagas Finance.

Other parties involved included Credit Suisse Securities (US) and Barclays Bank who acted as joint global co-ordinators, joint lead arrangers and joint bookrunners of the facility. Credit Suisse AG acted as administrative agent and collateral agent, while Credit Suisse AG and Barclays Bank acted as co-syndication agents.

Dynagas LNG Partners is a master limited partnership formed by Dynagas Holding, its sponsor, to own and operate LNGCs employed on multi-year charters. The partnership currently has six LNGCs on its books. ■

“Awilco has agreed with Teekay LNG to restructure the bareboat charterparties for the two LNGCs ‘WilForce’ and ‘WilPride’ to 31st December, 2019”

GasLog Partners closes its public offering

GasLog Partners has closed its public offering of 5.75 mill 8.625% Series A cumulative redeemable perpetual fixed to floating rate preference units.

The liquidation preference is \$25 per unit at a price to the public of \$25 per unit, including 750,000 units issued upon the exercise in full by the underwriters of their option to purchase additional Series A preference units.

The net proceeds from the offering, after deducting underwriting discounts and other offering

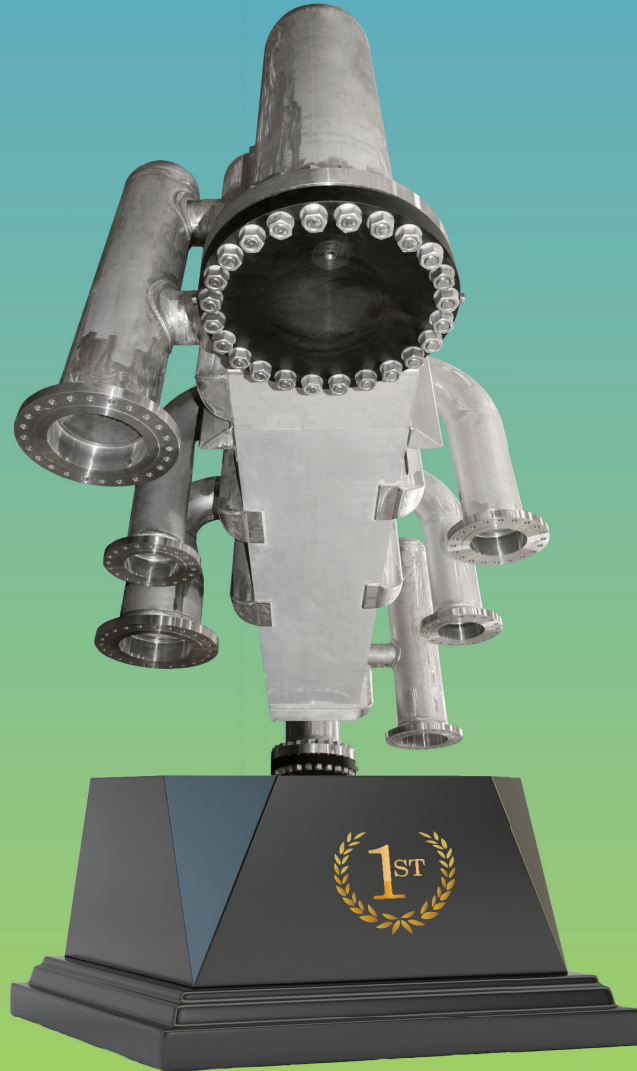
expenses, were around \$138.61 mill. The units will be listed on the New York Stock Exchange under the symbol GLOP PR A.

GasLog plans to use the net proceeds for general partnership purposes, which may include future acquisitions, debt repayment, capital expenditures and additions to working capital. “We

currently expect that this will include future acquisitions from GasLog Ltd, our parent,” the company said.

Morgan Stanley, UBS Investment Bank, Citigroup and Stifel acted as joint book-runners for the offering and ABN AMRO and BNP PARIBAS acted as co-managers. ■

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RasGas fleet wins Green Award certification

RasGas 27 long term chartered LNGCs have each received a Green Award (GA) certificate for a commitment to safety, quality and high environmental performance.

The GA Foundation reviews and certifies ships and shipmanagers who demonstrate achievements beyond the industry regulations in terms of maintenance, opera-

tional and safety management, environmental measures, exhausted emissions, anti-fouling and various other requirements related to safety, quality, environment and technical aspects of vessel management.

Last year, RasGas registered 27 timechartered LNGCs to be reviewed and as a result, all were awarded GA certificates.

Hamad Mubarak Al-Muhannadi, RasGas CEO, said, "As a global energy supplier, the Green Award certification represents RasGas' efforts and commitment towards improving the efficiency and reliability of its shipping operations. At RasGas, we continue to maintain our strong reputation for safe and reliable delivery of LNG at all times. We are proud to contribute to foster a culture of responsible LNG transportation, and intend to remain a frontrunner in safe and environmentally friendly approach to LNG shipping practices."

"Green Award has been established to promote and support so-

cially responsible shipping companies that care for the people and the planet. The support that we receive from the shipping industry is invaluable and helps us make a difference. RasGas is one of the key players in the LNG market and its commitment leads to large scale impact on safety and environmental protection," said Jan Fransen, Green Award Foundation executive director.

"We greatly value their dedication and support, which helps in making shipping sustainable and reducing its negative impact. About 20% of the world's LNG fleet is currently Green Award certified. This is an extremely important development as we expect that demand for LNG fuel will keep rising," he added.

RasGas together with QatarGas has consistently invested in safety and environmental initiatives, such as the jetty boil-off gas recovery (JBOG) project in Ras Laffan Industrial City, aimed at reducing greenhouse gas emissions. ■



Green Award's Jan Fransen with Talal Al-Tamimi, RasGas Co Ltd shipping manager, receives the Green Award certification on behalf of RasGas for its commitment to safety, quality and high environmental performance.

US exporters given green light to deal with Chinese companies

In what could be a major boost to US LNG exports in the long term, the US Department of Commerce has agreed with the Chinese government to allow China's state-owned gas companies to enter into purchase agreements with US LNG exporters.

From the US side, the terms are broad and mainly serve to confirm existing policy. "Companies from China may proceed at any time to negotiate all types of contractual arrangement with US LNG exporters, including long-term contracts, subject to the commercial considerations of the parties," the Department said in a joint statement. In return, China has agreed to allow its LNG importers to enter into long-term contracts with US suppliers.

LNG spot cargoes from the US to China have already started as Cheniere's Sabine Pass export terminal has shipped at least 10 spot cargoes to Chinese buyers. The company recently told Reuters that it has held 'extensive negotiations' with Chinese state-owned companies on increasing shipments.

However, it was still thought in some quarters that much of the US Gulf gas will be shipped to Europe, as both Australia and Qatar are closer to China, thus reducing shipping costs. ■

FSRU potential in southeast Asia

Following on from the article on Page 1 of LNG Shipping News of 11th May, about FSRU opportunities on the Indian sub-continent, courtesy of the FSRU Summit organisers, we look at who could be next in Asia.

The cost differential between and FSRU and a land-based regasification terminal is substantial. For example, a new 170,000 cu m unit would cost more than \$250 mill, whereas a land-based facility of the same size would roughly cost \$1 bill.

Project developers favoured method of paying for an FSRU is by chartering at a day rate, which normally varies between \$130,000 and \$155,000 per day.

In Asia, the emerging interest is for small scale FSRUs, especially for countries with a plethora of islands, such as Indonesia where the population is spread. In some areas of eastern Indonesia, the gas demand is marginal at anything between 3 and 30 mmscf.

A number of local energy companies have identified that small scale gas transportation and receiving terminals are the most efficient method to distribute gas. There are currently plans for a range of small scale FSRUs from 3,000 cu m capacity and upward.

Another country which could be a new entrant into this market is Myanmar. This country is a major producer of LNG but most of the gas is exported to neighbouring China and Thailand under long term contracts.

The country is currently undergoing intensive industrialisation and is looking to beef up its infrastructure development to enhance its economic growth. Having a stable and sufficient source of elec-

tricity is increasingly important, especially for the new industrial zones. The country's power transmission system is currently old and inefficient.

Although having no LNG terminals, Myanmar has said it would look at an FSRU to kick start its gas imports.

Philippine potential

The Philippines is also a country that could emerge as an FSRU player to help its projected power demand growth of 60% by 2030. It is forecast to have a power shortfall in power generation and transmission of around 10,000-13,000 MW. Meeting these requirement will need private investment of around \$25 bill. ■

In addition, similar to Indonesia, the country is made up of more than 7,000 islands making power generation a challenge. Royal Dutch Shell is already looking to employ an FSRU as a temporary solution before its planned onshore receiving terminal is ready.

Gas supply from the Malampaya gas field is expected to run out by 2024 and building an LNG terminal is seen as crucial to meeting supply needs until another field is discovered. ■

Corrective actions can create additional hazards USCG warns

Recently, US Coast Guard Port State Control Officers undertook an examination on board an LNGC.

While on board, the inspectors discovered a significant and potentially dangerous modification within a gas valve unit (GVU) room, which is located within the machinery space of the dual fuel, diesel-electric propelled vessel.

The GVU is a multi-component device, which manages the LNG pressure supplied to the propulsion engines. It has an air intake and exhaust system designed to continuously ventilate and exchange the air within the space to reduce fire, explosion, and hazardous atmosphere risks from developing if gas leaks should occur from the equipment.

Outside of the GVU room, the gas supply piping to the main en-

gines is double walled including through manifolds and expansion bellows all the way to each cylinder to contain any leakage of gas and return it back to the room via a small gas evacuation fan assembly.

During a repair on a main engine cylinder of the vessel, engineers had to remove an expansion bellows. Upon replacement of the bellows, an O-ring, separating its inner and outer sections, was damaged. This error went unnoticed until a crew member was making a round in the enclosed GVU room while the engine had been operating on gas. After entering the GVU room he was overcome by methane gas and nearly lost consciousness. Fortunately, he

was able to exit the space into a safe atmosphere.

After the incident the GVU room atmosphere was measured to be 22% methane and 17% oxygen by volume. The installed methane sensor failed to detect the accumulation of gas despite not having malfunctioned. Engineers traced the methane leakage to the recently removed bellows and replaced the damaged O-ring.

Unauthorised action

To prevent further accumulation of gases, they rigged a hose from the outlet of the gas evacuation fan, across the GVU room to the sensor at the entrance exhaust duct. This unauthorised arrangement, which was identified during the USCG examination, could have likely disabled the sensor's ability to detect methane leakages from other components within the room (see image).

USCG PSCOs also noted that a second exhaust hose was similarly installed in the vessel's second GVU room. These hoses were in place for about eight years.

The USCG said it was important to note that the engine manufacturer's manual highlights the need for caution when replacing the bellows and to use care when installing the O-rings. The manufac-

turer also emphasises the need to check for gas leaks after repairs or maintenance are performed.

As a result of this discovery, the USCG made several recommendations to owners, operators, class societies and flag states. ■



The unauthorised arrangement

GTT wins two more orders

GTT has received an order from Daewoo Shipbuilding & Marine Engineering (DSME) to equip two LNGCs with its NO96 GW containment system.

DSME shipyard based in Geosje - South Korea - will build the 173,400 cu m vessels on behalf of a European shipowner. Deliveries are scheduled for 2019, GTT said.

This is the first LNGC order won by DSME since the beginning of this year. It comes in addition to the order placed last February for an FSRU, which will also be fitted with GTT NO96 technology.

"We are proud of the close relationship we have had with DSME for over 30 years, which has led to this new order. With 103 vessels in service and 49 in order at present, DSME is indeed a faithful user of our NO96 solutions," said Philippe Berterottiere, GTT Chairman and CEO.

With almost 150 vessels in service worldwide equipped with the NO96 system, GTT designs are claimed to be based on proven technology.

For more than 50 years, the NO range has been evolving due to a permanent research and development strategy in new technologies, to meet the safety and the efficiency requirements of shipowners and shipyards.

NO96 GW is one of the latest NO developments, which enables LNG cargo boil-off gas (BOG) optimisation, GTT said. ■

DSME BOG patent case dismissed

The South Korean Supreme Court has announced the verdict of a three-year-old patent dispute over LNG boil-off gas (BOG) technology involving three shipyards.

According to South Korean news reports, the court came down on the side of Hyundai Heavy Industries (HHI) and Samsung Heavy Industries by dismissing an appeal filed by Daewoo Shipbuilding and Marine Engineering (DSME). This effectively nullified DSME's patent.

In January, DSME took the case to the Supreme Court after the Patent Court of Korea issued a ruling which invalidated the shipbuilder's patent over boil-off gas

(BOG) liquefaction technology.

The patent court said DSME's know how was no different from those developed and used by the two other shipbuilders, according to reports.

This dispute began in January, 2014 when DSME registered the technology as a patent. The shipbuilder then allegedly began threatening HHI and Samsung Heavy not to use the technologies when building LNGCs.

In protest, both HHI and Samsung filed a lawsuit against DSME with the Intellectual Property Trial and Appeal Board. But the court sided with DSME, ruling its patent valid in May, 2015.

Following the ruling, from 2014 to 2016, DSME secured the most orders for LNGCs of the three yards, at 47. In contrast, Hyundai and Samsung won only 12 and eight orders, respectively, the reports claimed. ■

TMC wins another FSRU compressor contract

NEWS NUDGE

CLNG welcomes Jordan Cove LNG membership

Jordan Cove LNG has joined the US-based Center for Liquefied Natural Gas (CLNG) organisation.

The company operates the Jordan Cove LNG export facility that is claimed will establish Coos Bay, Oregon, as the premier energy centre on the US West Coast.

CLNG said that it looked forward to working with Jordan Cove LNG to raise awareness of the many uses of LNG, educate the public on the successes of LNG and bring LNG to market, safely, efficiently and quickly.

Charlie Riedl, CLNG executive director, said: "CLNG welcomes Jordan Cove LNG and believes this addition displays how vibrant the future is, not just for our organisation, but the industry at large. CLNG's membership is diverse, effective, and growing, much like the US and global LNG market."

Betsy Spomer, Jordan Cove LNG CEO, said: "We're delighted to be joining the Center for LNG and share CLNG's commitment to improved understanding of LNG and public policies advancing the use of LNG. Enlisting CLNG's expertise and experience will help to reinforce our efforts to move the Jordan Cove LNG facility at Coos Bay forward."

Samsung in small LNGC orders

Samsung Heavy Industries (SHI) has won a contract from Korea Gas Corp (KOGAS) to build two small-scale LNGCs.

Under the terms of the \$100 mill contract, the ships are expected to be delivered in May and December, 2019.

The 7,500 cu m vessels, to be equipped with KC-1 cargo containment systems, are intended to transport LNG from Tongyeong, Gyeongsangnam-do,

Samsung Heavy Industries has awarded TMC Compressors (TMC) a contract to deliver a marine compressed air system to an FSRU under construction for Höegh LNG.

In recent weeks, TMC had signed two contracts to supply marine compressed air systems to new-build FSRUs, including one with DSME, which is building a unit for BW LNG and another with Hyundai Heavy Industries, which is one for Höegh LNG.

Under the terms of the latest contract, TMC will deliver a complete marine compressed air system consisting of 2 x 44 kW service air compressors and 2 x 44 kW control air compressors to be installed on board a 170,000 cu m

FSRU, which is scheduled for delivery in 2Q19. It will have a re-gasification capacity of minimum 750 mill cu ft per day.

TMC's contract with Samsung Heavy Industries also includes options to deliver similar systems to three additional FSRUs that the shipyard may build for Höegh LNG. These vessels have scheduled delivery dates of one in 2019 and two in the following year.

"Höegh LNG has one of the world's biggest fleets of TMC compressors for FSRUs. We are

very pleased that they, in co-operation with Samsung Heavy Industries, have once again selected our technology for their projects," said Per Kjellin, TMC managing director.

"It seems like several players are trying to capitalise on a very favourable newbuild market to position themselves for further expansion in the FSRU segment. I believe everyone who is exposed to the newbuild segment, including TMC, are very pleased with this development," he added. ■

Nakilat takes 'Onaiza' in-house

On 19th May, Nakilat assumed full shipmanagement and operations of the Q-Flex LNGC 'Onaiza' from STASCo, as part of its planned and phased vessel transition programme.

With a cargo carrying capacity of 210,150 cu m, 'Onaiza' is wholly-owned by Nakilat and chartered by Qatargas. The vessel built at Dae-

woo and delivered in April, 2009.

She is the seventh wholly-owned LNGC to come under the management of Nakilat Shipping

Qatar (NSQL), bringing the total number of vessels managed in-house to 15, comprising of 11 LNGCs and four LPG carriers. ■



The Q-Flex 'Onaiza'

to Jeju Island. One of the two carriers will be capable of undertaking LNG bunkering.

This new contract, signed on 22nd May, means that SHI's has developed what it called a "leading track record in KC-1 LNGCs, as

well as expanding into small-scale LNGCs and LNG-bunkering vessels," the shipyard said in an announcement.

Thus far this year, SHI has won orders for \$2.3 bill worth of vessels, including three LNGCs, the

company said.

KC-1 was developed by KOGAS in co-operation with South Korea's big three shipyards. SHI had previously won an order to build the first-ever pair of KC-1 fitted 174,000 cu m LNGCs in 2015.

WORLD LNG CARRIER ORDERBOOK

Name	Segment	Status	Yard	Design	Prop	Capacity	Delivery Date	Ordered	Imo	Hull No	Primary Owner
Asia Venture	LNGC	Order	Samsung	TZ Mk. III	TFDE	160000	01/04/2017	2012	9680190	2070	Chevron
Kawasaki Sakaide 1718	LNGC	Order	Kawasaki	Moss	TFDE	180000	01/04/2017	2013	9698123	1718	K-Line
Hyundai Princepia	LNGC	Order	DSME	GT NO 96	TFDE	174000	01/04/2017	2014	9761841	2451	Hyundai LNG Shipping
SM Eagle	LNGC	Order	DSME	GT NO 96	TFDE	174000	01/04/2017	2014	9761827	2449	Korea Line
Hyundai Peacepia	LNGC	Order	DSME	GT NO 96	TFDE	174000	01/05/2017	2014	9761853	2452	Hyundai LNG Shipping
Daewoo 2450	LNGC	Order	DSME	GT NO 96	TFDE	174000	01/05/2017	2014	9761839	2450	Korea Line
Jmu Tsu 5070	LNGC	Order	Japan Marine United Corp (Jmu)	SPB	TFDE	165000	01/05/2017	2014	9736092	5070	MOL
Hudong-Zhonghua H1717a	LNGC	Order	Hudong-Zhonghua Membrane		TFDE	174000	01/06/2017	2012	9672844	H1717A	China LNG Shipping Holdings
Hudong-Zhonghua H1719a	LNGC	Order	Hudong-Zhonghua Membrane		TFDE	174000	01/06/2017	2013	9694751	H1719A	China LNG Shipping Holdings
Oceanic Breeze	LNGC	Order	Mitsubishi H.I.	Moss	STRH	155300	01/07/2017	2013	9698111	2310	K-Line
Seri Cempaka	LNGC	Order	Hyundai Heavy	Moss	STRH	150000	01/07/2017	2013	9714290	2731	Petronas
Murex	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/07/2017	2013	9705641	2416	Teekay LNG
Daewoo 2462	LNGC	Order	DSME	GT NO 96	TFDE	180000	01/07/2017	2015	9771913	2462	MOL
Bishu Maru	LNGC	Order	Kawasaki	Moss	TFDE	164700	01/08/2017	2013	9691137	1713	K-Line
Seri Camar	LNGC	Order	Hyundai Heavy	Moss	STRH	150000	01/08/2017	2013	9714305	2732	Petronas
Jmu Tsu 5071	LNGC	Order	Japan Marine United Corp (Jmu)	SPB	TFDE	165000	01/08/2017	2014	9752565	5071	NYK
Daewoo 2417	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/08/2017	2013	9705653	2417	Teekay LNG
Daewoo 2421	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/08/2017	2014	9768368	2421	Dynagas
Hudong-Zhonghua H1718a Holdings	LNGC	Order	Hudong-Zhonghua Membrane		TFDE	174000	01/09/2017	2013	9694749	H1718A	China LNG Shipping
Samsung 2153	LNGC	Order	Samsung	KC-1	TFDE	174000	01/09/2017	2014	9761803	2153	SK Shipping
Samsung 2154	LNGC	Order	Samsung	KC-1	TFDE	174000	01/09/2017	2014	9761815	2154	SK Shipping
Daewoo 2426	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	30/09/2017	2014	9750658	2426	MOL
Castillo De Caldelas	LNGC	Order	Imabari	TZ Mk. III	MEGI	178000	01/10/2017	2014	9742819	8188	Elcano
Mitsubishi Nagasaki 2316	LNGC	Order	Mitsubishi H.I.	Moss	STRH	153000	01/10/2017	2014	9743875	2316	NYK
SK Resolute	LNGC	Order	Samsung	TZ Mk. III	XDF	182000	01/10/2017	2013	9693173	2081	SK Shipping
Hudong-Zhonghua H1720a	LNGC	Order	Hudong-Zhonghua Membrane		TFDE	174000	01/10/2017	2012	9672818	H1720A	China LNG S Holdings
Jmu Tsu 5072	LNGC	Order	Japan Marine United Corp (Jmu)	SPB	TFDE	165000	01/10/2017	2014	9758832	5072	MOL
Eduard Toll	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	31/10/2017	2014	9750696	2423	Teekay LNG
Castillo De Merida	LNGC	Order	Imabari	TZ Mk. III	MEGI	178000	01/11/2017	2014	9742807	8177	Elcano
Seri Cemara	LNGC	Order	Hyundai Heavy	Moss	STRH	150000	01/12/2017	2014	9756389	2735	Petronas
Kawasaki Sakaide 1731	LNGC	Order	Kawasaki	Moss	TFDE	177000	01/12/2017	2015	9774135	1731	MOL
Daewoo 2453	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/12/2017	2014	9770921	2453	Teekay LNG
Rudolf Samoylovich	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/12/2017	2014	9750713	2425	Teekay LNG
Daewoo 2422	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/12/2017	2014	9768370	2422	Dynagas
Daewoo 2424	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	31/12/2017	2014	9750701	2424	MOL
Flex Endeavour	LNGC	Order	DSME	GT NO 96	MEGI	172400	01/01/2018	2014	9762261	2447	John Fredriksen
Flex Enterprise	LNGC	Order	DSME	GT NO 96	MEGI	172400	01/01/2018	2014	9762273	2448	John Fredriksen
SK Audace	LNGC	Order	Samsung	TZ Mk. III	XDF	182000	01/01/2018	2013	9693161	2080	SK Shipping
Hudong-Zhonghua H1664a	LNGC	Order	Hudong-Zhonghua	GT NO 96	TFDE	174000	01/01/2018	2014	9750232	H1664A	Teekay LNG
Pan Asia	LNGC	Order	Hudong-Zhonghua	GT NO 96	TFDE	174000	01/01/2018	2014	9750220	H1663A	Teekay LNG
BW Tulip	LNGC	Order	DSME	GT NO 96	MEGI	173000	01/01/2018	2014	9758064	2435	BWGas
Daewoo 2460	LNGC	Order	DSME	GT NO 96	MEGI	174000	01/01/2018	2014	9766889	2460	Chandris
Teekay NB-6	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/02/2018	2014	9770933	2454	Teekay LNG
Hyundai Ulsan 2800	LNGC	Order	Hyundai Heavy	TZ Mk. III	XDF	174000	01/02/2018	2014	9748899	2800	GasLog
Daewoo 2443	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/02/2018	2014	9766554	2443	BP
Jmu Tsu 5073	LNGC	Order	Japan Marine United Corp (Jmu)	SPB	TFDE	165000	01/02/2018	2014	9758844	5073	MOL
Samsung 2130	LNGC	Order	Samsung	TZ Mk. III	XDF	174000	01/03/2018	2014	9744013	2130	GasLog
Daewoo 2442	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/03/2018	2014	9766542	2442	BP
Hyundai Ulsan 2801	LNGC	Order	Hyundai Heavy	TZ Mk. III	XDF	174000	01/03/2018	2014	9748904	2801	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 = 26 April 2017

Name	Segment	Status	Yard	Design	Prop	Capacity	Delivery Date	Ordered	Imo	Hull No	Primary Owner
MOL E.On.	LNGC	Order	DSME	GT NO 96	TFDE	179900	01/04/2018			TBN	MOL
Kawasaki Sakaide 1720	LNGC	Order	Kawasaki	Moss	TFDE	164000	01/04/2018	2014	9749609	1720	K-Line
Mitsui NB 2 Cameron	LNGC	Order	Kawasaki	Moss	STRH	155000	01/04/2018	2014	9759252	1729	MOL
Daewoo 2441	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/04/2018	2014	9766530	2441	BP
Mitsui Cameron Shi NB 1	LNGC	Order	Samsung	Mark III Flex	TFDE	177000	01/05/2018	2014	9760768	2148	MOL
Samsung 2149	LNGC	Order	Samsung	Mark III Flex	TFDE	177000	01/05/2018	2014	9760770	2149	MOL
Mitsui KHI NB 1	LNGC	Order	Kawasaki	Moss	STRH	155000	01/05/2018	2014	9759240	1728	MOL
Daewoo 2432	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/05/2018	2014	9750660	2432	MOL
Daewoo 2430	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/05/2018	2014	9750725	2430	Teekay LNG
Daewoo 2455	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/05/2018	2014	9770945	2455	Teekay LNG
Daewoo 2464	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/05/2018	2015	9785158	2464	Chandris
Mitsubishi Nagasaki 2324	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	165000	01/06/2018	2015	9779226	2324	NYK
Daewoo 2458	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/06/2018	2015	9767950	2458	Maran Gas Maritime
Daewoo 2444	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/06/2018	2014	9766566	2444	BP
Daewoo 2427	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/06/2018	2014	9768382	2427	Dynagas
Hudong-Zhonghua H1665a	LNGC	Order	Hudong-Zhonghua	GT NO 96	TFDE	174000	01/06/2018	2014	9750244	H1665A	Teekay LNG
Samsung 2107	LNGC	Order	Samsung	TZ Mk. III	MEGI	174000	01/07/2018	2013	9709025	2107	Flex LNG
BW Lilac	LNGC	Order	DSME	GT NO 96	MEGI	173000	01/07/2018	2014	9758076	2436	BWGas
Daewoo 2445	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/07/2018	2014	9766578	2445	BP
Samsung 2150	LNGC	Order	Samsung	Mark III Flex	TFDE	177000	10/07/2018	2014	9760782	2150	MOL
Daewoo 2446	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/08/2018	2014	9766580	2446	BP
Mitsubishi Nagasaki 2323	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	180000	01/08/2018	2015	9774628	2323	MOL
Daewoo 2431	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/09/2018	2014	9750737	2431	Teekay LNG
MOL NB 2 Freeport	LNGC	Order	Kawasaki	Moss	STaGE	177000	01/10/2018	2015	9791200	1734	MOL
Mitsubishi Nagasaki 2325	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	165000	01/10/2018	2015	9779238	2325	NYK
Mitsubishi Nagasaki 2326	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	180000	01/10/2018	2015	9796781	2326	NYK
Samsung 2108	LNGC	Order	Samsung	TZ Mk. III	MEGI	174000	31/10/2018	2013	9709037	2108	Flex LNG
Daewoo 2428	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/11/2018	2014	9768394	2428	Dynagas
NYK NB 2 Freeport	LNGC	Order	Kawasaki	Moss	STaGE	177000	01/12/2018	2015	9791212	1735	MOL
Mitsubishi Nagasaki 2327	LNGC	Order	Mitsubishi H.I.	Moss	STRH	180000	01/12/2018	2015	9796793	2327	NYK
Daewoo 2429	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/12/2018	2014	9768526	2429	Dynagas
Daewoo 2456	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/01/2019	2015	9753014	2456	Maran Gas Maritime
Pan Africa	LNGC	Order	Hudong-Zhonghua	GT NO 96	TFDE	174000	01/01/2019	2014	9750256	H1666A	Teekay LNG
Daewoo 2433	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/01/2019	2014	9750749	2433	Teekay LNG
Daewoo 2459	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/01/2019	2015	9767962	2459	Maran Gas Maritime
SK Shipping SK E&S NB1	LNGC	Order	Hyundai Heavy	TZ Mk. III Flex	XDF	180000	01/02/2019	2016	9810549	2937	SK Shipping
Hyundai Samho S856	LNGC	Order	Hyundai Samho	TZ Mk. III	MEGI	174000	01/02/2019	2015	9781918	S856	Teekay LNG
Mitsubishi Nagasaki 2332	LNGC	Order	Mitsubishi H.I.		STaGE	165000	01/02/2019	2015	9810020	2332	Mitsubishi
Samsung 2131	LNGC	Order	Samsung	TZ Mk. III	XDF	174000	01/03/2019	2014	9744025	2131	GasLog
Hyundai Samho S857	LNGC	Order	Hyundai Samho	TZ Mk. III	MEGI	174000	01/03/2019	2015	9781920	S857	Teekay LNG
Mitsubishi Nagasaki 2321	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	177000	01/04/2019	2015	9770438	2321	NYK
Daewoo 2457	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/04/2019	2014	9753026	2457	Maran Gas Maritime
SK Shipping SK E&S NB2	LNGC	Order	Hyundai Heavy	TZ Mk. III Flex	XDF	180000	01/05/2019	2016	9810551	2938	SK Shipping
Mitsubishi Nagasaki 2322	LNGC	Order	Mitsubishi H.I.	Moss	STaGE	177000	01/06/2019	2015	9770440	2322	MOL
Flex Constellation	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/06/2019	2017	9825427	2470	John Fredriksen
Nb Gaslog - Centrica Samsung 2212	LNGC	Order	Samsung	GTT Mark V	XDF	180000	01/07/2019	2016	9816763	2212	GasLog
Flex Courageous	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/08/2019	2017	9825439	2471	John Fredriksen
Hyundai Ulsan 2964	LNGC	Order	Hyundai Heavy	TZ Mk. III Flex	MEGI	180000	01/08/2019	2017	9825568	2964	Knutson
Samsung 2213	LNGC	Order	Samsung	GTT Mark V	XDF	180000	01/09/2019	2016	9819650	2213	GasLog
Daewoo 2489	LNGC	Order	DSME	GT NO 96	MEGI	173400	01/11/2019	2015	9792606	2489	BWGas
Daewoo 2434	LNGC	Order	DSME	GT NO 96	TFDE - Azipod	172410	01/11/2019	2014	9750672	2434	Teekay LNG
Maran Gas NB1	LNGC	Order	DSME	GT NO 96	MEGI	173400	19/11/2019	2016	9810379	2467	Maran Gas Maritime
Maran Gas NB2	LNGC	Order	DSME	GT NO 96	MEGI	173400	19/11/2019	2016	9810367	2466	Maran Gas Maritime
Trinity J/V (Mitsui & Co.)	LNGC	Order	Imabari	GTT Mark III Flex	MEGI	178000	01/01/2020			TBN	K-Line
Imabari Saijo 8200	LNGC	Order	Imabari		MEGI	178000	01/10/2021	2015	9778923	8200	Trinity LNG Transport SA

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 April 2017

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 = 24th May 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
2016	Shell Bunker Barge TBN 1	6,500	LNG	Northwest Europe	Yes	Shell
2016	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2016	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2016	Shell Bunker Barge TBN 4	3,000	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	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
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas

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

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

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

** = project shelved † = Data to be verified Data last updated = 24th May 2017

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