

LNG Shipping News

An LNG JOURNAL TITLE ON LNG CARRIERS

27 September 2018

Day rates to remain firm

Daily LNGC charter rates hit a high this month and are likely to remain firm next year.

The rate rise was aided by rising production from new export facilities and concerns that LNGC demand will outstrip supply, Reuters said in a report.

LNGC rates for Atlantic Basin to Asia cargoes jumped to \$90,000-\$95,000 a day last week from \$75,000 a day seen at the end of August, brokers and traders said. By comparison, rates averaged around \$30,000 to \$40,000 per day from 2015 to 2017.

Rates firmed, due to longer sailing distances (tonne/miles) needed to ship gas from new US terminals and Arctic Russia, surging demand in China and a limited number of ships available.

During LNGC owners earnings calls this month, the sentiment was that rates would remain firm through 2019.

For example, Hoegh LNG CEO, Sveinung Stohle told investors and analysts he expected rates to "increase on the levels where they are, certainly, for the next two to three years."

Increasing demand has helped drive this rate rise, as Japanese and South Korean utilities stocked



LNGC charter rates have soared recently and look likely to stay firm for some time. Picture credit - ABB

up on LNG for the winter, driving prices to a seasonal four-year high. Demand was stronger than usual after the summer heatwave resulted in inventories being drawn down, as gas was needed to power air-conditioning plants.

Increased LNGC demand

LNG deliveries from the Arctic Yamal facility have also created extra vessel demand, as Arc7s are transshipping cargoes to

conventional LNGCs in European ports for onward shipment.

In addition, US gas exports to Asia now pass through the Panama Canal and take longer to reach their destinations than shipments from the world's second largest producer - Australia.

In a recent report, Wood Mackenzie estimated it takes 1.9 ships to carry 1 mill tonnes per annum of LNG from the US

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Vitol inks 15-year deal with Cheniere

Geneva-based trading house Vitol has signed a 15-year LNG sale and purchase (SPA) agreement with US-based energy company Cheniere.

Commenting on the agreement, Russell Hardy, Vitol Group CEO, said that LNG will play an important role in the future energy mix and that its evolution will require a more flexible and tradeable LNG market.

Vitol has agreed to purchase

around 0.7 mill tonnes per annum of LNG from Cheniere Marketing on a free on board (FOB) basis for about 15 years beginning this year.

The LNG's purchase price is indexed to the monthly Henry Hub price, plus a fee.

Vitol uses time and spot chartered LNGCs to deliver gas. The company also has gas storage capacity in six European countries and access to pipelines within the US and Canada. The company also undertakes ship-to-ship transfers.

Continued from page 1

Gulf to Japan, compared to 0.7 ships from Australia.

This has resulted in several shippers chartering LNGCs on period business, thus locking in rates before they rise but also taking the vessels out of the market for some time.

"If you're at \$85,000 now (for shipping day rates), you could easily see \$115,000 to \$120,000 in the winter," said Jefferies energy shipping analyst Randy Giveans, talking with Reuters.

Iain Ross, Golar LNG CEO, also said this month that the forecast of a 23% rise in LNG production over the next two years would require 100 extra vessels. But only 66 were scheduled to be delivered in time, he claimed.

"It's no longer possible to go out today and order a vessel for delivery before 2021," he said. "It seems to us (there is) a structural change in the sector that will (be) driving demand," Ross said.

However, Wood Mackenzie warned about the threat of ordering too many vessels now because of a possible glut of LNG at some point between 2020 and 2025, as new projects due to come onstream during this period may find there are not enough buyers.

"If (ship) ordering activity continues at recent levels there is a high danger that it will be too much too soon," said Andrew Buckland, Wood Mackenzie's LNG and shipping analyst. ■

Woodside signs second European gas agreement

Woodside Energy Trading Singapore has signed a Heads of Agreement (HOA) with Uniper Global Commodities to supply up to 0.6 mill tonnes of LNG per annum for four years starting next year.

Woodside CEO, Peter Coleman said the LNG would be supplied from the company's sources to markets in Europe and Asia. "This agreement illustrates further diversification of Woodside's buyer relationships and the increasing interaction between participants in the Asia/Pacific and Atlantic LNG markets, as international trading patterns become more liquid.

"Uniper is a global utility and among the largest energy commodity trading companies in the

world. We look forward to building on this new relationship," he added.

Uniper CEO, Keith Martin, said: "We are pleased to sign this deal with Woodside, a global LNG producer with long experience of operating reliable LNG facilities using cutting-edge technology.

"This deal is another step for Uniper in establishing long-term partnerships globally and demonstrates our ambitions to further grow Uniper's Asian portfolio whilst leveraging our midstream

assets in Europe," he said.

The HOA is conditional on the signing of a fully termed LNG sales and purchase agreement (SPA).

This follows last October's announcement that Woodside had agreed to supply RWE with 12 LNG cargoes starting this year. ■



Woodside CEO Peter Coleman

Canadian project edges closer

The Kwispa LNG project achieved another milestone in its development last week when a contract was signed with Hyundai Heavy Industries for the front end engineering and design (FEED) of two patented At-Shore LNG hulls.

This follows the recent Invitation to tender to be shortlisted for EPC (engineering, procurement, and construction) contractors for FEED on the topsides, marine facilities, pre-treatment, and onshore plant facilities.

The EPC contractor tenderers included: Black & Veatch, Samsung Heavy Industries, PCL Industrial Management, CB&I, Offshore Oil Engineering (COOEC) and TechnipFMC.

FEED work is expected to commence in early 2019.

On 19th September, at the Gastech Conference in Barcelona, representatives from Steelhead LNG,

Huu-ay-aht First Nations, and Hyundai Heavy Industries' Shipbuilding Division formalised the contract for the design of the hulls, as part of phase one of the Kwispa LNG project.

Each hull is expected to measure 340 m in length and 60 m beam and will feature five individual tanks to provide about 280,000 cu m of LNG storage.

"This agreement with Hyundai Heavy Industries for two At-Shore LNG hulls again demonstrates the technological innovation and creative solutions that we are developing as part of the Kwispa LNG project to offer Asia/Pacific buyers with cleaner and

competitively priced LNG from Canada," said Steelhead LNG CEO, Nigel Kuzemko. "Our goal is to help meet the world's rising demand for LNG and reduce worldwide greenhouse gas emissions. At the same time, with our co-management partners, Huu-ay-aht First Nations, we are committed to working with all levels of government to realise the tremendous potential benefits the Kwispa LNG project can provide to local communities, British Columbia, and Canada."

The award of the FEED contract was said to be the start of the process leading to construction of the two hulls at a total cost of \$500 mill. ■

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NEWS NUDGES

Höegh shuffles pack

Höegh LNG Partners has announced the following changes to the group executive team of Höegh LNG, the management services company that provides services to Höegh LNG Holdings and its subsidiaries.

- Steffen Føreid, the current CFO of Höegh LNG will take over as CEO and CFO of HMLP. A search for a new CFO for Höegh LNG is underway and Føreid will retain his former role until his replacement is in place.
- Richard Tyrrell, the current CEO and CFO of HMLP will take on the role as Chief Development Officer of Höegh LNG.
- Ragnar Wisløff, Höegh LNG's current Chief Development Officer will become Head of Change and Transformation in Höegh LNG.
- Camilla Nyhus-Møller has been promoted from Senior Vice President Legal & Compliance to Chief Legal & Compliance Officer.

Following the above changes, the group executive team comprised of the following as of 14th September 2018:

- Sveinung Støhle, President & CEO.
- Steffen Føreid, Chief Financial Officer (interim).
- Richard Tyrrell, Chief Development Officer.
- Øivin Iversen, Chief Technical Officer.
- Vegard Hellekleiv, Chief Operations Officer.
- Tom Solberg, Chief of Staff.
- Camilla Nyhus-Møller, Chief Legal & Compliance Officer.
- Ragnar Wisløff, Head of Change and Transformation.

Teekay LNG declares distributions and welcomes new board members

Teekay GP, the general partner of Teekay LNG Partners, has declared cash distributions of \$0.5625 per unit on the Partnership's Series A preferred units and \$0.5313 per unit on the Partnership's Series B preferred units for the period 1st July, 2018 to 30th September, 2018.

The cash distributions are payable on 15th October, 2018 to all unitholders of record as at 28th September, 2018.

In addition, Kenneth Hvid, Teekay Corp's President and CEO, has been re-appointed a member of Teekay LNG's Board of Directors, replacing Vince Lok, Teekay's Executive Vice President and CFO.

Bill Utt has also been appointed as a member of the Board. He also currently serves as the Director and Chairman of

Teekay and Teekay Offshore GP.

"On behalf of our board and leadership team, I would like to thank Vince for his significant contributions and dedication to Teekay LNG," said Jane Hinkley, TGP GP's Chairperson. "I would like to welcome back Kenneth to the Board and I am also pleased to welcome Bill to our Board, who has extensive experience in the energy industry and across the Teekay Group, and we look forward to working with both of them



Kenneth Hvid has been re-appointed to Teekay LNG's Board

as we continue executing on Teekay LNG's strategic plan." ■

FERC recommends further action on Driftwood

The US Federal Energy Regulatory Commission (FERC) has prepared a draft environmental impact statement (EIS) on the Driftwood LNG project.

FERC determined that construction and operation of the project would result in adverse environmental impacts. However, with the exception of the visual impact on residents near the LNG facility, which was said to be significant, impacts on the environment, would be reduced to less than significant levels with the implementation of Driftwood's proposed impact avoidance, minimisation, and mitigation measures and the additional measures recommended by FERC.

FERC said it had made recommendations that Driftwood should implement to further reduce the environmental impacts of the project.

Driftwood LNG and Driftwood Pipeline had requested authorisation to site, construct, and operate LNG export

facilities and certain interstate, natural gas transmission pipeline facilities in Evangeline, Acadia, Jefferson Davis, and Calcasieu Parishes, Louisiana.

The project would provide gas and processing able to produce up to 27.6 mill tonnes per annum of LNG for export.

Driftwood consists of two main components: 1) the construction and operation of the LNG facility, which includes five LNG plant facilities to liquefy natural gas, three tanks to store the LNG, LNGC loading/berthing facilities and other facilities near Carlyss, Calcasieu Parish, Louisiana; and 2) the construction and operation of about 96 miles of pipeline, three new compressor stations, and 15 new meter stations to deliver natural gas to the LNG facility.

Comments on the draft EIS must be received in Washington (DC), on or before 5th November, 2018, FERC said.

In addition, recently formed Pointe LNG has asked FERC for permission to enter the pre-filing process for an LNG liquefaction and export facility on the eastern banks of the Mississippi River.

Pointe LNG is proposing to build the facility on a site comprising about 600 acres of leased property with more than 6,500 ft of river frontage.

The project, with a proposed operations date of the second quarter of 2025, would consist of three LNG liquefaction trains, each with a nominal capacity of 2 mill tonnes per year, and a marine loading berth with three loading arms and one vapour arm for handling LNGs. ■

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Gazprom and Mitsui sign Baltic LNG MOU

Gazprom and Mitsui and Co have signed a memorandum of understanding (MOU) on the Baltic LNG project.

This agreement includes the building an LNG plant in the Baltic.

The MOU was signed during a meeting between Gazprom CEO, Alexei Miller and Mitsui Chairman, Masami Iijima, during the Eastern Economic Forum held in Vladivostok.

The 10 mill tonnes per year LNG project at Ust-Luga is being led by Gazprom and Shell and is planned for a 2023 launch. The companies have a heads of agreement (HOA) in place

The Baltic LNG terminal will be located near Ust-Luga



for a joint venture, as well as agreements on feasibility studies for the project and in the use of Russian technical standards in its implementation.

The consortium plans to

expand the nameplate capacity of 9.6 mill tonnes per year by adding a third 5.4 mill tonnes per year train in 2023-2024, along with co-operation on small and mid-scale LNG projects. ■

Novatek to team up with Tschudi

Novatek has reportedly signed an agreement with Norwegian logistics company Tschudi to undertake LNGC ship-to-ship transfers at Kirkenes.

According to the Barents Observer, the agreement will last for two to three years before Novatek's proposed transshipment hub, near Murmansk, comes on stream.

The agreement was announced by Novatek CEO, Leonid Mikhelson, during the recent Eastern Economic Forum in Vladivostok.

Tschudi operates terminals and logistics operations at Kirkenes,

near the Russian border and has previously been engaged in transshipping Russian oil.

It was reported that Novatek was seeking to cut the costs associated with operating expensive Arc7s by reducing their sailing distances from Sabetta.

In another move, Novatek Gas and Power Asia has shipped its first LNG cargo to the Brazilian market. The LNG was produced at the Yamal LNG project and the

cargo was delivered to Petrobras' Bahia regasification terminal.

"Our LNG marketing strategy aims to diversify our supply geography and customer base," said Mikhelson, "This shipment represents our first LNG cargo produced by our own production to the Latin American market, and confirms the viability of our logistical model and unique geographical location of the Yamal LNG project." ■

ICS to publish updated 'Best Practice Safety Guide for Gas Carrier Operators'

The International Chamber of Shipping (ICS), said this week that it will publish a new edition of the ICS Tanker Safety Guide (Liquefied Gas) this December.

The 'ICS Gas Guide' is claimed to be the definitive industry best practice guidance for gas carrier operators, and is a carriage requirement under the national regulations of many flag states.

"It is strongly recommended that a copy of the completely

revised third edition is carried on board every ship engaged in the transportation of liquefied gas by sea," said ICS Deputy Secretary General, Simon Bennett

The fully revised third edition (350 A4 pages with illustrations and cargo data

sheets) replaces and supersedes the previous 1995 edition. Purchasers will also have access to an electronic version with a 'search' function.

Additional information about the imminent new edition of the 'ICS Gas Guide' can be found on the ICS website. ■

NEWS NUDGES

Fleet changes

Mitsui OSK Lines (MOL) held a naming ceremony on 11th September for an Arc7, which was jointly ordered by MOL and China COSCO Shipping Corp, at Daewoo Shipbuilding & Marine Engineering (DSME).

The newbuilding was named 'Vladimir Vize' by Irina Ershova of Novatek, the major shareholder in the Yamal LNG project.

'Vladimir Vize' is due to go into service for the Yamal LNG project following her delivery at the end of this month.

Construction of the last of the three newbuilding Arc7s has been progressing as planned at DSME. The vessels are expected to be delivered to the Yamal LNG Project in the next year.

Furthermore, the building of the four conventional LNGCs earmarked for the Yamal LNG project is proceeding with project partner, China COSCO Shipping, using both internal and external supervisors.

Construction of the four vessels is expected to be completed 2019-2020.

Meanwhile, Teekay delivered its second Arc7 'Rudolph Samoylovich', to the Yamal LNG project charterer on 6th September, 2018, in Sabetta.

At the request of the charterer, the 172,000 cu m vessel was handed over nearly three months earlier than anticipated, Teekay said.

The Arc7 transited the Northern Sea Route after its delivery from DSME at the end of August.

'Rudolph Samoylovich' has joined her sister 'Eduard Toll' as the second of six Arc7 LNGCs that Teekay will provide for the Yamal LNG project by 2020.

Recent new orders reported included a small-scale 28,000 cu m LNGC for Gasfin at Jiangnan for 2019 delivery and four 7,500 cu m bunker tankers for Stolt-Nielsen at Keppel Nantong.

The price of the bunker tankers was said to be \$34 mill each and they are set for delivery next year.

AiPs granted for several projects

At Gastech, several Approval in Principles (AiP) were announced for various projects.

These included ABS' AiP for the 'LNG JUMBO', a new LNGC design developed by Jiangnan Shipyard (Group).

The design features the GTT MK III Flex cargo containment system developed in co-operation with ship designer MARIC.

It also specifies a WinGD X-DF low-pressure, low-speed, 2-stroke dual-fuel main engine propulsion system. When the engine is in gas mode, the system meets IMO NOx Tier III requirements without the need for exhaust gas treatment systems to be fitted.

A US Coast Guard certified ballast water treatment system is also included in the design package.

Elsewhere, GTT received an AiP from Bureau Veritas (BV) for the development of a new CCS evolution of the NO96 range. This CCS, named NO96 Flex, benefits from the use of an efficient foam panel insulation.

NO96 Flex maintains the main elements of the NO96 technology. The insulating panels are mechanically anchored to the inner hull, while the double

metallic barrier concept remains with an unchanged secondary Invar membrane but with an evolution of the primary membrane, as this has been changed from Invar to corrugated stainless steel.

The integration of insulating foam panels has been enhanced to take advantage of the continuous improvement in thermal performance of Polyurethane foam material.

The use of PU foam at primary and secondary levels will allow GTT to offer an LNG boil-off rate reduction down to 0.07%V per day, the company claimed.

Lloyd's Register (LR) has also announced an AiP to Wison for the company's 300 MW FSRP concept design.

LR explained that FSRPs were a relatively new design concept and this market is expected to expand in coming years.

Essentially, it is a floating LNG power plant, which receives LNG from ships and stores it within its own tanks below deck, before regasifying the LNG and using it to fuel an on board power plant.

LR, Wison and GTT are working

together to develop the concept, which will be designed to supply 300 MW electrical power, using LNG as fuel and will be a barge-type construction moored at a jetty or near to shore.

A Joint Development Project (JDP) agreement for the design was also signed by LR, Wison and GTT at Gastech.

Bunker vessel

In addition, LR issued an AiP to Jiangnan Shipyard for a 7,500 cu m LNG bunker vessel (LBV) design to supply gas for ships using LNG as fuel.

Hu Keyi, Jiangnan Technical Director, explained: "The 7,500 cu m LBV has a compact design for compatibility with quays and ships, a well-developed hull to reach economical speed-power performance. A dual fuel diesel-electric (DFDE) propulsion system, two azimuth thrusters and one bow thruster to provide excellent manoeuvrability and safety while in port/at anchorage will be fitted.

"Two IMO type C LNG tanks and a state-of-art designed cargo handling system are equipped on board to provide variable means of cargo handling, boil-off gas (BOG) management and ship to ship (STS) transfer," he added.

This design is a member of the 'LNGRELAY' family, a series of LBVs developed by Jiangnan. These include a 5,500 cu m LBV, 7,500 cu m, 10,000 cu m, 12,000 cu m, and a 20,000 cu m LBV. ■



ABS has awarded Jiangnan an AiP for its LNG JUMBO design

NEWS NUDGES

Witherby publishes LNG terminal information portal

Witherby Publishing Group launched the web-based Witherby's LNG Port Info at Gastech, Barcelona.

This is a web portal providing detailed and up-to-date information for each LNG import and export terminal, from an LNGC perspective.

It contains terminal data from over 135 LNG ports in more than 45 countries.

The portal includes:

- Port and country information.
- Pre-arrival requirements.
- Pilotage and tug use.
- Navigation notes.
- Charts.
- Mooring plans and requirements.
- Berth specifications.

Witherby's CEO, Iain Macneil, said: "We recognised there was a need for reliable, up-to-date information for a visiting LNG carrier to make operations easier and safer. I am delighted to introduce our LNG Port Info Portal to the global industry at the Gastech exhibition and conference in Barcelona."

Thus far, over 800,000 Witherby eBooks are in use on board ships and in offices worldwide.

TGE wins small-scale FSRU equipment contract

At the end of July, TGE Marine Gas Engineering signed a contract to design and supply the cargo handling system and tank material package to be installed on a small-scale FSRU to be built by Jiangnan.

The 28,000 cu m capacity barge type FRU was ordered by TEMA LNG, which is backed by London-based Helios Investment.

In close co-operation with the owner and the shipyard,

TGE Marine participated in the development of this new flexible design working in parallel with a larger floating storage unit (FSU).

The barge will be a two tank version with an individual

tank size of 14,000 cu m. Five modular compact regas skids will provide a peak send-out rate of 335 tonnes per hour, or about 2.9 mill tonnes per year, at a send-out pressure of 65 bar.

With more than 20 large LNG-FSRUs in service, TGE said that it considered this order a breakthrough for the small-scale LNG market, especially for the supply of natural gas to power plants. ■

GasLog takes Kongsberg Digital's training package

Kongsberg Digital (KDI) is to deliver an LNG simulator package to GasLog's Piraeus training centre.

The package is based on an integrated, turnkey training solution featuring a K-Sim Navigation DNV Class A ship's bridge simulator and a K-Sim Engine Desktop simulator, including the Steam Plant Dual Fuel LNG Carrier and the Diesel Electric Dual Fuel DE21 LNG models.

The engine room models will be interfaced to a K-Sim Cargo LNG Liquefied Natural Gas Carrier-M cargo handling simulator.

The simulators will be installed in GasLog's Technical Management HQ in Piraeus, Greece, where a whole floor is dedicated to simulator training.

GasLog's investment in the K-Sim package emphasises the central importance of simulator training within the Greek LNG arena, KDI said.

In addition to GasLog, KDI has



GasLog has invested in a Kongsberg simulator training suite

provided K-Sim training solutions for Minerva Marine, Maran Gas Maritime, TMS Cardiff Gas and Tsakos Energy Navigation (TEN), meaning that it services more than half of the nine companies, which constitute the current Greek LNGC fleet.

"Greece is poised to become the largest and most significant

shipping nation in the global LNG sector," said Tone-Merete Hansen, KDI's Senior Vice President in Maritime Simulation, "And KDI is proud to be such an integral associate in support of this drive. Promoting and perpetrating the smart transportation and usage of a clean, economically efficient fuel ties in very closely

with our corporate desire to enable safer, greener and more streamlined working practices."

"Straight from the outset, KDI's integrated simulator solution will allow our trainee crews to reinforce and build upon our core values of teamwork, quality of service, integrity and customer focus," Mrs Archontia Leni, GasLog's Competency Assurance Manager, added. "Above all, as our company credo indicates, safety means the world to us - and KDI's innovative simulator training package will help us to establish and support a culture of crew protection and environmental awareness that resonates throughout our entire organisation."

GasLog currently operates 27 LNGCs through a subsidiary, GasLog LNG Services and also has seven ships on order. ■

LNGCs set to benefit from new mooring analysis tool

This month sees the launch of SHIPMOOR, a new mooring analysis tool designed to reduce the risk of disconnections between LNG terminals and LNGCs.

Developed as a collaborative project between HR Wallingford and Witherby Publishing Group, SHIPMOOR is an internet-based application that facilitates mooring analysis, matching data on LNGCs and terminals to support ship to shore compatibility assessments.

Primarily designed to make the assessment of mooring an

LNG carrier alongside a berth a straightforward process, and reduce the likelihood of error with pre-entered ship and berth data, SHIPMOOR uses the combined power of cloud-based servers to undertake the static (Phase I) and dynamic mooring (Phase II, where required) analysis for each vessel.

SHIPMOOR provides reliable

and accurate ship-to-shore mooring assessments, including 3D visualisation of the mooring arrangements with a 3D interactive tool for the development and examination of mooring plans.

Dr Mark McBride, HR Wallingford's Ships Group Manager, said: "SHIPMOOR can be used for all types of ships to validate their mooring arrangements against the conditions they will encounter at a specific berth. In the case of LNG carriers, the results can be validated against industry-specific environmental criteria."

Technical Director of Witherby, Johan Machtelincx, commented: "SHIPMOOR will make the mooring analysis of an LNG carrier alongside a berth a straightforward process. It is a 21st century solution for mooring analysis."

By optimising a process that is usually completed manually, SHIPMOOR helps to minimise errors and provides data to port operators, vessel owners/charterers and cargo owners by maintaining up-to-date characteristics of individual ships and LNG terminals in a central database.

Iain Gunn, HR Wallingford's Oil and Gas Sector Lead, explained: "SHIPMOOR improves safety by mitigating the risk of mooring line failure, excessive vessel movement and emergency disconnection of the loading arms. It typically takes around 12 hours to re-establish these connections, with the associated demurrage. The potential damage to the environment, assets and reputation, however, are unquantifiable." ■



A new mooring analysis tool will help LNGCs come alongside terminals

GTT licenses HMD and Keppel O&M

GTT is still spreading its wings across the LNG shipping sector by signing further licensing deals and winning more containment tank contracts.

GTT has signed a technical assistance and license agreement (TALA) with Hyundai Mipo Dockyard (HMD).

This agreement targets the outfitting of gas carriers, in particular small and mid-scale (up to 50,000 cu m) and LNG fuel tanks for commercial vessels.

GTT said that it represented a new step forward in the development of its technologies in the small-capacity market. It will also allow both partners to further expand their offer to shipowners, in particular in the LNG as fuel segment.

HMD obtained a license after having completed a qualification process that began in April,

2018, including the construction of a Mark III Flex mockup and an audit led by GTT.

The shipyard became the third yard in the Hyundai group to be licensed by GTT. The other two - Hyundai Heavy Industries and Hyundai Samho Heavy Industries - have been constructing LNGCs and FSRUs with GTT membrane technologies for a number of years.

Philippe Berterottière, GTT Chairman and CEO, said: "We are pleased to expand our long-time partnership with Hyundai, group with whom the signature of our first TALA goes back to 27 years. We have the pleasure to now count HMD, who has

just delivered its 1,000th ship, among our new partners."

In addition, GTT has signed another TALA with Keppel Offshore & Marine (Keppel O&M) enabling Keppel O&M to market LNG solutions using GTT's membrane containment systems.

The Group's network of global yards will be licensed as an outfitter offering GTT's LNG systems for vessels' equipment and maintenance, LNG bunker vessels, LNG-fuelled vessels, as well FSRUs, with a particular focus on vessels with capacities between 30,000 and 80,000 cu m.

Keppel O&M's expertise and experience in GTT's systems started in 2004 when Keppel

Shipyard became an approved repair yard for ships equipped with GTT membrane systems and was extended in 2014 when Keppel Singmarine, signed a license agreement for newbuilds.

GTT has also received another order from Samsung Heavy Industries (SHI), to design the tanks of two 174,000 cu m LNGCs, on behalf of a European shipowner.

The LNG tanks of both vessels will be fitted with the Mark III Flex+ membrane containment system, which offers a guaranteed boil-off rate of 0.07% of tank volume per day.

The delivery of the vessels is planned during the second semester of 2020. ■

Heat exchanger for Babcock's BOG recovery system

Chart Energy & Chemicals, a subsidiary of Chart Industries, has won a contract to provide brazed aluminium plate fin heat exchangers (BAHX) to be fitted in Babcock's patent-pending ecoSMRT LNG reliquefaction system.

The system has been designed to recover excess boil-off gas (BOG) on board LNGCs and can be installed on newbuildings, as well as retrofitted onto older ships, and can be deployed on both large and small carriers, as well as bunkering vessels.

BAHX characteristics are fundamental to ecoSMRT's key features. The multi-stream capability enables an ecoSMRT plant to incorporate single mixed refrigerant (SMR) cooling within the BAHX, which removes the need for a separate refrigeration plant.

The turndown capability of BAHX enables ecoSMRT to operate at 30% to 100% reliquefaction capacity to match the BOG system requirements. Engineers at both Babcock and Chart have worked on the design to ensure that the system is as compact and lightweight as possible.

George Arnett, Chart Energy & Chemicals, Vice President Global Energy Sales & Marketing, said: "Chart prides itself on being at the vanguard of LNG technology and we are delighted with this latest award and the opportunity to team up with Babcock LGE and assist in introducing a highly innovative solution into the marketplace."

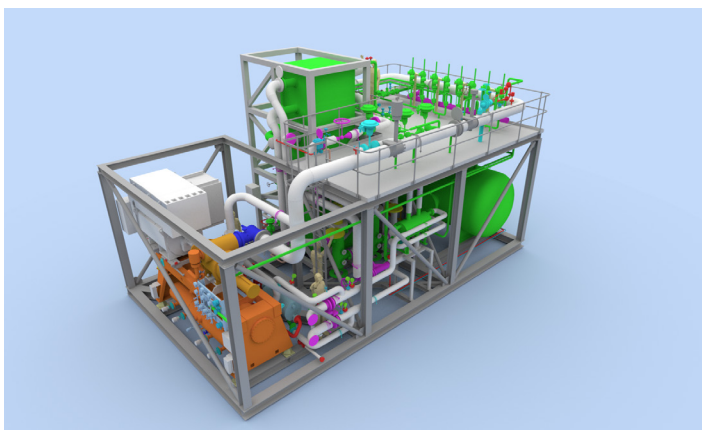
Neale Campbell, Babcock LGE Managing Director, added: "Babcock's recent ecoSMRT

contract to Chart highlights our ongoing collaboration within the LNG market. Similarly, Babcock is developing an increasing footprint across the LPG, ethane and ethylene carrier markets through our supplementary technologies."

There are more than 500 Chart BAHX in LNG service worldwide. As well as land based plants, Chart has also supplied BAHX offshore.

In addition, ecoSMRT received LR's risk based design (RBD) process approval at Gastech 2018 in Barcelona.

The system completed extensive hazard identification (HAZID) and hazard and operability study (HAZOP). RBD is in the final stage of review and certification for equipment was planned ahead of receiving LR General Approval for Ship Application (GApp). ■



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WORLD LNG CARRIER ORDERBOOK

Name	Segment	Yard	Containment	Capacity System	Propulsion	Delivery Date	Ordered	Primary Owner
Marvel Eagle	LNGC	Kawasaki	Moss	155000	TFDE	Oct-18	Jan-14	MOL
Energy Liberty	LNGC	Japan Marine United Corp (Jmu)	SPB	165000	TFDE	Aug-18	Feb-14	MOL
Jmu Tsu 5072	LNGC	Japan Marine United Corp (Jmu)	SPB	165000	TFDE	Mar-19	Feb-14	MOL
Jmu Tsu 5073	LNGC	Japan Marine United Corp (Jmu)	SPB	165000	TFDE	Jul-19	Feb-14	MOL
Jmu Tsu 5071	LNGC	Japan Marine United Corp (Jmu)	SPB	165000	TFDE	Nov-18	Feb-14	NYK
Gaslog Gladstone	LNGC	Samsung	TZ Mk. III	174000	XDF	Jan-19	May-14	GasLog
Maran Gas Syros	LNGC	DSME	GT NO 96	173400	MEGI	Apr-19	Jun-14	Maran Gas Maritime
Pan Africa	LNGC	Hudong-Zhonghua	GT NO 96	174000	TFDE	Jan-19	Jun-14	Teekay LNG
Daewoo 2430	LNGC	DSME	GT NO 96	172000	TFDE - Azipod	Jul-19	Jul-14	Teekay LNG
Daewoo 2431	LNGC	DSME	GT NO 96	172000	TFDE - Azipod	Aug-19	Jul-14	Teekay LNG
Daewoo 2433	LNGC	DSME	GT NO 96	172000	TFDE - Azipod	Oct-19	Jul-14	Teekay LNG
Daewoo 2434	LNGC	DSME	GT NO 96	172000	TFDE - Azipod	Nov-19	Jul-14	Teekay LNG
Daewoo 2432	LNGC	DSME	GT NO 96	172410	TFDE - Azipod	Sep-19	Jul-14	MOL
Vladimir Vize	LNGC	DSME	GT NO 96	172410	TFDE - Azipod	Sep-18	Jul-14	MOL
Kawasaki Sakai 1729	LNGC	Kawasaki	Moss	155000	TFDE	Aug-19	Sep-14	MOL
Marvel Hawk	LNGC	Samsung	GTT Mark III Flex	174000	XDF	Dec-18	Oct-14	MOL
Samsung 2150	LNGC	Samsung	GTT Mark III Flex	174000	XDF	Jan-19	Oct-14	MOL
British Achiever	LNGC	DSME	GT NO 96	173400	MEGI	Oct-18	Nov-14	BP
British Contributor	LNGC	DSME	GT NO 96	173400	MEGI	Nov-18	Nov-14	BP
British Mentor	LNGC	DSME	GT NO 96	173400	MEGI	Feb-19	Nov-14	BP
British Sponsor	LNGC	DSME	GT NO 96	173400	MEGI	Mar-19	Nov-14	BP
Daewoo 2444	LNGC	DSME	GT NO 96	173400	MEGI	Jan-19	Nov-14	BP
Boris Davydov	LNGC	DSME	GT NO 96	172410	TFDE - Azipod	Nov-18	Dec-14	Dynagas
Georgiy Brusilov	LNGC	DSME	GT NO 96	172410	TFDE - Azipod	Oct-18	Dec-14	Dynagas
Nikolay Zubov	LNGC	DSME	GT NO 96	172410	TFDE - Azipod	Dec-18	Dec-14	Dynagas
Mitsubishi Nagasaki 2322	LNGC	Mitsubishi H.I.	Moss	177000	STaGE	Sep-19	Jan-15	MOL
Marvel Crane	LNGC	Mitsubishi H.I.	Moss	177000	STaGE	Dec-18	Jan-15	NYK
Mitsubishi Nagasaki 2323	LNGC	Mitsubishi H.I.	Moss	177000	STaGE	Jan-19	Mar-15	MOL
Maran Gas Chios	LNGC	DSME	GT NO 96	173400	MEGI	Jan-19	Jun-15	Maran Gas Maritime
Maran Gas Hydra	LNGC	DSME	GT NO 96	173400	MEGI	Jan-19	Jun-15	Maran Gas Maritime
Hyundai Samho S856	LNGC	Hyundai Heavy	TZ Mk. III	174000	MEGI	Jan-19	Jun-15	Teekay LNG
Yamal Spirit	LNGC	Hyundai Heavy	TZ Mk. III	174000	MEGI	Jan-19	Jun-15	Teekay LNG
Kinisis	LNGC	DSME	GT NO 96	173400	MEGI	Sep-18	Jul-15	Chandris
Daewoo 2489	LNGC	DSME	GT NO 96	173400	MEGI	Nov-19	Sep-15	BWGas
Shinshu Maru	LNGC	Kawasaki	Moss	177000	STRH	Feb-19	Sep-15	MOL
Sohshu Maru	LNGC	Kawasaki	Moss	177000	STRH	Jul-19	Sep-15	MOL
Diamond Gas TBN	LNGC	Mitsubishi H.I.	Moss	165000	STaGE	May-19	Nov-15	Mitsubishi
Bushu Maru	LNGC	Mitsubishi H.I.	Moss	180000	STaGE	Jun-19	Nov-15	NYK
Nohshu Maru	LNGC	Mitsubishi H.I.	Moss	180000	STaGE	Feb-19	Nov-15	NYK
Hyundai Ulsan 2937	LNGC	Hyundai Heavy	GTT Mark III Flex	180000	XDF	Apr-19	May-16	SK Shipping
Hyundai Ulsan 2938	LNGC	Hyundai Heavy	GTT Mark III Flex	180000	XDF	Jul-19	May-16	SK Shipping
Daewoo 2466	LNGC	DSME	GT NO 96	173400	MEGI	Oct-19	Jun-16	Maran Gas Maritime
Daewoo 2467	LNGC	DSME	GT NO 96	173400	MEGI	Nov-19	Jun-16	Maran Gas Maritime
Samsung 2213	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Jun-20	Sep-16	GasLog
Daewoo 2469	LNGC	DSME	GT NO 96	173400	MEGI	Apr-20	Dec-16	Maran Gas Maritime
Hyundai Ulsan 2964	LNGC	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	May-19	Mar-17	Knutsen
Flex Constellation	LNGC	DSME	GT NO 96	173400	MEGI	Jun-19	Mar-17	Flex LNG
Flex Courageous	LNGC	DSME	GT NO 96	173400	MEGI	Aug-19	Mar-17	Flex LNG
Hyundai Ulsan 2963	LNGC	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-19	May-17	Knutsen
MOL HUDONG-ZHONGHUA 1/4	LNGC	Hudong-Zhonghua	GT NO 96	174000	MEGI	Dec-19	Jul-17	MOL
MOL HUDONG-ZHONGHUA 2/4	LNGC	Hudong-Zhonghua	GT NO 96	174000	MEGI	Mar-20	Jul-17	MOL
MOL HUDONG-ZHONGHUA 3/4	LNGC	Hudong-Zhonghua	GT NO 96	174000	MEGI	Jul-20	Jul-17	MOL
MOL HUDONG-ZHONGHUA 4/4	LNGC	Hudong-Zhonghua	GT NO 96	174000	MEGI	Oct-20	Jul-17	MOL
Gaslog Windsor	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Jul-19	Dec-17	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 = 24th September 2018

Name	Segment	Yard	Containment	Capacity System	Propulsion	Delivery Date	Ordered	Primary Owner
Daewoo 2478	LNGC	DSME	GT NO 96	173400	MEGI	May-20	Dec-17	Maran Gas Maritime
HHI NYK/EDF	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Apr-20	Jan-18	NYK
HHI / Total	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Jan-18	Cardiff Marine
HHI / Total / Sovc	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Jan-18	Sovcomflot
DSME 2490	LNGC	DSME	GT NO 96	173400	MEGI	Feb-20	Feb-18	BWGas
DSME 2491	LNGC	DSME	GT NO 96	173400	MEGI	May-20	Feb-18	BWGas
HHI / Cardiff #1	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Feb-18	Cardiff Marine
HHI / Cardiff #2	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Feb-18	Cardiff Marine
DSME 2479	LNGC	DSME	GT NO 96	173400	MEGI	Aug-20	Feb-18	John Fredriksen
DSME 2480	LNGC	DSME	GT NO 96	173400	MEGI	Sep-20	Feb-18	John Fredriksen
Flex America	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Aug-20	Mar-18	Flex LNG
Flex Aurora	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jun-20	Mar-18	Flex LNG
SHI Gaslog #1	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Jun-20	Mar-18	GasLog
Samsung 2271	LNGC	Samsung	GTT Mark III Flex	174000	XDF	Apr-20	Mar-18	Cardiff Marine
DSME Minerva #1	LNGC	DSME	GT NO 96	173400	MEGI	Mar-21	Mar-18	Minerva Marine
DSME Minerva #2	LNGC	DSME	GT NO 96	173400	MEGI	Jul-21	Mar-18	Minerva Marine
Hyundai Ulsan 3086	LNGC	Hyundai Heavy	GTT Mark III Flex	180000	MEGI	Jun-20	Mar-18	Knutsen
DSME 2483	LNGC	DSME	GT NO 96	173400	MEGI	Oct-20	Mar-18	Alpha Gas
DSME 2484	LNGC	DSME	GT NO 96	173400	MEGI	Dec-20	Mar-18	Alpha Gas
SHI Gaslog #2	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Sep-20	May-18	GasLog
Maran Gas DSME	LNGC	DSME	GT NO 96	173400	MEGI	Oct-20	Jun-18	Maran Gas Maritime
DSME 2487	LNGC	DSME	GT NO 96	173400	TFDE	Apr-21	Jun-18	Maran Gas Maritime
DSME 2485	LNGC	DSME	GT NO 96	173400	MEGI	Mar-21	Jun-18	Alpha Gas
HHI Thenamaris #1	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Nov-20	Jun-18	Thenamaris
HH 8012	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		Feb-21	Jun-18	John Fredriksen
HH 8013	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		May-21	Jun-18	John Fredriksen
HHI Capital Gas #1	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		Sep-20	Jul-18	Capital Gas
HHI Capital Gas #2	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		Dec-20	Jul-18	Capital Gas
HHI Capital Gas #3	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		Mar-21	Jul-18	Capital Gas
HHI Capital Gas #4	LNGC	Hyundai Heavy	GTT Mark III Flex	174000		Jun-21	Jul-18	Capital Gas
DSME 2492	LNGC	DSME	GT NO 96	173400	MEGI	Nov-20	Jul-18	John Fredriksen
SHI Celcius #1	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Oct-20	Aug-18	Celcius Shipping
SHI Celcius #2	LNGC	Samsung	GTT Mark III Flex	180000	XDF	Jan-21	Aug-18	Celcius Shipping
HHI 3037	LNGC	Hyundai Heavy	GTT Mark III Flex	174000	XDF	Jul-20	Aug-18	Cardiff Marine
SHI 2300	LNGC	Samsung	GTT Mark III Flex	174000	XDF	Nov-20	Aug-18	GasLog
SHI 2301	LNGC	Samsung	GTT Mark III Flex	174000	XDF	Dec-20	Aug-18	GasLog

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Data last updated = 24th September 2018

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	Triputra (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 Conception	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Norgas Invention	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Vision Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2011	Unikum Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2014	LNG-Oil combi**	2,000	LNG	Germany	Yes	Veka
2014	Short Sea LNG Tanker **	4,000	LNG	Germany	Yes	Veka
2015	LNG Inland bunker**	800	LNG	Germany	Yes	Veka
2015	LNG bunker barge 1†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 2†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 3†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
2015	10 small carriers TBN**	5,000	LNG			Bimantara Group
2015	Jahre TBN**	6,200	LNG	Norway	Yes	Donsotank/Jahre Marine
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	JS Ineos Ingenuity	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Insight	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Intrepid	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	TBN 1	27,500	LNG	China?		Danyang?
2015	TBN 2	27,500	LNG	China?		Danyang?
2015	TBN 3	27,500	LNG	China?		Danyang?
2015	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
2016	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang

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*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 = 18th July 2018

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2016	JS Ineos Indepence	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Innvovation	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Inspiration	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2016	Navigator Aurora	35,000	Ethane/Ethylene	Markus Hood - Stenungsund	Ethane, for Borealis	Navigator
2016	Gaschem Beluga	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2016	Gaschem Orca	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2016	Ocean Yield TBN**	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2017	Oizmendi	600	LNG	Bilbao	Yes	Itsas Gas
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	ENGIE Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	Yuan He 1	30,000	LNG	China	Yes	CSR
2017	Navigator Eclipse	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Nova	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Prominence	35,000	Ethane/Ethylene	US	Ethane	Navigator
2018	CME TBN†	2,200	LNG	US Coast	Yes	CME
2018	Shell Bunker Barge TBN 4	3,000	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	Qi Yuan	28,000	LNG	China	Yes	Dalian Inteh Group
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Bunker Breeze	0	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2020	Shell Bunker Barge	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Total TBN	18,600	LNG	NWE	Yes	MOL
2020	FuelLNG TBN	7,500	LNG	Singapore	Yes	FuelLNG
2020	CLS TBN	3,500	LNG	Japan	Yes	CLS
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas

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