

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

28 October 2021

China ramps up LNG purchases

Unipe, the trading arm of Chinese giant Sinopec, has signed three contracts with Venture Global to import LNG.

Two were signed on 18th September but were only recently disclosed by the US Department of Energy (DoE).

In a letter sent to the DoE seen by newswires, Venture Global said that it had agreed two 20-year deals with Sinopec - one for 2.8 mill tonnes per year and the other for 1.2 mill tonnes per year.

Venture Global's planned Plaquemines LNG export facility will supply the LNG.

A third short term deal was also revealed last week for the supply of 1 mill tonnes per year for three years from the Calcasieu Pass liquefaction terminal.

These deals add to a recent spate of activity between US exporters and Chinese buyers amid volatile Asian and European prices that remain high, although down from record levels seen earlier

this month, S&P Global Platts reported.

According to Venture Global's disclosure to the DoE, LNG will be delivered on a free-on-board (FOB) basis. Pricing terms were not disclosed by either of the parties or the DoE.

Obligations to sell and deliver, and to take and pay for, LNG under the contract become effective on the latter commercial operational dates of the Calcasieu Pass facility and 1st March, 2023, provided that certain conditions are satisfied, one of the letters said.

Phased startup

Earlier this year, Venture Global had said that it planned a phased operational startup and that it could begin production and exports by the end of 2021 - a year earlier than originally planned.

However, according to newswires, the operator has not provided an update on construction progress at Calcasieu Pass since. The company had previously said full operations at the export terminal were expected in mid-2022.

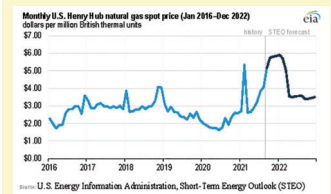
Venture Global also has long-term contracts for Calcasieu Pass agreed with Shell, Italy's Edison, Portugal's Galp, UK's BP, Spain's Repsol and Poland's PGNiG.

Cheniere Energy has also signed several contracts with major Chinese buyers recently and has concluded a deal with Gunvor (see page 3).

Extreme volatility in global gas markets is expected to spur more deals for US LNG supplies, based on the significantly cheaper input costs for feedgas and the destination flexibility of long-term contracts, Platts said.

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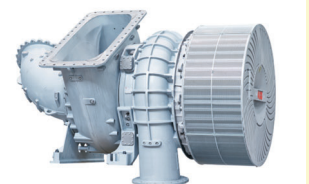


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Henry Hub to remain firm

Henry Hub natural gas spot prices will average \$5.67 per MMBtu between October and March next year, according to the US Energy Information Administration's (EIA) October 'Short-Term Energy Outlook' (STEO) forecast.

This will be the highest winter price since 2007-2008 and reflects below-average storage levels heading into the winter heating season and strong demand for US LNG, despite a relatively slow growth in US natural gas production.

EIA said that it expected Henry Hub prices will soften after the first quarter of 2022, as production growth outpaces the rise in LNG exports, down to an average \$4.01 per MMBtu for the year.

US LNG exports are heading for a record high this year, and the EIA forecast another record for next year.

LNG exports are forecast to average 9.7 billion cu ft per day this year (3.2 billion more than the 2020 record of 6.5 billion cu ft per day)

and will overtake annual pipeline exports for the first time.

The year-on-year increase in LNG exports will coincide with a slight growth in US natural gas production.

As US LNG exports have grown faster than domestic natural gas production, inventories are lower than average. EIA estimated that at the end of September, total US natural gas inventories were 5.5% below the five-year (2016-2020) average.

Lower US inventories could contribute to more natural gas price volatility, particularly if any US region experiences a severe cold snap, which makes the price outlook for this winter very uncertain, the administration added.

Monthly U.S. Henry Hub natural gas spot price (Jan 2016–Dec 2022)
dollars per million British thermal units



Source: U.S. Energy Information Administration, Short-Term Energy Outlook (STEO)

For 2022, EIA predicted decreasing Henry Hub prices as anticipated growth in domestic natural gas production begins to outpace growth in US LNG exports. US production is expected to average 96.4 billion cu ft per day in 2022,

or 3.9 billion more than this year, and US LNG exports will rise by a smaller 1.4 billion cu ft per day, during the period.

Faster production growth will put downward pressure on natural gas prices, the EIA forecast. ■

LNG's rising demand forecast to 2030

LNG demand is expected to rise by 25 to 50% by 2030, Morgan Stanley Research analysts said in a note issued earlier this week.

Morgan Stanley also raised its long-term LNG price outlook to \$10 per MMBtu, expecting spot prices to average 40% higher over the next decade, versus the past five years.

Asian spot LNG prices hit a record of above \$56 per MMBtu earlier this month as surging demand ahead of the northern hemisphere winter, spurred by an economic rebound from the pandemic, outstripped supply.

At least 73 million tonnes per annum of new projects are needed to meet LNG demand by 2030, the

analysts claimed. This will require an additional \$65 billion of new projects, adding to the \$200 billion of projects already under construction, which have been sanctioned since 2019.

"Contrary to investor expectations, the world is going to need more LNG in the initial phase of the energy transition. Competing technologies for natural gas are not being developed fast enough, and there are significant benefits in reducing coal consumption while greener fuels are commercialised," the note said.

Projects with a lower emission intensity will be more sought after and are more likely to progress, the analysts said.

While higher gas prices are likely to underpin further investment in LNG, supply will be slower to respond than in previous cycles.

"This will be driven by uncertainty over medium-term demand along with more capital discipline from the industry, including diversification into greener energies," the note added. "We think investor sentiment towards LNG-focused companies is likely to

increase given better prices and returns expectations."

LNG demand will outpace other hydrocarbons growth over the next 10 to 15 years, Morgan Stanley said, adding that oil demand is expected to grow in line with recent averages, while coal demand is expected to be flat.

Asia, where coal makes up a high proportion of the energy mix, will be the key driver for LNG demand growth led by China and India as well as Taiwan, Thailand, Bangladesh, Indonesia and Malaysia, the note revealed. ■

LNG Shipping News

2 Prospect Road
St Albans AL1 2AX
United Kingdom
www.lngjournal.com
Tel: +44 (0)20 7253 2700

Publisher
Stuart Fryer

Editor

Ian Cochran
+44 (0)7748 144265
lancochran74@gmail.com

Ad sales enquiries

Narges Jodeyri
+44 (0)20 7017 3406
narges@lngjournal.com

Subscriptions

Stephan Venter
Tel: +44 (0) 20 7253 2700
venter@lngjournal.com

Production

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

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Cheniere signs Gunvor SPA

Cheniere Marketing has signed a binding LNG Sale and purchase agreement (SPA) with a Glencore subsidiary.

Under the SPA, Glencore has agreed to purchase around 0.8 mill tonnes per annum of LNG from Cheniere Marketing on a free-on-board (FOB) basis for about 13 years beginning in April, 2023.

The SPA purchase price will be indexed to the Henry Hub price, plus a fixed liquefaction fee.

"We are pleased to announce this long-term SPA with Glencore, one of the world's largest producers and marketers of commodities and a significant player in the global LNG market," said Jack Fusco, Cheniere's President and

CEO. "This agreement once again reinforces Cheniere's position as a leading global LNG provider, and we look forward to a successful long-term relationship with Glencore.

"This SPA further builds upon Cheniere's commercial momentum, marking another important milestone in contracting our LNG capacity ahead of an FID of Corpus Christi Stage 3, which we expect to occur next year," he added.

Corpus Christi Stage 3 is being developed to include up to seven mid-scale liquefaction trains with a total expected nominal produc-



Cheniere has wrapped up another supply deal

tion capacity of about 10 mill tonnes per year.

The project has received all necessary regulatory approvals. ■

NOVATEK outlines Arctic LNG opportunities and problems

PAO NOVATEK recently conducted the company's first Arctic LNG Projects Shipowners Conference in Moscow.

Some of the world's major shipping companies top management, marine equipment manufacturers and marine IT developers took part in the conference.

Particular attention was paid to environment protection, promotion of green shipping and introduction of sustainable technical solutions with the view to reducing Arctic marine operations' carbon footprint, NOVATEK said.

The conference also looked into year-round navigation along the eastern route and crew training for Arctic vessels' operations, which included the co-operation between shipowners and Russia's dedicated Arctic navigation training centres.

"This conference offered all stakeholders in Russian Arctic shipping a unique opportunity to engage in a direct dialogue on the topical issues of shipping in the re-

gion, including matters pertaining to organising safe year-round navigation in the eastern sector of the Northern Sea Route, as well as to obtain first-hand updates on most recent developments allowing to improve the vessels' energy efficiency and make them more environmentally friendly," explained Leonid Mikhelson, NOVATEK's Chairman of the Management Board.

"The created infrastructure and the accumulated unique experience in complex Arctic projects implementation, including hydrocarbons shipping, allow the company to achieve in the near future a significant increase in its LNG production, and subsequently the shipping volumes," he said.

Contractors forum

In addition, NOVATEK hosted a contractors and suppliers forum

dedicated to expanding co-operation in construction at its LNG Construction Centre in Belokamenka, Murmansk Region.

The forum aimed to foster sharing experience and broadening opportunities for Russian equipment manufacturers and contractors to ensure successful implementation of large-scale Arctic LNG projects.

Representatives from 153 suppliers and contractors, nine NOVATEK's subsidiaries and joint ventures, as well as representatives of the Russian Federation Government attended the forum.

"This is the forum's third edition and it is the first time that we host it at the LNG Construction Centre in Belokamenka. In these meetings, we discuss in detail the execution of our LNG projects with Russian equipment manufacturers, engineering companies and contractors," Mikhelson said.

"One of our paramount tasks is to gain a significant share of the global LNG market. This can be achieved by maximising import substitution and local content in equipment manufacturing for

large-scale LNG projects, which reduces capital expenditures and makes Russian LNG more competitive.

"Our joint efforts with the support by the Government will allow building up a new LNG sector of Russia's industry," he concluded.

Meanwhile, the Arctic LNG 2 projects partners have signed an amendment to the loan agreement dated 28th April, 2021 with a syndicate of Russian banks.

These included PJSC Sberbank, Gazprombank (Joint Stock Company) and its subsidiary Bank GPB International, State Development Corporation VEB.RF and 'Bank Otkritie Financial Corporation' (Public Joint-Stock Company).

The banks agreed to increase the maximum financing amount under the 15-year credit line facility to €5.7 bill.

This amendment formed part of the external financing package for the Arctic LNG 2 project. The final amount of financing from the Russian banks within the maximum amount of up to €5.7 bill will be determined once the international portion of the project's external financing is finalised. ■

“ One of our paramount tasks is to gain a significant share of the global LNG market. ”

- Leonid Mikhelson, Chairman of the Management Board, NOVATEK

Japanese and Thai importers to co-operate

Japan's INPEX, Kyushu Electric and Thailand's PTT International Trading have reportedly agreed to co-operate to optimise their LNG cargoes, fleet and tank operations.

According to newswires, this move has been made to help ensure the companies LNG supplies during times of emergency.

Under a Memorandum of Understanding (MoU), said to have been signed on 19th October, the three parties have agreed to jointly plan LNG spot cargo procurements and swap cargoes, as well as using LNG reload and storage facilities in Japan and Thailand to optimise their LNG stocks during emergencies.

They will also negotiate to re-

ceive each others LNG cargoes at their import terminals for swaps and reloads, as well as jointly operating their fleets.

This move was made in response to last winter's problems, when Japanese power utilities and energy companies faced a shortage of LNG during extreme cold spells, which prompted Japanese companies to better prepare for contingencies ahead of this year's winter demand season.

For Kyushu Electric, which im-

ports a large amount of LNG from Australia, an emergency framework could work as a triangular supply network between Japan, Thailand and Australia, a source told newswires.

Meanwhile, Thailand's PTT has been working to develop its regional LNG hub services to compete with regional rivals, such as Malaysia, Indonesia and Singapore.

Southeast Asia's LNG importers and exporters are gradually building LNG redistribution capabilities

to allow full shipments to be split into smaller parcels to supply downstream buyers in the region.

Australia is by far Japan's largest LNG supplier exporting 17.96 million tonnes of LNG between January and August, accounting for 35% of the country's total LNG imports, according to Ministry of Finance data.

Currently, INPEX's Ichthys LNG facility sells about 300,000 tonnes per year of LNG to Kyushu Electric.

All three utilities have LNG storage facilities available. ■

Waitsia Stage 2 commences construction

Mitsui E&P Australia (MEPAU) and joint venture partner Beach Energy have held a ground breaking ceremony for the Waitsia Gas Project Stage 2.

Engineering and construction firm Clough was awarded the Engineering, Procurement and Construction (EPC) contract for Waitsia Stage 2 at the start of this year.

Production is expected to commence in the second half of 2023. Along with supplying gas to the domestic market, Stage 2 will also export natural gas through the North West Shelf LNG facility.

MEPAU has recently signed

agreements with the Japan Oil, Gas and Metals National Corporation (JOGMEC) and with Wesfarmers Chemicals, Energy & Fertilisers Limited (WesCEF).

These agreements will support studies into carbon storage and low carbon ammonia production.

Ken Yamamura, MEPAU's Managing Director and CEO, said; "Mitsui E&P Australia, together with our joint venture partner Beach Energy and Yamatji tradi-

tional owners, are proud to officially launch construction of the Waitsia Gas Project Stage 2.

"Waitsia Stage 2 has and will continue to unlock significant economic opportunities for the Mid West region and Western Australia," he said.

Matt Kay, Beach Energy Managing Director and CEO, added; "The construction of the Waitsia Gas Project Stage 2 is great news for local jobs, the local economy and

for the domestic supply of natural gas to Western Australia.

"Beach Energy is proud to be a partner in this project, and we look forward to the commissioning of the new gas plant in 2023.

"We would also sincerely like to thank the operator Mitsui E&P Australia, as well as the Yamatji traditional owners and the Western Australian Government for their support for this significant project for the Mid West." ■

NEWS NUDGE

Cargoes abound

Apart from the Chinese and Cheniere deals, mentioned in this issue, Kuwait Petroleum Corp (KPC) was believed to be seeking five LNG cargoes for delivery between February and June next year.

The tender should have closed on 19th October, according to local newswires.

KPC was said to be only seeking fixed priced offers.

Elsewhere, Japan's Tohoku Electric Power has signed a contract with bp for six LNG cargoes, two trading sources told Reuters.

As a result, the Japanese util-

ity was said to be avoiding paying record high prices on the spot market for short-term supplies.

The cargoes will be delivered in the first half of next year and are priced at 20% of Brent crude, the sources said, translating to about \$17 per MMBtu at the current prices.

This is less than half the prevailing spot price in Asia of \$38.50 per MMBtu, a record high as an energy crisis engulfs much of the Northern Hemisphere, driving a rally in oil and pushing coal prices to historic highs, Reuters said.

"They should be happy with that price," said one of the trading sources to the newswire.

Elsewhere, Singapore-based

Pavilion Energy is to nearly double the number of LNG cargoes it trades each year by 2024, with an even split between Europe and Asia.

In an interview with S&P Global Platts last week, Pavilion's CEO, Alan Heng said; "Today we are trading about 70 cargoes around the world, increasing over time from the first cargo in 2014. By 2024, we will be doing 120 cargoes. It's a very realistic target."

He also said that while Europe, as an active market, carries a heavier weight on Pavilion Energy's trading exposure, the company expects to even out its trading exposure between the Pacific and Atlantic basins.

'Exquisite' reaches milestone STS

The FSRU 'Exquisite', jointly owned by NAKILAT and Excelerate Energy, recently completed her 400th ship-to-ship (STS) transfer of LNG at the Engro Elengy Terminal (EETL) in Pakistan's Port Qasim.

The LNGC transferring the cargo was the Q-Flex 'Al Ghariya'.

'Exquisite' has been operating at Port Qasim since 2015 and the joint venture ownership was set up in 2018.

She has a cargo capacity of 150,900 cu m, while the peak re-gasification rate is 690 mill cu ft per day. ■

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Nakilat reports increased profit

Nakilat has reported an increased net profit of QR1,003.6 mill for the third quarter of this year.

This represents a 11.5% year-on-year rise, compared to a net profit of QR900 mill reported for the same period in 2020.

Key financial highlights from 3Q21 include:

- Revenue of QAR3,071 mill, an increase of 0.2%.
- General and administrative expenses fell by 4.8%.
- Operating expenses decreased by 0.9%.

The company's solid earnings results were primarily attributed to the implementation of the company's strategic initiatives across all levels, driven by a growth

strategy and cost optimisation, Nakilat said.

Its close alignment with Qatar National Vision 2030, which aims to create a sustainable future for the country, is championed by Nakilat's Board.

The company said that it had been diversifying its portfolio and expanding its international outreach in response to the greater global demand for clean energy.

In addition, it continued to expand its shipping management capabilities with the latest addition of technologically advanced LNGC newbuildings.

Currently, Nakilat's fleet stands at 74 vessels, just under 12% of the current global LNGC fleet.

Nakilat CEO, Eng Abdullah Al Sulaiti, said: "Our team continues to demonstrate exceptional agility and resilience, as reflected in our operational and financial performance for the year. Our robust financial performance over the last nine months is testament to the concerted effort of every employee and seafarer on our team.

"It is only through their continued support that we have remained persistent in executing our strategies, sustaining operational efficiencies, and ensured fiscal discipline across all our shipping and maritime operations. We are continually assessing new opportunities and emerging risks.

"Our agile ways of working allow us to tactfully navigate the market as we steer forward as the provider of choice for energy transportation and maritime services. It is this approach that has not only allowed us to persevere as a company, but also create growth for our shareholders," he said.

FSRU expansion

Nakilat has also announced that a

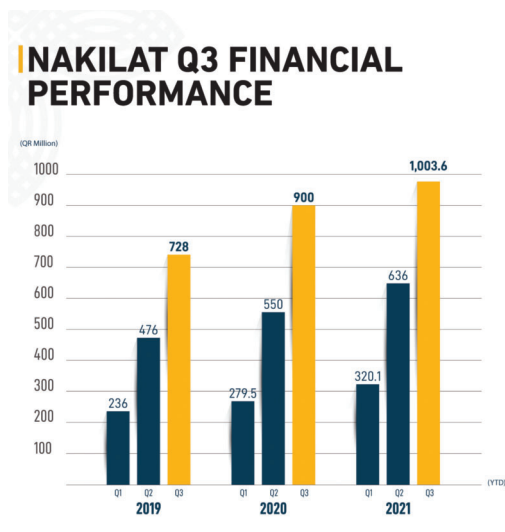
Memorandum of Understanding (MoU) has been signed with Karpowership to collaborate in the LNG-to-power market and jointly own and operate FSRUs.

Al-Sulaiti said: "We are very pleased and excited to sign this agreement with Karpowership. This fits very well with Nakilat's long-term growth plan to expand and diversify our shipping portfolio and strengthens our position as a global leader in the energy transportation sector."

Karpowership's CEO, Orhan Remzi Karadeniz, added: "We are very excited to be working with Nakilat as this will enhance our ability to offer a one stop shop tailor-made solution to our customers through our integrated business model where we design, develop, engineer and construct our entire assets.

"FSRUs, together with Power-ships, deliver energy to any country around the world, by utilising a cleaner and more reliable fuel than many existing options," he said.

Nakilat and Karpowership said that they hoped to set up a new joint venture and deliver the first FSRU by 2023.



Capital part finances new LNGCs

Capital Product Partners' (CPLP) wholly-owned subsidiary, CPLP Shipping Holdings, has priced its €150 mill offering of unsecured bonds in Greece.

The Bonds will be guaranteed by CPLP, will mature in 2026 and will have a coupon of 2.65%, payable semi-annually.

Trading on the Athens Exchange was due to commence on 25th October, 2021.

Net proceeds from the issue, which was reported to be heavily oversubscribed, are intended to be used to partly finance the acquisition of three X-DF LNGC sisterships, which the Partnership has the option to acquire, in connection with the acquisition of an-

other three X-DF LNGCs.

The options are expected to be acquired at an average price of \$207.7 mill per vessel with aggregate contracted revenues of about \$429 mill and an average aggregate daily rate of around \$70,650.

The optional vessels were built this year and were chartered to BP Gas Marketing Limited, Cheniere Marketing International and Engie Energy Marketing Singapore with a remaining charter duration of 6.3 years, which includes, in the case of the BP timecharter, the first

two optional periods.

Jerry Kalogiratos, the General Partner's CEO, commented: "We are pleased to announce the closing of our first shipping bond on the Athens Exchange.

"The successful bond issue further diversifies our company's sources of financing and allows us to execute on our business plan with an attractive overall cost of capital. The bond was issued at the low end of the yield range based on exceptionally high demand."



Jerry Kalogiratos has managed to part finance Capital's newbuilding LNGCs

Korea Eximbank to back Angelicoussis newbuildings

The Export-Import Bank of Korea has signed a financial agreement calling for the provision of financing to the Angelicoussis Group.

A proviso is that future large ships orders should go to South Korean shipbuilders.

Eximbank Chairman, Bang Moon-kyu, met with Maria Angelicoussis in Athens on 8th October, to sign the agreement.

The agreement also included the provision of finance when South Korean shipbuilders win orders for eco-friendly ships ordered by Angelicoussis over the next three years.

A number of Greek shipping companies are expected to participate in Qatar Energy's LNGC order project in November, which could

see up to 100 LNGCs ordered.

"Greece Angelicoussis Group is an important partner of Korea Eximbank and the Korean shipbuilding company," Chairman Bang said at the signing ceremony.

"We expect Korean shipbuilders to expand orders by using various financial tools of Korea Eximbank."

In another meeting, Korea Eximbank expressed its willingness to actively support newbuilding LNGCs, LPG ships, and tankers, which are technology-intensive and high value-added ships that South Korea is keen to maintain over its rival China.



South Korea's Eximbank has been wooing Maria Angelicoussis.
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NEWS NUDGE

Contracts and deliveries continue unabated

Celsius Tankers has ordered another series of LNGCs to support the growth of its modern LNG fleet.

The company claimed that the vessels' highly efficient design minimises CO2 emissions and methane slip from operations via installation of air lubrication, hull shape optimisation and use of the best available paint system to reduce the vessels' friction in water.

They will be built to Lloyds' Register class notation 'EEDI-3' meeting IMO requirements for ships built after 2025 for 30% more energy efficiency.

To be built by Samsung Heavy Industries (SHI), they will be long term chartered to Gunvor subsidiary Clearlake Shipping. Delivery is scheduled for 2023 and 2024.

The new vessels will be fitted with ME-GA propulsion units.

Brokers have reported that MOL is behind an order for a 174,000 cu m LNGC at Daewoo.

The newbuilding price was said to be about \$197 mill and she is due for delivery in 2024.

South Korean Trade, Industry and Energy Minister, Moon Sung-wook met with Qatar's energy minister Saad al-Kaabi on 24th October to discuss co-operation in LNG, hydrogen and other energy sectors.

He backed the country's top three shipyards working to obtain LNGC orders from Qatar, which is developing natural gas reserves, representing 13% of the world's total.

Meanwhile, SHI has delivered the LNGC 'LNG Endeavour', commercially managed by France LNG Shipping (a French shipowning company jointly owned by NYK and Geogas LNG) and under a long-term charter contract with TotalEnergies Gas & Power Ltd.

The 174,000 cu m LNGC is fitted with a WinGD X-DF diesel engine that can operate on fuel oil or boil-off gas stored in the cargo tank.

Nakilat has also announced the delivery of the newbuilding LNGC, 'Global Sea Spirit'.

She will be commercially and technically managed in-house by Nakilat Shipping Qatar Limited (NSQL).

Built by Daewoo Shipbuilding & Marine Engineering (DSME), she is the third of four newbuildings to be delivered to Global Shipping Co Ltd, a joint venture between Nakilat (60%) and Maran Ventures (40%).

With a cargo carrying capacity of 174,000 cu m, 'Global Sea Spirit' is the first vessel with X-DF propulsion to join the Nakilat fleet, with the second newbuild (also with X-DF propulsion) expected to be delivered early next year.

She has been chartered by Cheniere Marketing International.

In a finance deal, GasLog Ltd has sold the 2015-built, 155,000 cu m LNGC 'GasLog Salem' to a wholly owned subsidiary of China Development Bank Leasing (CDBL) for \$128 mill.

This transaction released about \$22 mill of incremental liquidity.

Concurrent with the sale, GasLog will bareboat charter back the vessel from CDBL for five years, ending in October, 2026 with no obligation to purchase the vessel at the end of the lease.

She is currently on charter to Clearlake Shipping, a subsidiary of Gunvor Group, until March, 2022.

Italian energy company, Edison held a naming ceremony on 11th October for Knutsen's 30,000 cu m 'Ravenna Knutsen' at the Ravenna LNG terminal.

She will supply the small-scale LNG coastal depot in Ravenna, owned by Depositi Italiani GNL in which Edison has a 30% stake.

In November, 2018, Edison agreed a charter with Norwegian shipowner Knutsen OAS Shipping for a newly-built vessel for 12 years with an option for a further eight years.

Built by Hyundai Mipo Heavy Industries and delivered in February, 2021, the LNGC is fitted with a 7,450 kW 2-stroke dual fuel engine, fuelled by LNG and marine diesel oil.

In September, 'Ravenna Knutsen' undertook the first LNG off-loading operation at Ravenna, arriving with an Enagas cargo from Barcelona, to start the controlled tank filling operations.

Enagas will be the major supplier of LNG to the plant.

WinGD expands training facilities

Marine low-speed engine developer WinGD has expanded its training capabilities, as the number of gas-fuelled vessels orders surge.

Among the investments, the company has increased its training locations network and added new online tools, making it even easier for ship operators to give their crews the skills they need, the LNGC engine designer said.

According to DNV's Alternative Fuels Insight, the number of gas fuelled vessels in operation is expected to grow from 221 today to nearly 500 by 2023.

While much work goes into projecting the supply and bunkering infrastructure needed to support that growth, less focus is placed on the extra demand it will create for seafarer training.

"Marine engines in general are getting more complex and require more understanding from the crew to operate them in an optimal and safe way," said WinGD General Manager Customer Training, Operations, Gregory Sudwoj. "Our investment in making engine training more accessible is just another way in which WinGD is adding value for ship owners and enabling crew to operate assets effectively and efficiently."

WinGD's engine operating courses have traditionally been delivered through its owned facilities in Winterthur, Busan and Shanghai.

However, during the past few years, WinGD has signed up a global network of training partners at locations including the Philippines, India, Greece and Poland. Further locations will follow.

Earlier this month, WinGD celebrated the opening of the new low-speed engine training centre at the Maritime University of Szczecin (MUS) in Poland.

This highly specialised training facility features a WinGD engine room simulator offering virtual reality training to equip crew with real-world experience.

Correct operation and maintenance procedures of complex engine parts and sub-assemblies are explained with the help of interactive 3D animations.

"The cost and hassle of travelling is a limitation for whoever delegates crew members for training, especially during the pandemic," Sudwoj added. "Together with partners like MUS, we can make access easier and wider, respecting crews' time and removing unnecessary expense and complications for the shipowner."

"With the number of LNG fuelled vessels coming into operation, it is essential that we ensure that our customers' crew are well

equipped with the knowledge and confidence they need to optimise these vessels," he said.

As well as a standard five-day engine operator course, the training facilities can offer a range of additional courses - including those for auxiliary engine-room systems - via computer-based learning.

Online training

Online training is another important element of ensuring that seafarers have access to the training they need. Since global travel restrictions began to kick in in February, 2020, WinGD has been delivering training digitally.

What started as instructor-led presentations with video from the instructor's simulator have now been developed into a full cloud streaming service delivering an interactive training experience.

Soon, every participant will be able to run their own computer simulation with the instructor able to monitor and provide feedback. A system has been tested in Asia and Europe and WinGD is now building up server infrastructure for a global roll out.

Aside from expanding access to training, WinGD has also

worked with partners to build bespoke simulation training facilities for customers using its X-DF dual-fuel engines. The company revealed that it will soon unveil a simulator dedicated to LNGCs, which feature a different machinery arrangement from other merchant vessels, deploying twin main engine propulsion concepts. ■

LNGCs to receive shaft generators

Wärtsilä will supply four shaft generator systems to provide power take-off (PTO) from the main engines of two LNGCs.

The 174,000 cu m vessels are being built by Hyundai Heavy Industries (HHI) for Capital Gas Ship Management Corp.

"In aiming to continue improving our fleet efficiency and reduce our environmental footprint, we have decided to adopt the latest available technologies. The installation of advanced shaft generator systems was one of the investments we are making in this direction," said Miltos Zisis, Capital Gas Ship Management Managing Director.

"We are committed to delivering products, systems, and solutions that contribute to the de-carbonisation of the maritime sector. Our highly efficient shaft generator systems utilise the latest technology to make a significant contribution to this ambition, while at the same time lowering operating costs for the customer," added Yiannis Christopoulos, General Manager Sales, Wärtsilä Marine Power.

Each LNGC will be fitted with two 1.9 MW Wärtsilä shaft generators. The equipment is scheduled for delivery to the yard next year. ■



WinGD recently opened a low speed engine training centre in Szczecin

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ABB to turbocharge LNGC MAN engines

ABB's A200-L turbochargers are to be used on MAN Energy Solutions' (MES) 5G70ME-C10.5-GA engines earmarked for six 174,000 cu m LNGCs.

They were ordered by four shipowners - Korea Line Corp, PAN Ocean, Knutsen OAS and JP Morgan - on the back of a long-term charter agreement with Shell.

This engine is MAN's first low-pressure dual-fuel 2-stroke unit.

It complements MAN's established high-pressure ME-GI engines, offering LNGCs and other vessels, an alternative way to cut greenhouse gas emissions and minimise air pollution at lower capital cost, MES said.

The gas-fuelled engine can also operate on synthetic or biomass-derived LNG as it becomes available, either for full use or as part of a fuel blend, further reducing climate impact.

Turbocharger performance is particularly important for dual-fuel engines, ABB explained. High turbocharging efficiency ensures that a high air-fuel ratio is maintained during high-load operations, reducing potential fast combustion, which can adversely affect operation and emissions.

The A100/A200-L series is ABB's most advanced single-stage turbocharger technology for 2-stroke engines, using the latest thermodynamic and aerodynamic expertise to pack the highest pressure ratios and efficiency currently available into a compact unit.

Their small footprint also translates into a lower cost of

ownership, as spare parts are smaller and more economical and the turbocharger itself is easier to handle for servicing.

"When engine designers and OEMs want reliable high performance to support new engine technologies, they look to ABB turbochargers," said Alexandros Karamitsos, ABB's Head of Global Sales Low-Speed Turbochargers. "I am confident that shipowners will increasingly value our combination of technology leadership and global service coverage as incoming emission regulations encourage them to explore new fuels and engine concepts."

"We are delighted to be involved in this groundbreaking project and grateful for MAN's trust in our engineering expertise," he added.

The company said that it will also provide turbochargers for each LNGCs auxiliary engines. ■

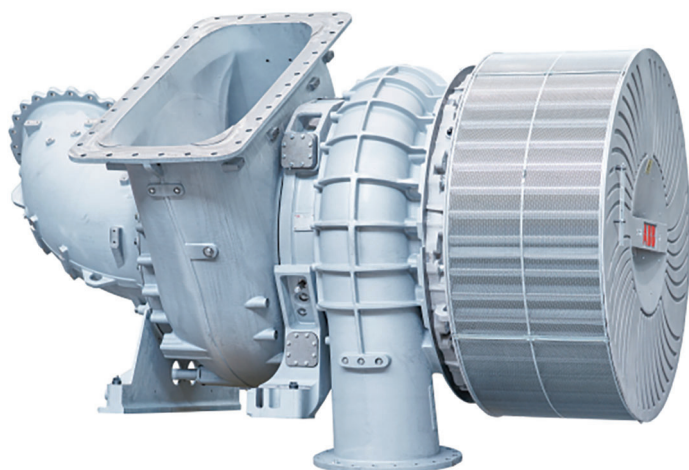


ABB is to supply turbochargers to LNGC newbuildings

NEWS NUDGE

SAAM Towage joins SIGTTO

South American-based ship towage company, SAAM Towage, has joined the Society of International Gas Tanker and Terminal Operators (SIGTTO).

"Safety plays a key role in SAAM Towage's strategy, which is why we trust that joining this

organisation is a step forward for us in reinforcing this core value at our operations. It will also enable us to share our work in this area with other industry players," said Managing Director, Hernán Gómez.

"Today SAAM Towage has one single entity covering all of the Americas. We operate 180 tugs at more than 80 ports in 13 countries in the Americas, so joining SIGTTO will definitely generate value for our

services. We also hope to contribute our experience," he added.

Four new Ras Laffan trains under construction

Qatargas has started to build four LNG mega-trains at Ras Laffan, it said on social media.

The new trains will help lift the production capacity from 77 mill tonnes per year to 110 mill tonnes per year.

Qatargas's LNG mega-trains are designed to maximise the size and drive cost advantages, increasing efficiency, and reducing liquefaction costs, the company claimed.

An earlier Qatargas case study found that two Qatargas 2 trains more than doubled the production capacity of the three older trains at Qatargas 1, displaying the potential increase that comes with new technology. ■

Monthly Large LNGC Values*

Newbuildings (174,000 cu m)	\$197.45 mill
Five years old (160,000 cu m)	\$150.11 mill
Total Fleet (536 ships)	\$63.75 bill
Orderbook (137 ships)	\$28.70 bill

*Source: VesselsValue (22/10/21)

*The above is updated each month courtesy of VesselsValue

LNG rate assessments

Spot market (155,000-165,000 cu m)

Region	This week	Change*
East of Suez	\$180,000	+\$50,000
West of Suez	\$180,000	+\$50,000
12 mos T/C	\$100,000	+\$7,000

*Since last report (14/10/21)

Source: Fearnleys (27/10/21)

GE to supply a PTO system to a Maran Gas LNGC

GE Power Conversion is to supply a patented SeaGree Power Take Off (PTO) system for a Maran Gas newbuilding LNGC.

The contract was awarded by Samsung Heavy Industries (SHI).

GE's PTO system will incorporate the latest medium voltage Advanced Permanent Magnet Machine (APMM).

The LNGC is due for delivery in 2023 and will be built at SHI's Geoje shipyard.

GE claimed to have a strong position in the supply of LNGC's power and propulsion systems with references on more than 100 ships, supported by technical expertise, commissioning, and through-life service support.

For this contract, the APMM-powered technology will help to provide increased reliability and efficiency to reduce Maran Gas' operating costs, as well as the ship's fuel consumption and greenhouse gas emissions,

GE said.

PTO is an effective way of incorporating GE's hybrid electric ship technology where there is limited space. It will provide electric power to the ship's on board network.

"We are committed to pushing the boundaries of innovation and meeting the future challenges of the marine industry. Once again, we are proud to provide safe, reliable, and efficient solutions to Maran Gas. With GE's technology, we are helping our customers meet sustainability targets with cleaner and innovative energy solutions," said Loic Thiebaut, Merchant Marine Business Leader at GE Power Conversion.

Two generator sets

Under the terms of the contract,

GE will supply two medium voltage APMM shaft generators sets offering high power density, a compact design and excellent thermal performance, and its MV7000 medium voltage pulse width modulation (PWM) active front end frequency converters.

GE will be responsible for design, engineering, commissioning, training and assistance for sea and gas trials.

The SeaGreen PTO/PTI system helps shipowners to improve fuel efficiency, reduce emissions and meet environmental standards, GE claimed. The system can also significantly decrease the operating hours of auxiliary generators and their need for maintenance - adding to the operational cost savings.

Other advantages claimed in-

cluded unrestricted operation in the main engine's operating speed range, reduced noise levels associated with on board power generation from auxiliary engines, a Power Take In (PTI) ready system, and its in-house machine and drive single-source integrator product.

Andreas Spertos, Maran Gas' Executive Vice President and Technical Director, added: "As we expand our fleet of LNG carriers, we are fully committed to ensuring that the new vessels will incorporate the latest technology available which will achieve best efficiency, highest reliability and help to reduce the environmental footprint to the maximum possible extent. The introduction of GE shaft generators helps us to fulfil this commitment." ■

Mexican project moves ahead

LNG project developer Mexico Pacific (MPL) has signed co-operation agreements with ConocoPhillips LNG Licensing and Bechtel.

Working with Techint SA de CV, the agreement will help MPL pursue LNG design solutions for the project, the company said.

MPL's LNG project's location on the West Coast of Mexico will result in lower greenhouse gas emissions, due to shorter transit times to Asian markets, compared to many other Gulf of Mexico and Pacific Basin LNG producers.

The collaboration will seek to further reduce baseline emissions by exploring energy transition and greenhouse gas emission reduction

technologies developed by ConocoPhillips LNG Licensing and designed by Bechtel in a cost efficient and competitive manner, MPL explained.

"LNG plays a significant role in the global energy transition," said Douglas Shanda, MPL CEO and President. "We are constantly evolving our business strategies to further reduce our carbon footprint, and this cutting-edge initiative provides opportunities to reduce greenhouse gas emissions by seeking to curtail the production of emissions, rather than just

capturing or reporting them."

"ConocoPhillips is pleased to support MPL and Bechtel in designing LNG trains for the MPL LNG project based on the high efficiency OCP Pro™ technology that includes our latest low carbon design and operating features," added Mike Culligan, Manager of ConocoPhillips LNG Technology and Licensing.

"MPL represents an excellent opportunity for ConocoPhillips to work closely with a west coast North American LNG developer to provide carbon-advantaged

gas feedstock from our growing Permian Basin gas supply and assist MPL in developing a commercial strategy for supplying carbon neutral LNG in the future," said Tom Mathiasmeier, President of Global Gas, Power and LNG at ConocoPhillips.

"LNG plays an important role in the global energy transition to lower carbon solutions, and Bechtel is proud of its historical and ongoing participation in the LNG industry. The MPL LNG project will be a great example of how we, along with our customers and technology providers, can continue to supply LNG to offset traditional high emission fuels such as coal and others while developing and applying real innovations to meet the environmental goals of the industry," commented Paul Marsden, Bechtel Energy President. ■

“We are constantly evolving our business strategies to further reduce our carbon footprint, and this cutting-edge initiative provides opportunities to reduce greenhouse gas emissions ...”

- Douglas Shanda, MPL CEO and President.

WORLD SMALL SCALE LNG FLEET*

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1998	Pelita Energy	18,800	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
2000	Triputra	23,096	LNG	Indonesia - Japan	Yes	MCGC
2003	Pioneer Knutsen	1,100	LNG	Norway	Yes	Knutsen
2003	Shinju Maru No.1	2,540	LNG	Japan	Yes	Shinwa
2005	North Pioneer	2,500	LNG	Japan	Yes	Japan Liquid Gas
2007	Sun Arrows	19,531	LNG	Malaysia - Russia - Japan	Yes	Mitsui
2008	Kakurei Maru	2,536	LNG	Japan	Yes	Hogaki Zosen
2008	Shinju Maru No.2	2,540	LNG	Japan	Yes	Shinwa
2009	Coral Methane	7,551	LNG/LPG/Ethylene	Northwest Europe/Baltics	Yes, sometimes	Anthony Veder
2010	Coral Favia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2010	Coral Fraseri	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Furcata	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Fungia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
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	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
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	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
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
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	Coral Encanto	30,000	LNG	China	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	Oizmendi	600	LNG	Spain	Yes	Itsas Gas
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	Green Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	New Frontier 1	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte

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 = 1st September 2021

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2018	LNG London	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	Bunker Breeze	1,200	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2019	SM Jeju LNG1	7,500	LNG	Korea	Yes	Korea Line
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	Avenir Advantage	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Accolade	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Aspiration	7,500	LNG		Yes	Avenir LNG
2020	Kaguya	3,500	LNG	Japan	Yes	CLS
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Ecobunker Tokyo Bay	2,500	LMG	Japan	Yes	Ecobunkers
2020	Optimus	6,000	LNG	NWE	Yes	Elenger
2020	ENN TBN	8,500	LNG	China	Yes	ENN
2020	FueLNG Bellina	7,500	LNG	Singapore	Yes	FueLNG
2020	SM Jeju LNG2	7,500	LNG	Korea	Yes	Korea Line
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2021	Avenir Ascension	7,500	LNG		Yes	Avenir LNG
2021	Avenir Allegiance	20,000	LNG	Worldwide	Yes	Avenir LNG
2021	Bergen LNG	850	LNG	Norway	Yes	Bergen Tankers
2021	Dmitry Mendelev	5,800	LNG	Russia	Yes	Gazprom Neft
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	Ravenna Knutsen	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	PE TBN	12,000	LNG	Singapore	Yes	MOL
2021	Gas Vitality	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2021	Titan Hyperion	8,000	LNG	Benelux	Yes	Titan LNG
2022	Veder TBN	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Knutsen TBN	5,000	LNG	Spain	Yes	Knutsen OAS
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
2023	Cryopeak TBA	4,000	LNG	West Canada	Yes	Cryopeak
2023	Knutsen TBN	12,500	LNG	Spain	Yes	Knutsen OAS
2023	SM Jeju LNG3	7,500	LNG	Korea	Yes	Korea Line
2023	Pan Ocean TBN	18,000	LNG	USG	Yes	Pan Ocean Co
2023	Krios	4,200	LNG	Benelux	Yes	Titan LNG
2023	Fratelli Cosulich TBN	8,000	LNG	Mediterranean	Yes	Fratelli Cosulich
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	K Line TBN	18,000	LNG	Korea	Yes	K Line
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	TBN	30,000	LNG	Australia	Yes	Anthony Veder ?
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG

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 = 1st September 2021

WORLD LNG CARRIER ORDERBOOK

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Energy Intelligence	GTT 96 GW	MEGI	DSME	01/06/2021	174000	Alpha Gas
Minerva Limnos	GTT 96 GW	MEGI	DSME	01/06/2021	173400	Minerva Marine
Mu Lan	GTT 96 L03+	XDF	Hudong-Zhonghua	01/06/2021	174000	CSSC
Yiannis	GTT 96 GW	MEGI	DSME	01/06/2021	174000	Maran Gas Maritime
Maran Gas Isabella	GTT 96 GW	XDF	DSME	01/07/2021	174000	Maran Gas Maritime
Minerva Chios	GTT MK III Flex+	XDF	Samsung	01/07/2021	174000	Minerva Marine
Mol Hestia	Unknown	MEGI	DSME	01/07/2021	174000	MOL
Adamastos	GTT MK III Flex	XDF	Hyundai	01/08/2021	174000	Capital Gas
Attalos	GTT MK III Flex	XDF	Hyundai	01/08/2021	174000	Capital Gas
Celsius Carolina	Unknown	XDF	Samsung	01/08/2021	180000	Celsius Shipping
Gaslog Winchester	GTT MK III Flex+	XDF	Samsung	01/08/2021	180000	GasLog
Asklipios	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	Capital Gas
Diamond Gas Victoria	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	NYK
Global Sea Spirit	GTT 96 GW	XDF	DSME	01/09/2021	173400	Nakilat
Hellas Athina	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	Latsco Shipping
Lng Enterprise	GTT MK III Flex	XDF	Samsung	01/09/2021	174000	NYK
Maran Gas Kalymnos	GTT 96	XDF	DSME	01/09/2021	174000	Maran Gas Maritime
Hyundai Ulsan 2939	GTT MK III Flex	XDF	Hyundai	01/10/2021	180000	SK Shipping
Lng Endeavour	GTT MK III Flex	XDF	Samsung	01/10/2021	174000	NYK
Maran Gas Ithaca	GTT 96 GW	XDF	DSME	01/10/2021	174000	Maran Gas Maritime
Daewoo 2506	GTT 96	MEGI	DSME	01/11/2021	174000	Maran Gas Maritime
Global Sealine	GTT 96 GW	XDF	DSME	01/12/2021	173400	Nakilat
Lng Endurance	GTT MK III Flex	XDF	Samsung	01/12/2021	174000	NYK
Samsung 2336	GTT MK III Flex	XDF	Samsung	01/12/2021	174000	JP Morgan
Tenergy	GTT MK III Flex	XDF	Hyundai	01/12/2021	174000	Tsakos Energy Navigation
Vivit City Lng	GTT MK III Flex	XDF	Hyundai	01/12/2021	174000	H-Line
Grace Emilia	GTT MK III Flex	XDF	Hyundai	01/01/2022	174000	NYK
Gui Ying	GTT 96 L03+	XDF	Hudong-Zhonghua	01/01/2022	174000	CSSC
Elisa Aquila	GTT MK III Flex	XDF	Hyundai	01/03/2022	174000	NYK
Hudong-zhonghua H1829a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/03/2022	170520	CSSC
Maran Gas Kythira	Unknown	XDF	DSME	01/03/2022	174000	Maran Gas Maritime
Samsung 2319	GTT MK III Flex	XDF	Samsung	01/03/2022	174000	JP Morgan
Clean Cajun	Unknown	XDF	Hyundai	01/04/2022	200000	Dynagas
Hudong-zhonghua H1788a	GTT 96	XDF	Hudong-Zhonghua	01/04/2022	79960	K-Line
Hudong-zhonghua H1789a	GTT 96	XDF	Hudong-Zhonghua	01/05/2022	79960	K-Line
Grace Freesia	GTT MK III Flex	XDF	Hyundai	01/06/2022	173000	NYK
Hudong-zhonghua H1830a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/06/2022	170520	CSSC
Vivit Arabia Lng	GTT MK III Flex	XDF	Hyundai	01/06/2022	174000	H-Line
Clean Copano	Unknown	XDF	Hyundai	01/07/2022	200000	Dynagas
Samsung 2337	GTT MK III Flex	XDF	Samsung	01/07/2022	174000	JP Morgan
Bw Iris	GTT 96 GW	MEGI	DSME	01/08/2022	174000	BWGas

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 = 23rd June 2021

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Santander Knutsen	Unknown	XDF	Hyundai	01/08/2022	174000	Knutsen
Sm Albatross		XDF	Hyundai	01/08/2022	174000	Korea Line
Bw Cassia	GTT 96 GW	MEGI	DSME	01/09/2022	174000	BWGas
Prism Diversity	Unknown	XDF	Hyundai	01/09/2022	180000	SK Shipping
Malaga Knutsen	Unknown	XDF	Hyundai	01/10/2022	174000	Knutsen
Sm Bluebird		XDF	Hyundai	01/10/2022	174000	Korea Line
United Prosperity	Not Applicable	XDF	Hudong-Zhonghua	01/10/2022	174000	China LNG Shipping
Alicante Knutsen	Unknown	XDF	Hyundai	01/11/2022	174000	Knutsen
Minerva Amorgos	GTT MK III Flex+	XDF	Samsung	01/11/2022	174000	Minerva Marine
Orion Song		XDF	Hyundai	01/11/2022	174000	JP Morgan
Daewoo 2514	Unknown	TFDE - Azipod	DSME	01/12/2022	172500	Sovcomflot
Huelva Knutsen	Unknown	XDF	Hyundai	01/12/2022	174000	Knutsen
Hyundai Ulsan 3243	Unknown	XDF	Hyundai	01/12/2022	174000	Knutsen
Orion Sage		XDF	Hyundai	01/12/2022	174000	JP Morgan
Asterix I	GTT MK III Flex	XDF	Hyundai	01/01/2023	174000	Capital Gas
Hudong-zhonghua H1837a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/01/2023	79960	Shenzhen Gas
Samsung 2364	GTT MK III Flex+	XDF	Samsung	01/01/2023	174000	MISC
United Glory	Unknown	XDF	Hudong-Zhonghua	01/01/2023	174000	China LNG Shipping
Hyundai Repsol	GTT MK III Flex	XDF	Hyundai	15/01/2023	174000	Hyundai LNG Shipping
Samsung 2365	GTT MK III Flex+	XDF	Samsung	01/02/2023	174000	MISC
Samsung 2426	Unknown	XDF	Samsung	01/03/2023	174000	Pan Ocean
Zvezda 041	GTT MK III	TFDE - Azipod	Zvezda SSK	01/03/2023	172600	Smart LNG
Daewoo 2515	Unknown	TFDE - Azipod	DSME	01/04/2023	172500	MOL
Hudong-zhonghua H1833a	Unknown	XDF	Hudong-Zhonghua	01/04/2023	174000	China LNG Shipping
El Ferrol Knutsen	Unknown	XDF	Hyundai	01/05/2023	174000	Knutsen
Extremadura Knutsen	Unknown	XDF	Hyundai	01/06/2023	174000	Knutsen
Hyundai Ulsan 3244	Unknown	XDF	Hyundai	01/06/2023	174000	Knutsen
FSRU now LNGC	GTT NO 96	MEGI	DSME	15/06/2023	174000	MOL
Daewoo 2516	Unknown	TFDE - Azipod	DSME	01/07/2023	172500	Sovcomflot
Hyundai Ulsan 3189	Unknown	XDF	Hyundai	01/07/2023	174000	JP Morgan
Samsung 2425	Unknown	XDF	Samsung	01/07/2023	174000	Maran Gas Maritime
Hyundai Samho 8105	GTT MK III Flex	XDF	Hyundai	01/08/2023	174000	Sovcomflot
Hyundai Ulsan 3190	Unknown	XDF	Hyundai	01/08/2023	174000	JP Morgan
Daewoo 2517	Unknown	TFDE - Azipod	DSME	01/09/2023	172500	Sovcomflot
Sm Golden Eagle	Unknown	XDF	Hyundai	01/09/2023	174000	Korea Line
Zvezda 042	GTT MK III	TFDE - Azipod	Zvezda SSK	01/09/2023	172600	Smart LNG
Daewoo 2518	Unknown	TFDE - Azipod	DSME	01/10/2023	172500	MOL
Sm Kestrel	Unknown	XDF	Hyundai	01/10/2023	174000	Korea Line
Zvezda 043	GTT MK III	TFDE - Azipod	Zvezda SSK	01/10/2023	172600	Smart LNG
Greek owner 1/4		ME-GA	Hyundai	15/10/2023	200000	Dynagas
HLS	GTT NO 96	MEGI	DSME	15/10/2023	174000	Hyundai LNG Shipping

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Hyundai European Owner	GTT MK III Flex	XDF	Hyundai	15/10/2023	174000	
Zvezda 044	GTT MK III	TFDE - Azipod	Zvezda SSK	01/11/2023	172600	Smart LNG
Daewoo 2519	Unknown	TFDE - Azipod	DSME	01/12/2023	172500	MOL
Jiangnan H2637	GTT MK III Flex	XDF	Jiangnan	01/12/2023	79800	Jovo Energy
Zvezda 045	Unknown	TFDE - Azipod	Zvezda SSK	01/12/2023	172600	Smart LNG
Greek owner 2/4		ME-GA	Hyundai	15/12/2023	200000	Dynagas
Hyundai Ulsan 3294	Unknown	XDF	Hyundai Inds - Ulsan	01/01/2024	174000	Hyundai LNG Shipping
Greek owner 3/4		ME-GA	Hyundai	15/03/2024	200000	Dynagas
Hyundai Ulsan 3295	Unknown	XDF	Hyundai Inds - Ulsan	01/04/2024	174000	Hyundai LNG Shipping
Hyundai Ulsan 3296	Unknown	XDF	Hyundai Inds - Ulsan	01/06/2024	174000	Hyundai LNG Shipping
Greek owner 4/4		ME-GA	Hyundai	15/06/2024	200000	Dynagas
Zvezda 046	Unknown	TFDE - Azipod	Zvezda SSK	01/08/2024	172600	Smart LNG
Hyundai Ulsan 3221	Unknown	XDF	Hyundai	01/09/2024	174000	Pan Ocean
Maran 1	GTT MK III Flex	XDF	Samsung	01/09/2024	174000	Maran Gas Maritime
Maran 2	GTT MK III Flex	XDF	Samsung	01/09/2024	174000	Maran Gas Maritime
Zvezda 047	Unknown	TFDE - Azipod	Zvezda SSK	01/09/2024	172600	Smart LNG
Hyundai Ulsan 3222	Unknown	XDF	Hyundai	01/10/2024	174000	Pan Ocean
Zvezda 048	Unknown	TFDE - Azipod	Zvezda SSK	01/10/2024	172600	Smart LNG
Hyundai Samho 8100	Unknown	XDF	Hyundai	01/11/2024	174000	Knutsen
Hyundai Ulsan 3223	Unknown	XDF	Hyundai	01/11/2024	174000	JP Morgan
Zvezda 049	Unknown	TFDE - Azipod	Zvezda SSK	01/11/2024	172600	Smart LNG
Zvezda 050	Unknown	TFDE - Azipod	Zvezda SSK	01/12/2024	172600	Smart LNG
Zvezda 051	Unknown	TFDE - Azipod	Zvezda SSK	01/08/2025	172600	Smart LNG
Zvezda 052	Unknown	TFDE - Azipod	Zvezda SSK	01/09/2025	172600	Smart LNG
Zvezda 053	Unknown	TFDE - Azipod	Zvezda SSK	01/10/2025	172600	Smart LNG
Zvezda 054	Unknown	TFDE - Azipod	Zvezda SSK	01/11/2025	172600	Smart LNG
Zvezda 055	Unknown	TFDE - Azipod	Zvezda SSK	01/12/2025	172600	Smart LNG

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 = Data last updated = 23rd June 2021



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