

LNG Shipping News

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Galp suspends Rovuma investment

Portugal's Galp Energia will not invest in Mozambique's Rovuma onshore plants until security and social stability is guaranteed, which may take time, CEO Andy Brown told Reuters.

This is the second setback to Mozambique's hopes to develop a major LNG gas hub after Total-Energies suspended its LNG project.

Attacks by militants in northern Mozambique's Cabo Delgado region, near the \$30 bill Rovuma LNG project, have forced hundreds of thousands of people to flee the area.

The Mozambique government has said it expected the consortium to take the final investment decision (FID), postponed from 2020, due to the coronavirus pandemic, this year.

Galp, which has a 10% stake in the ExxonMobil-led consortium, which also involves Eni,

has not included investments in Rovuma's onshore facilities in its net capital expenditure plan for the next five years, its CEO said.

"It means that at the moment it's very hard for us to predict when the time to invest will be," Brown said. "Last year we were really planning to have built Rovuma by 2025 and I don't want to make a promise on Rovuma and then disappoint the market again."

He added that once France's TotalEnergies, which is working with Mozambique to ensure stability in the area, had resumed work, "we will be in a position to consider our own project."

Brown said that over the next five years, Brazil will absorb "the vast majority" of the €320 - €400 mill of net capex, which Galp has allocated, while there will be "some investment in floating LNG in Mozambique and some small investments in Angola."

Eni is continuing with its 'Coral Sul' FLNG project for Rovuma.

Last Monday, the Italian energy giant told newswires that the project was still on track to begin operations in 2022 despite the unrest.

"Startup of the Coral South project is confirmed in 2022 as per scheduled," an Eni spokesperson told AFP without providing further details.

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Long-term contracts - a buyers' market

LNG long term contract and spot markets are travelling in opposite directions.

The long-term buyers' market is only likely to end when it becomes clear that demand will outstrip new supply available from Qatar and Russia, energy consultancy Wood Mackenzie said in a note.

Buyers looking for LNG contracts starting after 2025 are spoilt for choice - there are more volumes available than they need. But those who need volumes before 2025 face higher spot prices and expensive short-term deals.

There is a possible solution, Wood Mackenzie said. These purchasers may be able to use longer-term contracts, which 'bridge' the short- and long-term market. A bridging contract would potentially give buyers lower prices over the next five years in exchange for the seller receiving the security of long-term contracts.

Giles Farrer, Wood Mackenzie's Director Global LNG, explained: "Spot prices are presently averaging around \$12 per MMBtu for June and July delivery into North East Asia, their highest at this point in the summer for over six years.

"While prices may briefly dip next year, Wood Mackenzie expects this rally to extend over the next five years because rising Asian LNG demand will outstrip global LNG supply growth, pulling Atlantic

supply into the Pacific and tightening the market," he said.

Daniel Toleman, LNG Asia Senior Analyst, added: "Long-term contracts signed in 2021 are not following this change in spot market sentiment. Most legacy buyers in Asia are presently out of the market for new long-term volumes, focusing instead on increasing flexibility in their LNG procurement portfolio, partly due to energy transition concerns.

"There are some buyers looking for term contracts, particularly in markets like China, South Korea, Pakistan and Bangladesh," he said.

LNG availability

Currently, there is more LNG available for sale via long-term contracts than there are buyers.

Farrer explained: "This is because uncontracted supply from legacy projects is growing as existing contracts expire. Also playing a role is the fact that major suppliers, including NOVATEK, Total and Petronas, are structurally long, having sanctioned projects over the last few years without contracting all the associated supply.

"The addition of supply controlled by Qatar is a key factor too. New supply from its North Field East project and the Golden

Pass joint venture in the US, plus the expiry of 20 mill tonnes per annum of legacy contracts (mostly into North Asia), means over 60% of its portfolio is uncontracted by the end of the decade.

"So, it's unsurprising that it has been busy of late - having signed 8 mill tonnes per annum of long-term deals since the third quarter of last year," he said.

Qatar has what buyers want - it is offering reliable low-cost and low-carbon LNG - and it has plenty of it to market. This is putting pressure on competitors and forcing other sellers, who are keen to lock in long-term contracts, to the same level - presently around 10.2% Brent plus a small constant (in some cases).

"Will this buyers' market for long-term LNG continue? At the moment it seems so. We expect contract prices for shorter term deals of less than five years to rise.

"But if a buyer commits to a long-term deal, lower prices are possible - even if that deal is starting next year. Many sellers are offering contracts which 'bridge' the short and long-term market, giving buyers a potentially lower price over the next five years in exchange for the



Woodmac's head of global LNG
Giles Farrer

seller receiving long-term demand security. This allows the seller to de-risk project investments they have already committed to," Farrer added.

Whether the buyers' market ends anytime soon will depend on the development of new supply. And with a supply-demand gap of 50 mill tonnes per annum expected by 2030, Wood Mackenzie believed there were opportunities for developers of new facilities, particularly in North America, to secure buyers.

Farrer said: "Rising oil and gas prices could see US LNG and Henry Hub-linked deals back in the money. And it is possible that portfolio players and traders who are short in the mid-2020s, may see an opportunity to access new North American supply now."

But for many buyers, the fact that Qatar and Russia appear willing to develop new projects without firm contracts in place seems a blessing. The projects currently on their drawing boards can almost plug the expected 50 mill tonnes per annum supply shortfall, which will result in a continued long term contract buyers' market, Wood Mackenzie concluded. ■

NEWS NUDGE

Pakistan tenders for more cargoes

Pakistan LNG Limited (PLL) is seeking the delivery of eight LNG cargoes in September and October this year.

The tender bids will be opened on 5th July.

Five cargoes up to 140,000 cu m each are spread between 8th-9th September, 10th-11th September, 16th - 17th September,

26th -27th September and 30th September.

The remaining three cargoes are scheduled for delivery on 11th-12th October, 21st-22nd October and 26th-27th October. ■

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LNGC speed limit to lead to shortfall

If the IMO's proposed technical requirements are applied to the world's LNGC fleet, the net result for the planet will be negative, claimed Rystad Energy.

Global vessel CO2 emissions savings will be dwarfed by the pollution from gas-to-coal switching that this would cause in Asia, the consultancy said following an investigation.

To comply with the requirements, it was found that the most viable and cheapest option for steam and slow speed diesel (SSD) powered vessels is to limit their maximum speed to 15 knots, as these types of vessels constitute the highest emission rate per tonne/mile sailed.

Empirical data showed that an average LNGC sails at above 15 knots about 50% of the time, Rystad said.

Other possible alternatives, such as scrapping and replacing vessels or modifying them, would be significantly more expensive.

Although a speed limit would result in lower emission levels for the global fleet, it would also lead to a 3% average yearly shortfall in the volume of tonne/miles needed to satisfy LNG demand from 2023 to 2030.

Even if the fleet's usage improves by reducing the idle time for LNGCs to a minimum, which

could almost nullify the effect on LNG deliveries to storage-flexible and well-interconnected Europe, it would still lead to an average yearly reduction of at least 1% in tonne/miles that would affect the deliveries to Asia.

Rystad's analysis showed that if the global LNGC fleet meets the growing tonne/mile demand to satisfy Asia's imports this decade, adopting the IMO's proposal would cut at least 9 bill cu m of LNG between 2023 and 2025 and by 13 bill from 2026 through 2030.

In addition, the accumulated LNGC emission savings in the 2023/2025 period would amount to about 10 mill tonnes of CO2, far lower than the extra 26 mill tonnes that replacing the missed LNG imports with coal would generate.

For 2026/2030, the fleet's CO2 emission savings would total 15 mill tonnes, still low when compared with the extra 38 mill tonnes of emitted CO2 that will be caused by the increased burning of coal to replace the lost LNG volumes.

"To offset the emitted CO2 from gas-to-coal switching and actually make IMO's target meaningful for LNG vessels, a very large

proportion of the lost LNG would need to be replaced through further expansion of renewable energy capacity in Asia," explained Oddmund Fore of Rystad Energy's energy service research team.

Fore added: "It is also likely that the proposed regulations would lead to the retirement of numerous LNG carriers. Scrapping would remove fleet capacity and exacerbate the problem in Asia, as even less gas would arrive and more gas-to-coal switching would take place.

"Furthermore, this would cause higher utilisation and day rates for LNG vessels, thus lifting LNG delivery prices and potentially contributing to even greater consumption of coal for cost reasons," he warned.

Significant impact

With LNG imports expected to cover about 50% of Asian gas demand in 2030 and with this region forecast to account for 75% of the global LNG market, the IMO's requirements will have a significant impact on the shipping market.

LNGC demand is forecast to increase from around 2 trillion tonne/miles in 2020 to 4 trillion in 2030 - an annual growth rate of 8%, compared to a growth rate of 6% seen from 2015 to 2020.

The current fleet and newbuilding orderbook capacity will not be sufficient to meet this surge in tonne/mile demand, based on the average distance sailed by LNGCs in recent years, Rystad said.

A record high 64 deliveries are due this year, which is also the number needed annually to ensure sufficient capacity to meet the rising demand for tonne/miles towards 2030.

However, given this delivery pace, for several years the numbers will be a major challenge, due to capacity limitations, as qualified shipyards can presently only build around 57 units per year.

NFE gains Mexican permits

LNG facility developer New Fortress Energy (NFE) has received three permits from Mexican energy regulator CRE for LNG regasification, storage and distribution services.

They were awarded for NFE's Pichilingue LNG facility near La Paz in Mexico's Baja California Sur state.

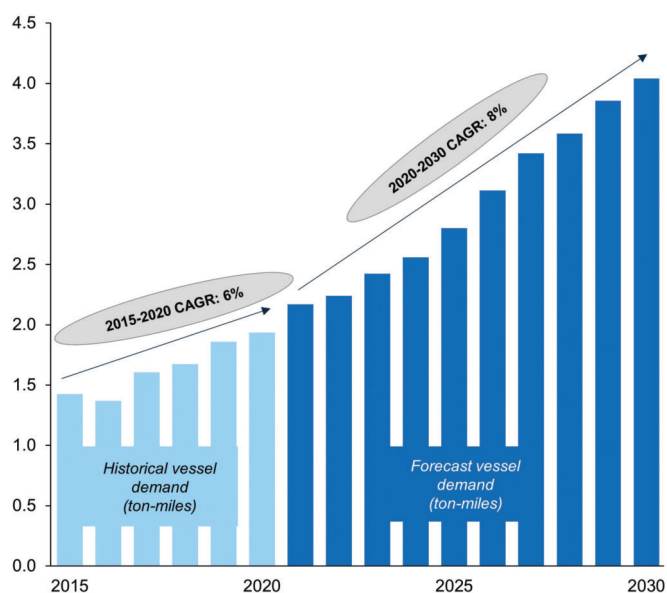
Last month, NFE reported in its first quarter results presentation that it saw operations starting at both Pichilingue and its Puerto Sandino site in Nicaragua during the second quarter of this year.

The first permit allows subsidiary NFE Pacífico Lap to store natural gas in a floating unit at the port of Pichilingue, north of La Paz, while the second clears the way for the company to distribute pressurised natural gas via road tankers.

The third is a regasification permit involving two sites in La Paz municipality.

LNG vessel demand from 2015 to 2030

Trillion ton-miles of transport



Source: Rystad Energy Vessel Analytics, research and analysis

NEWS NUDGE

N-KOM completes repairs on 23-year old LNGC

Qatar-based giant shiprepair complex N-KOM has recently completed repair work on K Line's 1998-built MOSS-type LNGC 'Zekreet'.

During the repair period, 'Zekreet' underwent drydocking for routine repairs and ballast water tanks internal surface treatment, N-KOM said on social media.

The 137,482 cu m LNGC is operated by Qatargas.

A joint venture between Nakilat and Singapore's Keppel Offshore & Marine, N-KOM is located near the world's largest LNG export complex at Ras Laffan.

KN finalises LNG capacity allocation

Lithuanian operator of oil and gas terminals, KN (AB Klaipėdos Nafta) has completed its annual LNG terminal capacity allocation for the new gas year.

As a result, customers, which include the Norwegian energy giant Equinor, will use the pre-ordered 8.9 TWh LNG terminal regasification capacity during the gas year starting 1st October, 2021.

Last year, 8.4 TWh was distributed during the annual capacity allocation procedure, while 12.3 TWh of natural gas was ordered during the gas year.

"This year, the activities of Klaipėda LNG terminal will be more intensive than ever - during this capacity allocation procedure, the largest number of capacities in the entire history of the LNG terminal was ordered. Not only the existing customers, but also the Norwegian energy

company Equinor, which is planning to support its operations in the Baltic Sea region, have decided in advance to use the services and benefits of the LNG terminal.

"We're happy that KN's goals of increasing the competitiveness of the LNG terminal in the region, strengthening co-operation with existing and potential customers, and offering flexible technological and planning solutions are now bearing fruits and attracting new strategic partners," said Mindaugas Navikas, KN's Chief Sales Officer.

Due to the constantly changing natural gas prices in the global and European markets, the termi-

nal's customers often choose to purchase LNG cargoes from the spot market and order capacity during the gas year.

It is estimated that this year, the volume of spot cargo regasification will be twice as high when compared to the pre-ordered capacities, KN said.

During the current gas year (from 1st October, 2020, to 1st June, 2021), 49 LNGCs called at the LNG terminal, compared to 50 in the same period in the previous year, and another 11 LNGCs were expected by the end of the gas year.

The 2022 gas year will begin on 1st October, 2021, and end on 30th September, 2022. ■

Pavilion Energy signs SPA with BP

Pavilion Energy Trading & Supply and BP Singapore have signed a 10-year LNG sale and purchase agreement (SPA).

This agreement calls for the supply of around 0.8 mill tonnes of LNG per year to Singapore from 2024.

In addition to the LNG supply, both companies will aim to co-develop and implement a greenhouse gas (GHG) quantification and reporting methodology. This will cover emissions from wellhead-to-discharge terminal and be principled on mutual transparency and the adherence to relevant international standards, Pavilion said.

Frédéric Barnaud, Pavilion Energy Group CEO, said, "This agreement further strengthens our relationship with BP as Pavilion Energy advances our strategies for a lower carbon future, beginning with GHG emissions quantification, reduction and offsets for Singapore."

Eugene Leong, BP's Singapore President and CEO of trading & shipping Asia Pacific & Middle East, added, "BP's ambition is to be a net zero company by 2050 or sooner and to help the world get to net zero. We are excited to enter into this agreement with Pavilion Energy not only to supply the Singapore market with LNG but also to co-develop a methodology to quantify the carbon intensity associated with the supply. We look forward to working with Pavilion Energy in implementing this innovative deal using BP's LNG supply portfolio." ■

Petronet to expand domestically - Driftwood deal dead

India's energy giant Petronet LNG is to invest \$2.6 bill over five years to expand local gas infrastructure.

Investing in overseas projects is 'not lucrative' in the current LNG surplus market, the company's head of finance said during a results presentation analysts call.

"Right now, investment in LNG terminals anywhere outside India is not very lucrative because LNG is available at very low prices, as it is only recently that prices have increased... availability of LNG is plenty," Vinod Mishra said after Petronet reported its March quarter earnings this month.

He explained that currently, there was no financial incentive to invest in overseas projects to lock in LNG supplies.

According to reports, Petronet was planning to invest in projects in Sri Lanka, Bangladesh, Qatar and Tellurian's Driftwood LNG project.

An initial non-binding agreement for Petronet to invest \$2.5 bill in Driftwood in return for gas supplies for 40 years has lapsed, the company confirmed.

India wants to hike the gas

share in its energy mix to 15% by 2030 from 6.2% and is raising its local output.

Mishra said higher domestic supplies could hit costly spot LNG imports in the short term, but would not impact long term imports, as India's gas consumption is expected to increase.

Petronet plans to invest R66.9 bill to expand its 17.5 mill tonne per annum Dahej terminal on the west coast to 22.5 mill tonnes, build a new terminal on the east coast and also build a new jetty and LNG tanks at Dahej and Kochi, he said.

In the first expansion phase,

Dahej will be expanded to 20 mill tonnes by mid-2023, while a new 5 mill tonne capacity Gopalpur terminal is expected to be operational by 2025.

During the presentation, CEO AK Singh said the company was talking to various exporters, including Qatar, to buy gas at reasonable rates for the price-sensitive Indian market.

Petronet's long-term deal to import 7.5 mill tonnes per annum of LNG from Qatar ends in March, 2028. The company has until December, 2023, to decide whether to extend it, Singh said. ■



Petronet is expanding the Dahej receiving terminal

Cedar LNG gets a boost

The Canadian Haisla Nation and Pembina Pipeline Corp have agreed to co-operate to develop the proposed \$2.4 bill Cedar LNG project.

This project was claimed to be strategically positioned to leverage Canada's abundant natural gas supply and British Columbia's growing LNG infrastructure to produce low-cost Canadian LNG for export.

"It was important for us to find a partner with the same values of environmental protection and community-centered development," said Crystal Smith, Haisla Nation, Chief Councillor. "Pembina's long history of safe, reliable operations, and engagement with local communities made them the distinct choice for Cedar LNG."

"This partnership is the result of meaningful collaboration with the Haisla Nation to deliver responsibly-developed, world-class energy," said Stu Taylor, Pembina's Senior Vice President, Marketing and New Ventures & Corporate Development Officer.

"We believe that environmental stewardship, indigenous prosperity and inclusion, and mutual economic benefit are the cornerstones of future energy infrastructure development in Canada, and we are honoured to have the opportunity to work with the Haisla Nation to produce Canadian LNG," he said.

The project involves a proposed floating LNG facility to be located at Kitimat, British Columbia, Canada, within the Haisla Nation's traditional territory in the Douglas Channel.

Less impact

Cedar LNG's floating design is claimed to offer significantly less environmental impact on the Douglas Channel coastline and the facility will be interconnected to the existing BC Hydro transmission system, using renewable electricity to make the project one of the lowest emissions intensity LNG facilities globally.

It will have an LNG liquefaction

capacity of around 3 mill tonnes per annum and will source natural gas from Montney in northeast British Columbia.

Cedar LNG has already secured a long-term transportation agreement on the Coastal GasLink pipeline for 400 mill cu ft per day of firm capacity.

One of the advantages claimed was that the floating facility will be modularised and constructed at an Asian shipyard, which will lower its the capital cost and construction risk, reduce the project's footprint, and minimise the disruption to the local community during the construction period.

Cedar LNG will mainly target the Asia/Pacific export market to maximise the project's geographic shipping advantage, compared to US Gulf Coast LNG projects, which are subject to high costs and risks associated with transiting the Panama Canal.

The project will use Pembina's existing LNG relationships to secure long-term, tolling-based off-take arrangements with LNG buyers.

It has already secured an LNG export license from the Canada Energy Regulator and is undergoing environmental assessments by both the provincial and federal governments.

A final investment decision (FID) is expected in 2023. Subject to additional factors, including regulatory and environmental approvals, the expected start-up date is 2027.

Meanwhile, Wärtsilä is to supply the main engines and LNG fuel gas supply systems for two new LNG-fuelled escort tugs being built for Canada's HaiSea Marine, a joint venture between the Haisla Nation and Seaspan Marine Transportation.

The tugs were designed by Robert Allan and are under construction at Turkey's Sanmar Shipyards.

Siport21 in Brazilian FSRU study

The port consultancy, Siport21, has carried out a feasibility assessment for the installation of an FSRU in Brazil.

A shipping access study was undertaken for the expected LNGCs, ranging from 138,000 cu m to 178,000 cu m.

This new project will add to the 70 LNG terminals, about 39 FSRUs and three FLNGs in 31 countries in which the company has been involved with.

Terminal development will involve the construction of a jetty to be located inside a sheltered bay, sharing the existing foundations of an actual terminal. It is proposed that a 170,000 cu m FSRU will remain permanently moored alongside the jetty and it

will receive LNGCs for ship-to-ship (STS) cargo transfers.

An analysis was conducted regarding the LNG terminal's installation at the site location looking at the required navigation areas (navigation channel, turning basin and berthing area), plus operational safety.

Manoeuvres were conducted by Siport21's Masters, and specialists from a Spanish energy company, who sponsored the study attended as observers, using a streaming system at the DNV approved ship manoeuvre simulation centre.

NEWS NUDGE

FSRU arrives in Dakar

KARMOL's first FSRU has arrived in Dakar.

The FSRU arrived under tow from Singapore.

She was the first to be completed for KARMOL, a 50/50 joint venture between Karpowership and Mitsui OSK Lines (MOL).

The FSRU, 'KARMOL LNGT POWERSHIP Africa', arrived in Senegalese waters on 31st May and will be moored at its site to start the commissioning process.

She will be connected to a Powership, a floating power plant, owned by Karpowership, through gas pipelines. The 'Karadeniz Powership Ayşegül Sultan', has a capacity of 235 MW and has been in operation since October, 2019, supplying 15% of Senegal's electricity with 220 MW of power to Senegal's grid.

The FSRU, which was constructed by Sembcorp Marine in Singapore, is 272 m long and has a capacity of 125,470 cu m.

She arrived with an LNG cargo on board and the first

transshipment will be carried out by Shell in July.

Nigerian Train 7 construction starts

Construction has started on the Nigeria Liquefied Natural Gas (NLNG) Train 7 project at Bonny Island in the Niger Delta.

Nigerian President, Muhammadu Buhari launched the project at a ceremony last week, according to a statement issued by the President's office, marking the start of work that is expected to increase NLNG's production by 35% to 30 mill tonnes per year.

In May last year, NLNG signed the engineering, procurement and construction (EPC) contracts for Train 7 with the SCD JV Consortium, comprising subsidiaries of Italy's Saipem, Japan's Chiyoda and Daewoo of South Korea.

In December, 2019, NLNG signed LNG supply agreements for the project with Shell, Total Nigeria, Nigeria Agip plus the local oil and gas firm Oando and the Nigeria Petroleum Development Co.

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Two Greek FSRUs come a step closer

DESFA and Motor Oil subsidiary, Dioriga Gas have signed an Advanced Reservation of Capacity Agreement (ARCA) to build connections between a planned FSRU and the National Natural Gas Transmission System (NNGTS).

The FSRU is to be deployed by Dioriga Gas in the Gulf of Agioi Theodoroi, in Corinth.

Upon completion and in conjunction with DESFA's existing infrastructure, the FSRU will be an additional gateway for natural gas to serve emerging national and regional gas markets, enhancing security of supply and diversification of energy supply sources, as well as competition at both national and regional level, with significant benefits for consumers, the Greek energy company said.

In addition, in conjunction with DESFA's small scale LNG infrastructure, which is being constructed at the Revithoussa LNG terminal, the FSRU's planned LNG barge reloading and truck loading facilities will facilitate further opportunities for natural gas in the maritime sector, as well as in other areas far from the natural gas network.

Maria Rita Galli, DESFA CEO, said: "We are glad for (today's) signing as a further step has been achieved for a new gas import infrastructure project that will further enhance the role of Greece as southeast Europe's interna-

tional energy hub.

"DESFA ensures open access to the National Natural Gas System, steadily fostering the development of competition in the Greek energy market, with significant benefits for the country, the Greek economy and the final consumer," she said.

Dioriga Gas CEO, Ioannis Kioufis, added: "We would like to thank DESFA for the co-operation so far. (The) signing is very important as it signals the beginning of an important project from which the Greek consumers will benefit.

"Motor Oil as an energy group is committed in realising works of strategic importance for the country's energy transition. In this respect, DESFA's long experience in handling and operating natural gas infrastructures is important for the successful completion of this emblematic project. We are looking forward in realising together the next steps of the project," he said.

Support package

Elsewhere, in Alexandroupolis, a €166.7 mill Greek support package for the construction of a new



Gastrade's Alexandroupolis LNG import project grant has been approved

LNG terminal, has been cleared by the EU.

"The new LNG terminal in Alexandroupolis will improve gas supply and infrastructure not only in Greece, but in the whole Southeastern European region," European Commission Executive Vice President in charge of competition policy, Margrethe Vestager, said.

"This will contribute to achievement of the EU's goals in terms of security and diversification of energy supply. The Greek support measure limits the aid to what is necessary to make the project happen and sufficient

safeguards will be in place to ensure that potential competition distortions are minimised," she added.

Alexandroupolis will include an FSRU, together with permanent offshore installations, such as a mooring system and risers, as well as a sub-sea and an onshore gas transmission pipeline, which will connect the FSRU to the NNGTS.

The FSRU will be stationed around 17.6 km from Alexandroupolis in Northern Greece, at a distance of about 10 km from the nearest shoreline. The unit will have an overall delivery capacity 5.5 bill cu m per year. ■

NEWS NUDGE

More LNGC success for GTT

GTT has received orders to design tanks of seven more LNGCs.

Two 174,000 cu m LNGC tank design orders came from Samsung Heavy Industries (SHI) on behalf of an unnamed shipowner.

The LNGC tanks will be fitted with the GTT Mark III Flex membrane containment system.

Deliveries of the vessels are scheduled between the second and third quarters of 2024.

GTT also received an order from Hyundai Heavy Industries (HHI) for the tank design of four new 200,000 cu m LNGCs being

built for a European shipowner believed to be Dynagas.

Each LNGC will be fitted with a Mark III Flex+ membrane cryogenic containment system.

Vessel deliveries are scheduled between the third quarter of 2023 and the first quarter of 2024.

Finally, Daewoo Shipbuilding & Marine Engineering (DSME) contracted the company for the tank design of a new LNGC ordered by Hyundai LNG Shipping.

The tanks of the 174,000 cu m LNGC will be fitted with the GTT NO96 GW membrane containment system and the vessel will be

delivered at the end of 2023.

LNGC receives weather reporting award

Mitsui OSK Lines' (MOL) managed LNGC 'Energy Advance' was one of two vessels to receive the Japan Meteorological Agency's Director-General Award for observing and reporting maritime weather data.

Since it is difficult to collect meteorological data at sea, merchant vessels play a key role in observing and reporting data while underway, MOL explained.

Based on vessels' data, the Japan Meteorological Agency and

other meteorological institutes worldwide generate information, such as weather maps and transmit them back to vessels, helping ensure their safe operation.

In addition, maritime meteorological data, which has critical effects on terrestrial weather, is also used to monitor and research global warming and climate change.

The 'Energy Advance' and the VLCC 'Kashimasan' were selected this year for their reliable reports of maritime weather observations over many years, contributing the development of the agency's operations. ■

Dynagas benefits from increased income

Dynagas LNG Partners has reported net income for the three months ended March 31, 2021 of \$15.9 mill, compared to \$7 mill for the corresponding period of 2020.

This represents an increase of \$8.9 mill, or 127.1%. This was mainly attributable to the decrease in finance costs, as well as to the increase in gain on the interest rate swap transaction entered into in May, 2020, compared to 1Q20.

First quarter adjusted net income was \$10.6 mill, compared to \$7.1 mill for the corresponding period of 2020, which represents a net increase of \$3.5 mill or 49.3%, mainly due to decreased finance costs.

Voyage revenues for 1Q21 were \$33.4 mill, compared to \$34.5 mill for 1Q20. This decrease was mainly as a result of the lower variable charter hire earned on the 'Lena River' in 1Q21, compared to 1Q20.

Daily hire gross of commissions was about \$62,250 per day per vessel in 1Q21, compared to around \$63,100 per day per vessel for 1Q20.

Vessel operating expenses were \$6.9 mill, which corresponds to a daily rate per vessel of \$12,739 in 1Q21, compared to \$7.6 mill, or a daily rate per vessel of \$13,872 in

the corresponding period of 2020.

This decrease is mainly attributable to lower planned engine maintenance on the 'Lena River' during the period, compared to the first quarter of 2020.

Adjusted EBITDA for 1Q21 was \$23.9 mill, compared to \$23.7 mill for the corresponding period of 2020.

Charter contract signed

Subsequently, Dynagas signed a new timecharter agreement with Equinor for 'Arctic Aurora'. She is expected to be delivered to the charterer in September, 2021 in direct continuation of the current charterparty.

CEO, Tony Lauritzen, said; "All six LNG carriers in our fleet are operating under their respective long-term charters with international gas producers with an average remaining contract term of 7.7 years. As of 31st March, 2021, our estimated contracted revenue backlog is approximately \$1.12 bill.

"After securing a new two-year



Dynagas has extended the 'Arctic Aurora's' charter at a higher rate

charter for the 'Arctic Aurora' with Equinor, and barring any unforeseen events, the earliest contracted redelivery date for any of our six LNG carriers is in the third quarter of 2023 ('Arctic Aurora'), with the next carrier ('Clean Energy') becoming available for re-chartering in the first quarter of 2026.

"For the first quarter of 2021, we reported net income of \$15.9 mill, earnings per common unit of \$0.36, adjusted net income of \$10.6 mill and adjusted EBITDA of \$23.9 mill.

"Despite the ongoing operational challenges the industry is facing as a result of the COVID-19 outbreak, we are pleased to report 100% utilisation for our fleet

for the first quarter of 2021.

"Going forward, we intend to continue our strategy of using our cash flow generation to deleverage our balance sheet and reinforce our liquidity so as to build equity value over time. This, we believe, will enhance our ability to pursue future growth initiatives," he concluded.

As of 31st March, 2021, the Partnership reported total cash of \$84.1 mill (including \$50 mill of restricted cash). The Partnership's outstanding debt under the \$675 mill credit facility amounted to \$603 mill, gross of unamortised deferred loan fees and including \$48 mill, which was repayable within a year. ■

Carbon neutral LNG price assessment available

S&P Global Platts has launched what it claims is the world's first daily carbon neutral LNG price assessment (CNL).

This tracks the cost of carbon credits purchased and retired to offset the carbon emissions for an LNG cargo on the world's most active trade route.

The assessment brings transparency to this growing sector of the LNG market, as the industry seeks to mitigate greenhouse gas (GHG) emissions and deploy further efforts to reduce the climate impact of their activities, Platts said.

CNL involves offsetting the carbon emissions associated with the upstream production, liquefaction, transportation and, where required, combustion of the gas - through the purchase and retirement of carbon credits, which in turn support the protection and restoration of natural ecosystems or other renewable projects.

Ciaran Roe, S&P Global Platts' Global Director of LNG Pricing, explained: "We are already seeing LNG consumers around the world demand action on emissions associated with LNG use amid an increasingly carbon conscious economy. Providing increased transparency around the carbon footprint of LNG cargoes is vital to aid buyers' and sellers' decision-making in the market.

"JKM is the leading global LNG benchmark reflecting the value of LNG delivered to North Asia. This first CNL price assessment builds on JKM's position by also reflecting deliveries into the biggest demand hub for LNG globally.

"The CNL assessment for well-to-tank (WTT) emissions was developed in close consultation with the indus-

try, which showed a keen interest in Platts adding greater transparency to the cost of offsetting emissions associated with an LNG cargo.

"The next steps for the industry are to decide on the development and implementation of GHG quantification and reporting methodologies, as well as how the industry will lower emissions associated with the production and consumption of LNG," he said.

JKTC deliveries

Platts' CNL WTT JKTC assessment reflects LNG cargoes loaded in Australia and delivered to JKTC (Japan, South Korea, Taiwan, China) - the world's most active LNG trade route.

The assumed cargo size is 3.4 trillion Btu and is assessed in \$/MMBtu,

using Platts CNC price assessment to value the cost of nature-based voluntary carbon credits.

Platts uses a weighted average of the estimated emissions of CO2e per tonne of LNG produced from all Australia liquefaction plants and an average emissions rate for a standard LNG vessel sailing from Australia to JKTC.

CNL reflects CO2 emissions offset on a WTT basis and takes into consideration emissions associated with production, including an estimate for fugitive emissions, liquefaction, freight (including ballast leg) and regasification.

Platts said that it will review its methodology specifications and assumptions on an ongoing basis as the LNG market evolves, while continuing to engage with the market. ■

LNGC methane emissions study complete

London's Queen Mary University has completed a study to measure methane emissions of an operating LNGC.

This was undertaken with support from the Collaboratory to Advance Methane Science (CAMS) and Enagás.

Results from the study will provide critical data-driven insights into the greenhouse gas (GHG) profile of LNGCs to identify opportunities for environmental performance improvement, CAMS said.

Analysts collected comprehensive direct measurements from the Cheniere-chartered newbuilding 'GasLog Galveston' during a round trip from Cheniere's Corpus Christi liquefaction facility to a European discharge port.

Data gathered during the voyage included measurements of

engine exhaust, as well as fugitive emissions.

"This project comes at a critical time, with policymakers seeking to understand both how to regulate industry and ensure that climate targets are met. Accomplishing this will depend on ensuring transparent, emissions-related data is available and lessons learned from studies such as this are implemented," said Dr Paul Balcombe, Lecturer in Chemical Engineering and Renewable Energy at Queen Mary University and the lead researcher for the study.

"LNG shipping is an area where Cheniere and fellow CAMS co-founders believe there is potential

for real progress on measuring and reducing methane emissions," said Anatol Feygin, Cheniere's Executive Vice President and CCO. "This important work is consistent with our commitment to enhance the transparency around the emissions profile of the LNG value chain and robust scientific results are important data points to guide future mitigation strategies."

Paolo Enoizi, GasLog Ltd's COO, added, "We are proud to be a part of the CAMS effort to measure and monitor methane emissions from the 'GasLog Galveston' under real world operating conditions. As responsible shipowners, we view the efforts undertaken by the CAMS as

critical to minimising the environmental footprint of the global LNG shipping fleet and supporting the continued success and competitiveness of the LNG industry."

"Enagás is intensively working in the detection and quantification of methane within its assets to minimise emissions," said Claudio Rodríguez, Enagás. Gas Assets General Manager. "We believe improving the accuracy of the emissions data along the gas value chain is critical, and this first-of-its-kind study will shed light on methane emissions associated with the logistic supply chain - informing us of our greatest prospects for development." ■

TMC wins ALS compressor contract

TMC Compressors (TMC) has won a contract from Hyundai Heavy Industries (HHI) to deliver marine air lubrication system (ALS) compressors to five LNGCs being built for three different shipowners.

ALS is used to reduce the resistance between the ship's hull and seawater by using air bubbles. The air bubble distribution across the hull surface reduces the frictional resistance on the ship's hull, creating energy-saving effects.

TMC has developed a range of marine compressors for use in combination with an ALS to help further reduce ships' fuel consumption and emissions to air.

For the five LNGCs, TMC's ALS compressors will be coupled to HHI's ALS. HHI claimed that its Hi-ALS system can cut fuel consumption by up to 8%.

"Combining our ALS compressors with Hyundai's Hi-ALS air lubrication system is an excellent example of how the supplier industry can co-operate to make the shipping industry greener and reduce shipowners' operating costs," explained Hans Petter Tanum, TMC's director of sales and business development.

TMC will supply 15 ALS compressor units - three compressors

to each of the five newbuilding LNGCs. TMC will also supply dedicated ALS control systems that will be integrated in a specially designed control cabinet.

The equipment will be manufactured in Norway and shipped to HHI. The five 174,000 cu m newbuildings will be constructed by HHI and Hyundai Samho Heavy Industries.

Two of the vessels are being built for Norwegian shipowner Knutsen OAS, two for South Korean-based SM KLCSM, while the final vessel is for an undisclosed shipowner.

This contract also includes options to deliver compressors to further LNG newbuildings equipped with an ALS system.

In January last year, TMC was awarded a contract by HHI to deliver its ALS compressors to seven LNGCs under construction for Capital Gas Corp.

"To secure another such large order for our ALS compressors is the best stamp of approval we



A TMC ALS compressor

could have asked for. We are well aware of Hyundai's strict quality requirements and look forward to

deliver on those expectations for all five LNG carriers," Tanum added. ■

SafeSTS and Trelleborg pool expertise

SafeSTS Transfer Technology Limited (SafeTTL) has been appointed as a UK distributor for Trelleborg's pneumatic fenders.

SafeTTL is a provider of hardware and software solutions to facilitate the secure transfer of oil and gas between vessels.

This development is claimed to be a logical extension of SafeSTS' core activity of providing ship-to-ship (STS) transfer services to oil and gas majors and traders.

Trelleborg's ISO17357-1:2014 compliant pneumatic fenders are supplied fully tested and meet PIANC 2002 guidelines.

They are claimed to be ideal for permanent or semi-permanent port operations, particularly in challenging conditions, such as large tidal ranges, as well as for offshore STS transfers.

With this agreement, the new SafeTTL division has access to a large worldwide stock of floating

fenders ranging in size from 0.5 m to 6 m in diameter.

When combined with the existing SafeSTS fender offering and oil, LPG and LNG transfer hoses, which are also available for sale or rent, the business is now in a position to support clients with a much broader scope of offshore, near shore and in-harbour berthing and transfer challenges, the company said.

Lara Griffin, Commercial Lead at SafeTTL, said: "We and Trelleborg's marine and infrastructure operation have a shared drive and passion for the consultative supply of innovative, safety-enhancing marine systems. To this we add hands-on experience of best practice in how to correctly handle, operate and maintain pneumatic

fenders to ensure safe ongoing usage, as well as the longevity and related ROI of these investments.

"We work with our clients to create customised systems using the latest technologies to ensure the safe and efficient transhipment of products. Other initiatives include the installation of associated virtual reality systems for remote learning, incident re-enactment and base audits.

"SafeSTS has a clear policy of 'safety first' closely followed by plans for improving the carbon footprint of ship-to-ship transfer. Its ultimate ambition is to achieve a carbon-neutral footprint," she said.



SafeTTL to market Trelleborg's fenders

Paul Welling, President of marine fenders at Trelleborg's marine and infrastructure operation, added: "We are delighted to appoint SafeTTL as an authorised distributor of our range of pneumatic fenders for the UK market. As one of the world's foremost users of pneumatic fenders within their own STS operations, there are few people who have a deeper understanding than SafeSTS of what it takes to manufacture best-in-class fenders or who is better able to support these assets throughout their service lives." ■

NEWS NUDGE

Deliveries, charters and newbuildings

GasLog has announced several new timecharter agreements.

They include a one-year timecharter of the 155,000 cu m LNGC 'GasLog Sydney' with a subsidiary of Total, as well as an about an eighth-month timecharter for the similar size 'Solaris' with a Royal Dutch Shell subsidiary in direct continuation from the conclusion of the initial multi-year charter with Shell in late July, 2021 and extending through the end of 1Q22.

In addition, GasLog Ltd has taken delivery of the 180,000 cu m newbuilding LNGC 'Gaslog Wellington' from Samsung Heavy Industries (SHI).

This vessel, which will sail under a term charter with US operator Cheniere, is the second LNGC delivered to the company this year after the 174,000 cu m 'Gaslog Galveston', which is also chartered by Cheniere and was delivered by SHI in January.

GasLog Partners has also

signed a new timecharter agreement for the steam powered 2007-built 145,000 cu m 'Methane Heather Sally' with a wholly owned subsidiary of Cheniere Energy.

The charter began last week and has a minimum duration of one year. Cheniere has the option, to be declared by late August, to extend the charter for an additional one or two years.

She previously operated in the spot market.

Awilco LNG has announced that the 2013-built 156,000 cu m TFDE 'WilPride' has been fixed on a timecharter for about 10 months.

The contract is expected to commence by the end of this month in direct continuation from the present charterparty and was concluded at a higher rate.

Denmark's Celsius Shipping has taken delivery of a third LNGC — the 180,000 cu m 'Celsius Charlotte' — from Samsung Heavy Industries (SHI).

She will sail under a Cheniere term charter as is the second LNGC delivered this year, the 180,000 cu m 'Celsius Canberra'.

Capital Gas Ship Management Corp has taken delivery of the

174,000 cu m Hyundai Heavy Industries (HHI) newbuilding LNGC 'Aristarchos'.

She is fitted with XDF engines and equipped with an air lubrication system and increased filling limits (more than 99%). and is the third of seven sisterships to be delivered between 2020-2023.

The LNGC has also been chartered to Cheniere for up to six years.

On 15th June, 2021, a keel-laying ceremony was held at Zvezda Shipbuilding Complex for the lead Arctic LNGC ordered by PAO Sovcomflot (SCF).

She is the first in a series of 15 LNGCs, ordered from Zvezda, to serve the Arctic LNG 2 project.

The first vessel will be owned by SCF, while the remaining 14 ships will be owned by SMART LNG, a joint venture between SCF and NOVATEK.

All the vessels in the series will operate under long-term timecharter contracts with Arctic LNG 2.

Their construction is being financed by VEB.RF, while all 15 vessels will operate under the Russian flag and the shipbuilding process is being supervised jointly

by the Russian Maritime Register of Shipping (RS) and Bureau Veritas (BV).

In China, COSCO and PetroChina have confirmed plans to order three more LNGCs at Hudong-Zhonghua.

Hudong has three 174,000 cu m LNGCs under construction for the partners scheduled for delivery in 2022/2023 and the latest orders are believed to be declared options.

It is thought that each vessel would cost around \$185 mill and will be fitted with WinGD's X-DF dual-fuel engines and GTT's NO96 L03+ containment system.

HHI has won a contract to build two LNGCs.

Parent KSOE confirmed in a filing to the stock exchange on Monday that HHI would build two LNGCs for an unidentified owner in Oceania, believed to be Capital Gas.

The price for the two vessels was Won438 bill.

HHI will deliver the 174,000 cu m vessels by December, 2023.

Finally, the Jovo Group has reportedly ordered a \$120 mill 79,800 cu m LNGC at Jiangnan for delivery in 2023. ■

Wärtsilä signs Nakilat LNGC support agreement

Wärtsilä has signed support agreements for Nakilat's owned LNGCs.

These agreements were signed in April and are valid for five years.

Wärtsilä was the supplier of the LNG reliquefaction systems for all of Nakilat's Q-Flex vessels covered by the agreements.

Under the contract terms, Wärtsilä will provide 24/7 technical remote support for the vessels' on board gas process plants.

Nakilat has direct access to Wärtsilä's dedicated team of LNG experts for specialist technical ad-

vice and remote troubleshooting, thereby reducing potential equipment downtime, and when possible, avoid time consuming and costly on board visits by service engineers.

Furthermore, following each cargo loading, selected operational data from the running reliquefaction systems is analysed by Wärtsilä to ensure the systems' operability and readiness, which also creates a traceable opera-

tional data history.

"As the global leader in energy transportation, the efficiency and reliability of our reliquefaction systems is a key element to efficient cargo handling operations and vessels serviceability to the customer.

"Such support agreements are intended to give the assurance that the reliquefaction systems are operated safely and optimally within plant design parameters, thereby ensuring the integrity of our global operations," said Nakilat COO, Samir Bailouni.

"Lifecycle support to our customers' installations is a central pillar in the strategy of Wärtsilä Gas Solutions. Agreements such as these are the best way for ensuring that the products, systems and solutions that we deliver are properly maintained, and that their reliability and performance are at the optimal level," commented Rene Christian Olsen, Director Services, Gas Solutions.

Wärtsilä has had a long-standing relationship with Nakilat and has supplied multiple products for the fleet. ■



Wärtsilä is to maintain Nakilat's Q-Flex equipment

LNG rate assessments

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

Region	This week	Change*
East of Suez	\$64,000	+\$12,000
West of Suez	\$80,000	+\$18,000
12 mos T/C	\$82,000	+\$4,000

*Since last report (10/06/21)

Source: Fearnleys (23/06/21)

Monthly Large LNGC Values*

Newbuildings (174,000 cu m)	\$184.69 mill
Five years old (160,000 cu m)	\$141.39 mill
Total Fleet (522 ships)	\$57.41 bill
Orderbook (123 ships)	\$23.58 bill

Source: VesselsValue (21/06/21)

*The above is updated each month courtesy of VesselsValue

NEWS NUDGE

GasLog closes BlackRock merger

GasLog Ltd has completed the merger transaction with BlackRock's Global Energy & Power Infrastructure team.

The closing of the transaction on 9th June followed a special general meeting of

GasLog's shareholders held virtually on 4th June.

Trading in the company's common shares on the New York Stock Exchange (NYSE) was suspended and the de-listing of the common shares from NYSE was expected to become effective by the end of last week. ■



LNG OneWorld.com

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	Bilbao	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

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 = 28th April 2021

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Green Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
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 Mendeleev	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	TBN	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2022	Veder TBN	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Kuntsen 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	Kuntsen 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
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
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 = 28th April 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

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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

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