

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

10 December 2020

Panama looking to book more LNGCs

The Panama Canal Authority could add more reserved LNGC transit slots in the future on the back of the increase in US exports, the agency said last week.

Delays of up to more than a week for LNGCs passing through without a reservation were seen from late October and have continued.

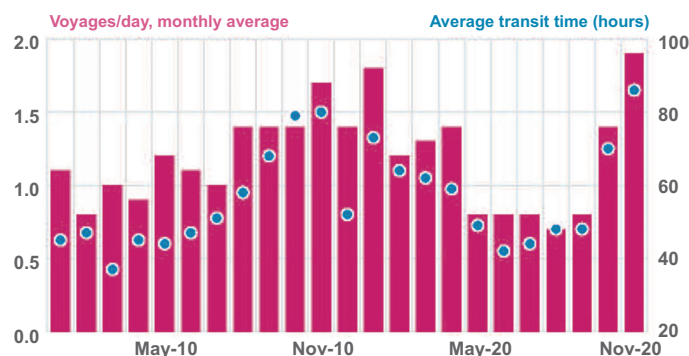
Last month, 53 LNGC canal transits were recorded, up from 35 in October and 48 in November, 2019, according to the agency's data.

The delays have been blamed on a combination of factors, including fog, higher-than-average arrivals and additional safety procedures to prevent further coronavirus spread.

With US LNG export activity surging, and more capacity expected to come online through 2024, the Canal Authority said it wanted to look at long-term options.

"There is potential in the next few years to increase the number of LNG vessel transits," the Canal Authority said in a statement to S&P Global Platts in response to questions. "We look forward to revisiting the issue in the middle of next year, to see if any variation can be allowed, always maintaining the safety of the LNG ship, other vessels

PANAMA CANAL LNG TRANSITS



Source: S&P Global Platts Analytics

in the traffic mix, and our personnel and Canal infrastructure."

Two LNGC booking slots are currently available per day. On some occasions, up to four LNGCs have been allowed through, depending on the transit mix and operational conditions.

Under its current restrictions, the authority could handle up to two LNGCs northbound and one southbound each day.

Higher spot prices have driven a strong pickup in US LNG exports to Asia. However, long waiting times for unreserved vessels at

the Canal have forced many US LNG cargoes to go east, thus avoiding the Canal altogether and adding to the overall voyage cost.

Delays caused by an increased demand for slots pushed the average transit time per vessel to about 3.6 days, a 66% increase compared to last year and exceeding the record waiting times seen last Autumn.

At least seven vessels took more than 200 hours to transit the Canal, with two taking over 10 days to pass through, according to S&P Global Platts Analytics data. ■

NEWS NUDGE

World Gas conference rescheduled

The International Gas Union's (IGU) 28th World Gas Conference, hosted by the Korea Gas Union, has been rescheduled to 23rd-27th May, 2022.

It is to be held at Daegu, South Korea, under the name of WGC2022.

At its November meeting, the IGU Council confirmed the decision to reschedule the event, following a risk assessment around the impact of the COVID-19 pandemic.

Commissioning cargo shipped from Corpus Christi Train 3

Cheniere Energy has loaded its first cargo from Corpus Christi Train 3, according to social media and shiptracking data.

The company said in a tweet that it had loaded the train's commissioning cargo and also the plant's 200th cargo onto the LNGC 'La Mancha Knutsen' on 7th December.

"We continue to track ahead of schedule on Train 3," it added in the tweet.

Refinitiv Eikon shiptracking data showed that the LNGC was moving after loading the cargo on Monday. No destination was indicated. ■

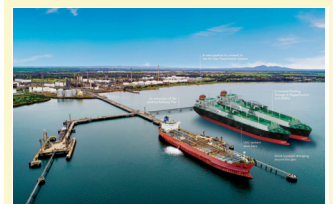
SHIPPING NEWS AGENDA

MARKETING

UK favoured destination **2**

US rescinds rules **2**

BUSINESS



Geelong gets a boost **3**

Glencore adds contracts **3**

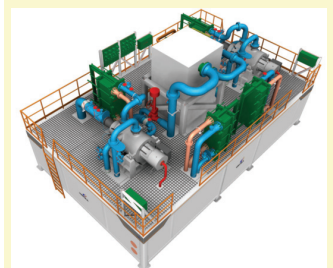
Barossa LNG commitment **4**

FINANCE

Tema FSRU financed **5**

Golar's improved results **6**

TECHNOLOGY



Wärtsilä's equipment supply **8**

LNG BOG management contract **10**

LNG ORDERBOOK

LNG small scale fleet **12**

LNG carrier orderbook **14**

UK preferred US LNG cargo destination last month

The UK was the top destination for US LNG last month, due to a market contango and Panama Canal constraints, according to S&P Global Platts trade-flow data.

With US feedgas demand topping 11 bill cu ft per day for the first time on 1st December, when all six major US liquefaction facilities appeared to be producing at

or near capacity, export activity is expected to continue to be robust through the end of the year.

Strengthening netbacks on deliveries to Asia, and multiple car-

goes bound for the region on the water at the end of November, suggested that the region will be a key destination for US LNG supplies this month, Platts said.

Ten US cargoes were delivered to the UK in November, followed by Brazil with nine. Seven cargoes each were delivered to India, China and Japan, according to cFlow, Platts trade-flow software.

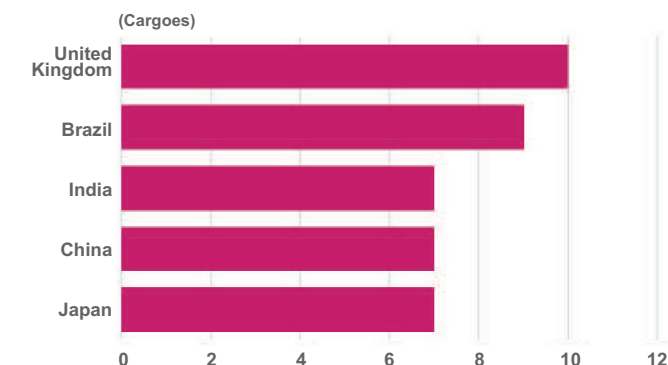
Strong contango in the European gas markets during the early Autumn drove some US LNG cargoes to delay deliveries into the higher-priced November contract, raising imports to the region last month. Another factor was the waiting time of up to more than a week for LNGCs passing through the Panama

Canal without a reservation (see previous page).

Five of the six major terminals appeared to be operating at full capacity, while there was still a small amount of unused capacity at Kinder Morgan's Elba Liquefaction in Georgia, due to one of the 10 trains remaining offline since a May fire. Further US capacity will be available once construction of a sixth train at Sabine Pass is complete in 2022.

In addition, two new liquefaction facilities are under construction - Venture Global LNG's Calcasieu Pass in Louisiana and ExxonMobil's and Qatar Petroleum's Golden Pass in Texas, due to start up in 2022 and 2024, respectively.

TOP 5 US LNG EXPORT DESTINATIONS BY COUNTRY IN NOVEMBER



Source: S&P Global Platt Analytics

US DoE environmental reviews rescinded

Last week, the US Department of Energy (DoE) issued an edict to exclude current environmental reviews on LNG marine transport.

It was introduced as the Trump administration came up with last minute rules to support the fossil fuel industry, before handing over power.

The rule, which the DoE issued in a pre-publication notice in the US Federal Register, states that environmental reviews will be no longer needed in LNG Transport License reviews that were required under the National Environmental

Policy Act.

This requirement had only involved LNG shipments to countries with which Washington does not have a free trade agreement, such as China.

However, it is expected to be overturned by President-elect Joe Biden's administration and challenged by environmental groups in the courts, analysts told newswires.

"The new rule could be rescinded as part of early executive actions on climate," ClearView Energy Partners analysts said in a note to clients.

The DoE said in the notice that the rule would 'save time and expense in the NEPA compliance process.' It becomes effective 30 days after Federal Register publication and just over two weeks before Biden's inauguration.

It would not affect LNG project environmental reviews that liquefy and process gas by the Federal Energy Regulatory Commission (FERC), or the LNGCs used.



The Biden administration could reverse the latest US DoE legislation

A senior DoE official told Reuters that the reviews concerned environmental impact of the LNG boil-off.

“The new rule could be rescinded as part of early executive actions on climate”

- ClearView Energy Partners

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Geelong LNG terminal prospects enhanced

Viva Energy has entered into Memorandums of Understanding (MOU) with two partners to help develop the Geelong Energy Hub LNG regasification terminal project.

Two consortia are involved, the first is a partnership between ENGIE Australia & New Zealand and Mitsui & Co Ltd and the second between trading house Vitol and VTTI.

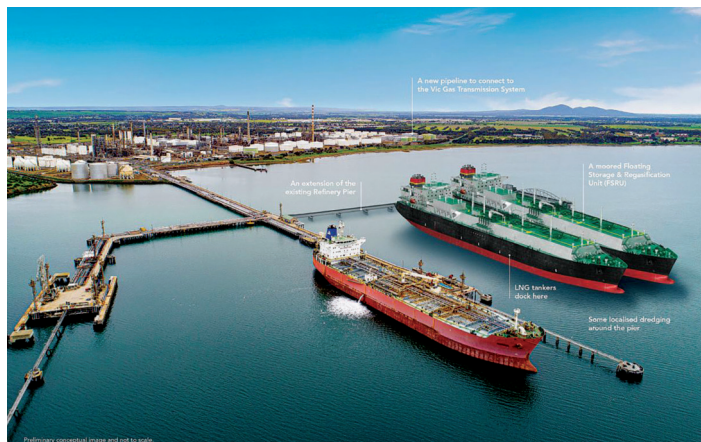
Under the terms of the MOU, the partners will participate in the design and development phase of the gas terminal project, and will work exclusively with Viva Energy on the terminal development.

Binding commitments as to capacity, ownership in, and offtake from, the proposed terminal are not covered by the MOU but will be sought at the time of a final investment decision (FID) is made to proceed, Viva said.

This project is a key part of a strategy to transform Geelong into a leading 'Energy Hub', designed to provide opportunities for Viva Energy and its partners to participate in the transition to a cleaner energy future.

Earlier, Viva had asked for expressions of interest (EOI), which was conducted by Vivato, for proposals from commercial parties to partner with the company in its role as terminal developer, operator and user.

Geelong is strategically located within Australia's largest gas market, has the benefit of an industrial facility and port infrastructure, and provides close integration into the nearby energy



Geelong's proposed LNG terminal has taken a step forward

infrastructure, including Victoria's gas transmission network, Viva claimed.

Viva Energy's board has approved funding for the project to progress through the FEED stage, and has lodged its referral submission with the authorities. The company has also commenced the tender process for the FSRU charter.

Design started

Accordingly, the project's technical design phase has commenced and will progress through 2021, in parallel with the regulatory approvals process. A FID could be taken by mid-2022, with gas supply in 2024, in order to service the expected gas supply shortfall in the Victorian market, the company said.

Viva Energy CEO, Scott Wyatt, said "We are very pleased to have

such strong partners with experience and capability in LNG terminals and gas markets to assist us in continuing to fast-track our project through to a final investment decision. The project will bring new gas supply and competition to our domestic gas markets and is an important part of our wider vision to further develop Geelong as an Energy Hub for Victoria, and to support the transition of Victoria to lower carbon energies.

"We believe that natural gas will continue to play an important role in providing energy and thereby supporting the further development of lower carbon, but intermittent renewable energy generation. Our Geelong site is uniquely placed to deliver on this project, and we are very excited about this opportunity to play a role in the energy transition," he said.

Glencore takes over Orsted's LNG supply contracts

On 1st December, Glencore's Oil Division completed the acquisition of Orsted's LNG portfolio.

This involved Glencore taking over a number of contracts, including the right to use 3 billion cu m of the annual LNG regasification capacity at the Gate terminal in Rotterdam until 2031, as well as a number of LNG supply contracts.

The transaction also involves an undisclosed payment from Orsted to Glencore.

Alex Sanna, the Head of Glencore Oil marketing, commented: "We are pleased to complete the acquisition of Orsted's LNG portfolio.

"We are increasingly focusing on the LNG business as a key part of our Oil division strategy and the Orsted transaction represents an important milestone in that journey.

"We see good opportunities in the market place and we are excited to continue to grow our LNG marketing portfolio," he said.

Orsted said it was focusing on expanding its renewable energy interests. The company is already the world's largest wind farm producer.

First STS transshipment performed in Murmansk

Last month, NOVATEK-Western Arctic, a wholly owned subsidiary, of PAO NOVATEK, completed Russia's first ship-to-ship (STS) LNG transshipment in the Kildin Strait, Barents Sea.

This was undertaken with the Arc7 'Nikolay Yevgenov' successfully transshipping a gas cargo delivered from the Yamal LNG facility at Sabetta into the conventional LNGC 'Yamal Spirit'.

The ship-to-ship transfer was conducted at a temporary LNG offshore transshipment complex set up in Murmansk. This complex

will ensure uninterrupted year-round LNG transshipments from the Ice Class LNGCs carrying Russian Arctic cargoes to conventional LNGCs.

STS operations were conducted in compliance with all of the applicable Russian environmental requirements. Representatives from NOVATEK-Western

Arctic, the Russian and foreign shipowners, auxiliary fleet operators and the LNG transshipment operators were present.

Safety of navigation was undertaken by the port of Murmansk and Rosmorport.

The STS transshipment complex in the Murmansk Region represents another significant milestone in

developing NOVATEK's LNG supply chain from the gas facilities located in the Russian Arctic to the global natural gas consuming markets.

It allows the company to develop its internal competencies to perform LNG transshipment in Russia, as well as optimise the Arctic LNGC fleet, the company said.

Diamond Gas to take Barossa LNG

Santos has signed a binding long-term LNG supply and purchase agreement (SPA) with Diamond Gas International (DGI), a wholly-owned subsidiary of Mitsubishi Corp.

This calls for the supply of 1.5 mill tonnes per annum of LNG from the Barossa project for 10 years, plus extension options.

The price will be based on the Platts Japan Korea Marker (JKM).

Santos also has options to pursue further LNG transactions with DGI.

Santos Managing Director and CEO, Kevin Gallagher said the agreement with DGI was another significant step towards a final investment decision (FID) on Barossa, which is targeted for the first half of next year.

“Barossa is a globally-competitive, low-cost brownfield LNG project providing new supply into a tightening LNG market, where JKM-based pricing is an increas-

ingly deep, liquid and flexible marker for both sellers and buyers.

“Santos is delighted to establish a long-term relationship with Mitsubishi, a major Japanese company with deep LNG expertise.

“The SPA delivers a firm LNG offtake arrangement, which represents over 80% of Santos’ equity LNG volume from the Barossa project at our expected 50% interest level following the sell-down to JERA, while the JKM-indexation provides portfolio balance to our existing oil-linked LNG offtake agreements from GLNG and PNG LNG.

“It also represents the first Santos long-term equity LNG sale from one of our major LNG projects, demonstrating our market-

ing capability to meet customer needs in the market,” he said.

Opportunities

In addition to the long-term SPA, Santos and Mitsubishi have signed a MOU to jointly investigate opportunities for Barossa produced LNG.

These include collaborating on opportunities relating to Santos’ Moomba carbon capture and storage (CCS) project, pursuit of LNG, bilateral agreements for carbon credits and potential future development of zero emissions hydrogen.

Santos’ Moomba CCS project is FID-ready and will have the capacity to safely and permanently store 1.7 mill tonnes per annum of

CO2 underground in depleted natural gas reservoirs, subject to Australian Government approval regarding eligibility for carbon credit units.

Santos currently holds a 62.5% operating interest in the Barossa joint venture along with partner SK E&S (37.5%). Santos is also a joint venture partner and operator in Darwin LNG with a 68.4% interest.

Completion of the planned sell-downs to SK E&S and JERA, announced earlier this year, will see Santos’ interests in Darwin LNG and the Barossa project change to 43.4% and 50%, respectively.

The sell-downs are subject to customary consents, regulatory approvals and FID on Barossa, Santos said. ■

Golar gives a brief update

Golar LNG’s fourth quarter fleet TCE is expected to be above \$50,000 per day, with utilisation above 80% based on fixtures to date and prevailing spot market conditions.

The company said that its shipping strategy continued to prioritise longer term utilisation over short-term opportunities, but remained adequately exposed to seasonal and other potential upside by virtue of some index linked charters within the portfolio.

Golar has fixed around two thirds of available 2021 revenue days through a combination of fixed and floating rate charters. Following ‘Golar Tundra’s’ departure from the shipyard in October, no further drydockings are planned until 2023.

Looking at the FLNG market, Golar said that it will continue to focus on ‘Gimi’ productivity and to manage the re-schedule progress and safe working under COVID-19

restrictions. The project’s fourth drydocking period is scheduled to commence in early December, 2020.

As for ‘Hilli Episeyo’, the scheduled maintenance shutdown in October will not result in any reduction from the unit’s 4Q20 earnings.

Work is continuing with Golar’s counterparts, Perenco and SNH, on potential solutions to increase the unit’s throughput.

Golar will continue to develop its portfolio of FLNG opportunities featuring both its 3.5 and 5 mill tonnes per annum Mark III new-building FLNG designs as direct competitors to traditional large-scale onshore liquefaction facilities, in addition to marketing the Mark I solution.

The project portfolio has grown considerably over the last few months and it is interesting to observe an increasing number of requests from oil majors seeking lower cost production solutions, Golar said.

FIDs lacking

The lack of FIDs in the LNG business in recent years, combined with strong demand, will result in higher LNG prices that will likely generate additional interest in Golar’s FLNG solutions.

Following the recent signing of the collaboration agreement with B&V, Golar will jointly work on solutions to further reduce the carbon footprint of the FLNGs and for a potential development of float- ing ammonia production.

As for Hygo Energy Transition, the Hygo board will consider the timing for a potential re-launch of the IPO, which will be driven by market conditions, ongoing business operations and ongoing busi-

ness development activity.

Hygo expects to take a FID on the Barcarena terminal before the end of this year based on the expressed interest for off-take volumes from industrial users. FID on the associated 605 MW power station is expected to follow around six months after the terminal’s FID.

In addition, Hygo remains actively involved in the development of several other terminal opportunities in Brazil on a competitive basis, including those in Suape and Bahia.

Although postponed by recent events, Golar said that it remained committed to the separation of Hygo and an IPO remains the primary route to achieve this, subject to board approval, ongoing business operations and business development activity.

When concluded, the separation will represent the first step towards re-organising and simplifying Golar’s structure. ■

“Hygo expects to take a FID on the Barcarena terminal before the end of this year ...”

Tema's FSRU terminal project gains finance

Emerging Africa Infrastructure Fund (EAIF) has agreed to lend \$31 mill over 10 years to Access LNG BV.

Access LNG is a provider of specialist floating LNG infrastructure, to support the construction of a new LNG storage and regasification facility at Ghana's Tema port.

Tema houses a number of Ghana's largest power stations and the industry that relies on their energy. The new facility enables thermal power generators to move to use natural gas.

Industrial users have welcomed the development and the flexibility and reliability of supply that the LNG terminal will deliver, EAIF claimed.

Construction of an FSRU and an FSU are at an advanced stage. Delivery of the vessels is expected before the end of this year.

EAIF's loan is part of the FSRU's financing, which will be integrated with an LNGC serving as an FSU.

The project's fixed infrastructure element, was financed under a separate package and consists of a breakwater, mooring facilities, a subsea pipeline and an 8 km on-shore pipeline to take the gas from the port to Tema's industrial area.

Martijn Proos, a Director at EAIF's managers, Ninety One, said; "The new terminal at Tema is an innovative approach to securing

reliable and cost efficient gas supply.

"The investment by EAIF will contribute to reducing carbon emissions, contributing to Ghana's long-term energy needs and strengthening its economic stability and economic development efforts.

"The project gives local and international power and industrial sector investors added confidence in the future of the country, which is good for jobs, good for business, good for communities and good for Ghana," he said.

The project's construction phase began in 2018.

Joint Venture

Access LNG was established as a joint venture between Helios Investment Partners, an Africa focused private investment firm and Gasfin Development, a provider of LNG infrastructure, to develop and operate new LNG facilities for developing markets.

Delivering the floating infrastructure for Tema's new LNG facil-



Tema's FSRU project has gained finance

ity is the joint venture's first project.

Ogbemi Ofuya, a Partner at Helios Investment Partners, added; "We have worked successfully with EAIF over many years on the financing of telecommunications and affordable housing projects across Africa.

"We have benefited from its deep knowledge of Ghana's energy sector and its expertise in port infrastructure developments, gained in other parts of Africa. Our project at Tema positions the energy sector in Ghana for both growth and environmental sustainability so that when the world recovers

from Covid-19, Ghana will have the energy infrastructure needed to help it compete.

"This project also positions Access LNG as a first mover in bringing right-sized LNG infrastructure solutions to sub-Saharan Africa, establishing a model for future developments across the region.

"With global LNG markets currently well supplied for the foreseeable future, there is a great opportunity for Access to support markets switching to natural gas as a clean, cheap transition fuel as we push developments to support a greener, more efficient energy economy," he said. ■

Golar Partners' increased income

Golar Partners' reported an improved third quarter net income of \$17.4 mill. compared to \$14.3 mill in the previous quarter.

Improved collection of outstanding accounts receivable combined with the reduction in distributions paid to common unitholders has also allowed the Partnership to accumulate cash, despite an increase in debt repayments.

After amortisation of the first \$10 mill in respect of the partnership's high yield bonds, cash and cash equivalents increased from \$32.8 mill at the end of 2Q20 to \$42.3 mill at the end of the third quarter.

Following the end of 3Q20, the Partnership obtained credit approval from the lead banks in connection with the refinancing of the seven-vessel \$800 mill facility. As at 30th September, \$529 mill was outstanding. This could be increased after a syndication exercise.

On 31st August, Golar Partners agreed with Hygo to terminate the existing omnibus agreement between the two parties and enter into a new co-operation

agreement.

Both parties intend to work together to develop hub-spoke LNG terminal solutions utilising Golar Partners' available asset portfolio, where those assets are technically suitable.

The co-operation's terms and structure will be worked on a project by project basis given the customised nature of each potential terminal.

As well as leverage the expertise of the Hygo team to develop

FSRU terminals and parcel regasification demand, this agreement will, alongside normal FSRU tendering activity, increase the Partnership's re-contracting options, and provide an opportunity to potentially earn higher returns than standard FSRU contracts in the current market.

It will also allow Hygo to more quickly diversify its markets without needing to incur significant upfront CAPEX in the process, Golar LNG Partners claimed. ■

Golar sees increased income - narrows loss

Golar LNG has reported a third quarter 2020 operating income of \$30.6 mill, compared to \$28.4 mill in the previous quarter.

Total operating revenues decreased 7% to \$95.2 mill in 3Q20 from \$102.2 mill in the second quarter, partially mitigated by a decrease in voyage, charter hire and commission expenses, from \$1.5 mill in 2Q20 to \$0.5 mill in the third quarter.

However, in 3Q20, Golar LNG suffered a \$21.8 mill net loss, compared to a 2Q20 net loss of \$155.6 mill.

Key items contributing to this was a \$4.7 mill loss on derivative instruments, due to a further decline in LIBOR rates in the quarter, and foreign exchange rate movements.

A \$3.6 mill loss for equity in net losses of affiliates was primarily made up of - a \$8 mill net loss in respect of Golar's 50% share in Hygo and a \$4.6 mill net gain in respect of Golar's 32% share in Golar Partners.

The previous quarter was negatively impacted by a \$135.9 mill impairment on the Partnership investments.

A COVID-19 induced closure of the shipyard at which 'Golar Tundra' was being drydocked resulted in significant unscheduled offhire during the quarter and contributed to the reduction in fleet utilisation, from 93% in to 80% in 3Q20.

Low LNG prices also contributed to a large number of cargo cancellations, predominantly out of the US, that suppressed both shipping demand and

spot rates, and reduced the daily rate achieved with Golar's spot and index linked charters.

Revenue from vessel and other operations, including management fee income, net of voyage, charter hire and commission expenses, was \$40.2 mill, a decreased of \$6 mill from \$46.2 mill in 2Q20.

Further US cargo cancellations during the summer, higher than normal European storage levels and weather related supply interruptions, resulted in a slower than normal seasonal recovery in shipping rates, Golar said.

From early August, supply outages in Australia and demand recovery in Asia boosted spot LNG prices that subsequently supported inter-basin trading.

Sufficient available tonnage to meet near term demand meant that increased chartering activity for US loadings did not result in a meaningful increase in charter rates until later in the month. Hurricane related interruptions again constrained US supply in September, temporarily halting further increases in carrier rates whilst further boosting LNG prices.

As production resumed, a widening west/east arbitrage quickly absorbed available vessels and freight rates resumed their upward seasonal trajectory toward the end of the third quarter.

The quarter began with quoted TFDE carrier headline spot rates at

around \$30,000 per day and ended with rates at around \$59,000 per day.

Recovery delays

Delays to the seasonal recovery, plus the prolonged drydock of the 'Golar Tundra', offset by improved coverage as a result of a utilisation focused strategy meant that full fleet TCE earnings decreased from \$45,100 in 2Q20 to \$39,100 in 3Q20, but increased relative to the \$35,200 achieved in 3Q19.

Operating revenues from FLNG 'Hilli Episeyo' remained stable at \$54.5 mill, including base tolling fees and amortisation of pre-acceptance amounts recognised.

As expected, vessel operating expenses of \$28.2 mill were higher than the \$24.2 mill recorded in the previous quarter.

Iain Ross, Golar LNG CEO, said: "Golar is pleased to report Q3 operating revenues of \$95.2 mill and adjusted EBITDA of \$57.3 mill, driven by a 10th consecutive quarter of uninterrupted commercial uptime in FLNG. Q3 TCE for the fleet at \$39,100 per day is above prior guidance of \$35,000 per day and driven by a higher year-on-year utilisation of 80% for the quarter. TCE from the TFDE vessels excluding drydock days amounted to \$43,800 for the quarter.

"We concluded the force majeure event with BP on the 'Gimi' FLNG project, which resulted in an



Golar head Iain Ross has overseen increased income

anticipated delay of 11 months to the project. All other terms of the 20 year lease and operating agreement remained unchanged. The project has ramped up manning levels to pre-lockdown numbers and remains on track to the new dates and with no material change to the overall project budget.

"The 'Viking' conversion project is on track for completion and customer acceptance before the end of the year with the now re-named vessel 'LNG Croatia' currently preparing for commissioning activities. Upon acceptance by LNG Hrvatska, expected in December, the project will release approximately \$17 mill of cash to Golar, with a further \$30 mill expected in January, 2021.

"The power station in Sergipe, including FSRU 'Nanook', earned full capacity payments during the quarter. Golar's 50% proportionate share of Hygo Energy Transition's adjusted EBITDA for the quarter, amounted to \$15.6 mill," he concluded. ■

NEWS NUDGE

Croatian FSRU arrives on site

On 1st December, the FSRU 'LNG Croatia', formerly 'Golar Viking', arrived at the Krk Island receiving terminal in Croatia.

Work on commissioning the terminal began on the following day. This consisted of testing the FSRU's systems, as well as the onshore facilities, in advance of

the terminal's startup of commercial operations scheduled for 1st January, 2021.

Earlier the FSRU had arrived at the Viktor Lenac shipyard in Rijeka from China for final con-



'LNG Croatia' has arrived at Krk Island

version work. She then sailed for Sagunto in Spain, where the cargo needed for the terminal's commissioning was loaded, before heading for Krk Island.

WFW advises on Tangguh LNGC refinancing

Watson Farley & Williams (WFW) has advised MUFG Bank (MUFG), as facility and security agent and Development Bank of Japan (DBJ) as lenders, on two non-recourse credit facilities totalling \$155 mill.

These facilities involved the international, cross-border refinancing of two LNGCs owned by joint venture companies involving NYK Line, Sovcomflot and Samudera.

The loans comprise tranches with tenors of four and eight years.

The two LNGCs, the sisterships 'Tangguh Batur' and 'Tangguh Towuti', service Indonesia's Tangguh LNG plant, which has a designated annual output of extracted gas of 7.6 mill tonnes. ■

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Wärtsilä's equipment selected for two LNGC newbuilds

Technology group Wärtsilä's recently introduced Compact Reliq reliquefaction plant is to be installed in two new LNGCs being built for Norway-based Knutsen OAS Shipping.

The LNGCs were ordered from Hyundai Heavy Industries (HHI) shipyard. The order, which includes an option for an additional two vessels, was placed in November, 2020.

Compact Reliq is based on the reversed nitrogen Brayton cycle refrigeration technology. This solution is designed to reliquefy the boil-off gas (BOG) from gas carriers and LNG bunker vessels, and for keeping the cargo cool under all operating conditions.

It allows part of the BOG to be used as fuel for the ship, with the excess able to be sold as part of the LNG cargo.

"Wärtsilä is a trusted partner with whom we have worked in the past. The first generation nitrogen based re-liquefaction plants is highly reliable, efficient, and of good quality, so we had no hesitation in selecting the Compact Reliq for these new LNG Carriers,"

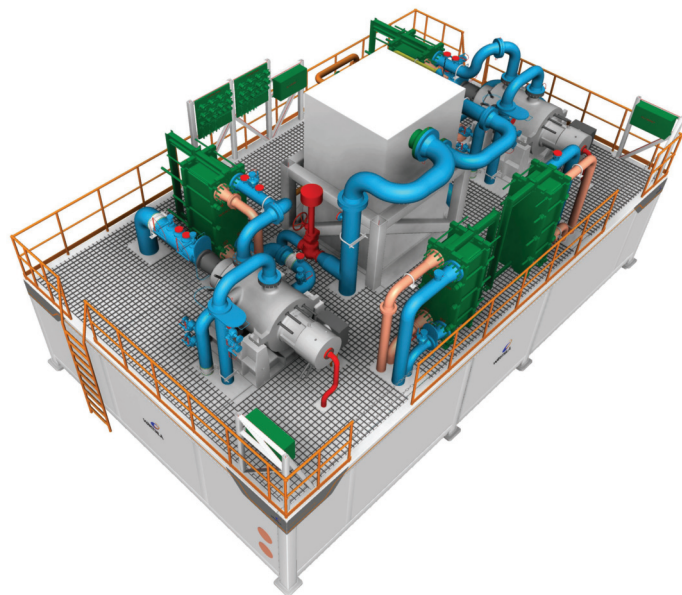
said Jarle Østenstad, Newbuilding Director, Knutsen OAS Group.

"These will be the first installations for the Compact Reliq reliquefaction solution. We are very proud of this latest addition to our portfolio of gas value-chain products and systems, and this order provides a positive indication that the market is ready to embrace it," added Kjell Ove Ulstein, Wärtsilä's Director of Sales and Marketing.

The system will be configured for remote monitoring and online operational support as part of Wärtsilä's Operational Performance Improvement and Monitoring (OPERIM) programme.

The equipment is scheduled to be delivered to the yard commencing in February, 2022, and the vessels are expected to begin commercial operations from late 2022.

Wärtsilä had earlier supplied



Wärtsilä is to supply specialist equipment for two LNGC newbuildings

Knutsen with earlier generation reliquefaction plants for six of the company's vessels.

Its compact design makes it easy to retrofit on existing ships without the need for extensive

modifications, Wärtsilä claimed. It has a minimal maintenance requirement. The refrigeration process uses safe and easily obtainable commercial grade nitrogen. ■

KR unveils new rules for membrane LNGCs

IACS classification Society Korean Register (KR) has introduced new rules for membrane-type LNG carriers.

They completely revise the existing rules, KR said.

The new rules apply the EDW (Equivalent Design Wave) concept, which is based on direct load analysis to determine structural arrangements and scantling that meet the structural strength, buckling and fatigue strength criteria for various load scenarios, and re-verify it by applying direct structural analysis.

They cover not only the traditional size LNGCs, but also the ultra-large vessels - the 210,000 to 266,000 cu m (Q-Max) by analysing and reflecting these vessels' motion characteristics.

The rules have also been developed to fully comply with the IGC Code (International Gas Carrier Code).

In order to test and improve

the rules, KR has conducted an impact analysis on an LNGC working in collaboration with Hyundai Heavy Industries (HHI), Daewoo Shipbuilding & Marine Engineering (DSME), and Samsung Heavy Industries (SHI) and applying the latest LNGC building technology.

As a result of verifying the rules for the latest design of 170,000 cu m class membrane-type LNGC, each shipyard also evaluated the rules as highly competitive in terms of structural safety and optimised design.

It is anticipated that the structural design time for LNGCs will be drastically shortened through the inclusion of the new rules in KR's structural scantling and strength evaluation program 'SeaTrust-HullScan', which is already widely used by many de-

sign companies and shipyards, KR said.

"The new rules for LNGCs will be applied to membrane-type LNG ships over 150 m in length and our LNG technology development work will continue as we work alongside leading shipyards both domestic and abroad, providing the best technical services possible for our LNG customers," said Kim Yeon-tae, KR's Executive Vice President, Technical Division.

In addition, KR has completed design approval for various types of cargo containment systems MARK III (GTT), No.96 (GTT), KC-1 (KC LNG Tech), SOLIDUS (DSME), SCA (SHI), and provides technical services for Type B type LNGCs and Type C type LNG bunkering vessels, as well as for the membrane-type cargo tanks. ■

NEWS NUDGE

Tellurian's Gentle quits

US LNG developer Tellurian's President and CEO, Meg Gentle is to leave the company.

She will be succeeded by Octavio Simoes, currently Executive Vice President of LNG Marketing and Business Development.

Tellurian did not give a reason as to why Gentle, who has been with the company since August, 2016, is leaving.

Simoes joined Tellurian in 2019 as Senior Advisor to the CEO. He was previously CEO and President of Sempra LNG & Midstream.

Tellurian has yet to take a final investment decision (FID) on its proposed \$27.5 bill Driftwood LNG export plant in Louisiana, which is designed to produce 27.6 mill tonnes per annum of LNG. ■

Anglo-Eastern opts for Wärtsilä's simulators

Third party shipmanagement concern, Anglo-Eastern has installed Wärtsilä's LNG-Pac bunkering and liquid cargo handling simulators at its largest maritime training centre in Mumbai.

Developed by Wärtsilä Voyage, this new product reflects the increasing adoption by shipowners of LNG as a fuel and the consequential need to ensure that crews are sufficiently trained in operating LNG-fuelled vessels.

The simulator is based on Wärtsilä Voyage's gas valve unit and LNGPac fuel storage, supply and control system technologies, and includes all auxiliary systems needed in connection with the LNG fuel supply.

It was tailored to meet the specific requirements of Anglo-Eastern and complies with the international Standards of Training Certification and Watchkeeping (STCW) for training seafarers on gas-fuelled ships, in line with the standards demanded by the IGF Code.

"Having worked with Wärtsilä Voyage for some 25 years, we know and trust their technology completely. We were the first private shipmanagement company to install Wärtsilä's ship handling simulators, and we are again pio-

neering comprehensive simulation training in LNG bunkering and cargo handling operations.

"We consider this to be an extremely important step in ensuring the safe and efficient running of our LNG-fuelled vessels," said Capt Pradeep Chawla, Anglo-Eastern's Managing Director of QHSE and Training.

"Crew training has to keep pace with the marine industry's transition to new and cleaner fuels. LNG is already well established as a marine fuel, so our development of this simulation solution meets the industry's need in a timely fashion.

"It covers the entire LNG fuel system, from bunkering to operating LNG dual-fuel engines, and prepares ship crews to handle all related systems safely and correctly," added Ashok Sharma, Sales, Wärtsilä Voyage Hong Kong.

Liquid cargo

Wärtsilä's scope of supply includes a full mission liquid cargo handling

simulator that replicates a real ship system, an LNG bunkering and fuel gas supply simulator, and a full mission engine room simulator.

Down the years, Anglo-Eastern has partnered with Wärtsilä Voyage on a broad range of equipment and solution installations, including more than 100 Wärtsilä Electronic Chart Display and Information Systems (ECDIS) installed on board ships.

More recently, the two companies claimed commercial history with the largest-ever maritime software deal for Wärtsilä Voyage's Fleet Operation Solution (FOS) across Anglo-Eastern's fleet of more than 600 managed vessels.

Anglo-Eastern's post-sea training centres in Mumbai and Odessa have been running various Wärtsilä Voyage simulators for a number of years.

Mumbai has Wärtsilä Voyage's ECDIS, shiphandling and bridge simulators, while AEMTC Ukraine is equipped with both the ship handling and engine simulators. ■

NEWS NUDGE

Markets - newbuildings and charters

Samsung Heavy Industries (SHI) has received an LNGC order worth Won206.2 bill (\$186 mill) from an undisclosed interest believed to be Maran Gas.

According to brokers' reports, this vessel will be fitted with an X-DF engine and was ordered under a long term contract to Total. She is due for delivery in 2023.

This order raised SHI's LNGC order backlog to 31, the world's largest, the shipbuilder claimed in a regulatory filing.

In the charter market, Celsius' three SHI newbuilding 180,000 cu m LNGCs have been committed to Cheniere Marketing International for up to 13.5 years each.

All three are due for delivery next year.

The first vessels in the four-ship series, the 'Celsius Copenhagen', was recently delivered into a charter to Clearlake, part of the Gunvor Group.

Each vessel will be fitted with a 2-stroke WinGD X-DF engine, an air lubrication system, re-liquefaction plant and other technologies to increase efficiency and reduce emissions.

In addition, Cheniere is due to take delivery of GasLog's newbuilding 'Gaslog Galveston' also from SHI, following trials.

With a capacity of 174,000 cu m, 'Gaslog Galveston' is scheduled for delivery in January, 2021 and is the second LNGC ordered by GasLog for a Cheniere charter lasting up to seven years.

The first, 'Gaslog Georgetown', was delivered late last month.

They feature GTT's Mark III Flex Plus containment systems and WinGD's low-pressure 2-stroke (X-DF) propulsion units. ■

OCIMF publishes second STS Service Provider Management Guide

OCIMF's Ship to Ship Service Provider Management and Self Assessment Guide (STS SPSA), first published in 2011, has been updated.

This was to reflect current legislation, expectations and emerging issues, and also reflected feedback from STS service providers and other book users, the organisation said.

The self-assessment programme encourages STS service providers to assess their safety management systems (SMS) against key performance indicators (KPIs). It provides a minimum expectation level and an additional three levels of increasing best practice guidance.

The results can be used to develop plans to support the continuous improvement of management

systems and the attainment of high standards of safety and pollution prevention, OCIMF said.

Key updates include:

- Where applicable, the elements have been aligned with Tanker Management Self Assessment (TMSA) 3.
- A new element has been added that covers Maritime Security.
- The 'Reliability and Maintenance of STS Equipment', the 'Due Diligence Regarding Transshipment Locations' and the 'STS Operations' elements have been expanded to include new sections.
- The 'Environmental and Energy

Management' element now incorporates the OCIMF Energy Efficiency and Fuel Management paper that was a supplement to TMSA 2.

- Elements have been streamlined and merged to improve consistency and make self-assessment easier.
 - The best practice guidance has been expanded to complement the key performance indicators and revised to remove ambiguity and duplication.
- With its publication, the first edition of STS SPSA is no longer available, the organisation pointed out. ■

Burckhardt wins LNG BOG management orders

Burckhardt Compression has won an order to deliver eight low-pressure compressor systems for LNG fuel boil-off gas (BOG) management.

The compressors are to be fitted on board two 14,000 TEU and two 690 FEU containerships. They were ordered by C-LNG Solutions, a Singapore-based provider of LNG fuel gas solutions and LNG cargo handling.

All of the ships will be fitted

with WinGD X-DF engines and will be built at a Chinese shipyard. There is an option for another 16 vessels.

As the cryogenic LNG evaporates when it warms up within the vessels' tanks, the boil-off gas

needs to be compressed. This compressed gas can be used as fuel for the WinGD X-DF 2-stroke engines fitted on board.

Burckhardt Compression's patented 2K70 Laby BOG compressor systems handle relatively small

mass flows at cryogenic gas temperatures, without the need for BOG pre-heating. They are specifically designed for marine applications, offering high efficiency, compact design, low complexity, and easy maintenance, the company said. ■

NEWS NUDGE

GIIGNL elects new President

The International Group of Liquefied Natural Gas Importers (GIIGNL) elected Jean Abiteboul as its new President during its annual General Assembly last month.

Abiteboul, who brings more than 40 years of experience in the LNG industry holding executive positions in Gaz de France (GdF) and Cheniere, succeeded Jean-Marie Dauger who served as President of the association since 2016.

Dauger was appointed Honorary President.

GTT wins orders for six Arc7s

GTT has received an order from Daewoo Shipbuilding & Marine Engineering (DSME) for the tank design of six Arc7s.

Three will be built for Mitsui OSK Lines Ltd (MOL) and the other three for Sovcomflot (SCF).

Each vessel will have a capacity of 172,500 cu m.

GTT will design the vessels' tanks, which will be fitted with NO96 GW membrane containment systems.

They will be delivered throughout 2023 and will operate for NOVATEK's Arctic LNG 2 project.

Philippe Berterrotière, GTT Chairman and CEO, said: "Six years after the first orders for

icebreaking LNGCs for the Yamal project and after few hundreds of voyages in ice conditions, GTT is very proud that its membrane containment solutions have once again been chosen for this type of vessel."

In addition, GTT has received an order from Hyundai Heavy Industries (HHI) for the tank design of two LNGCs on behalf of an undisclosed European shipowner.

Each vessel will be of 174,000 cu m and they will be delivered in the fourth quarter of 2022 and in the third quarter of the following year, respectively.

They will be fitted with GTT's Mark III Flex membrane containment systems.

First STS LNG loading test

Daewoo Shipbuilding & Marine Engineering (DSME) claims to have undertaken the first ship-to-ship (STS) LNG loading test.

This test was aimed at streamlining procedures to verify the safety of newly built LNGC's tanks and to save costs, DSME said.

Before the loading test, newly built LNGCs had to sail to local LNG terminals away from the

shipyards to test their tanks' safety.

This operation came at a cost, which included fuel charges, labour costs and ship operating expenses and took from six hours to 24 hours sailing time, depending on the terminal used.

DSME has also registered a patent on its technology to remove boil-off gas generated during STS loading.

Klaipeda's FSRU project gets loan guarantee

The European Commission (EC) has given Lithuania the green light to issue a state guarantee for a loan to be used by Klaipėdos Nafta (KN) to finance an FSRU.

KN has been operating an LNG terminal at Klaipeda for six years and has been seeking to introduce an FSRU to expand its operations.

Earlier last month, KN announced that it had selected Holman Fenwick Willan (HFW), Quality Energy Developments Consulting (QED) and DNV GL to provide legal, commercial and technical advice for the FSRU, which the company plans to have in operation by the end of 2024. ■



LNG OneWorld.com

LNG rate assessments

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

Region	This week	Change*
East of Suez	\$115,000	+\$3,000
West of Suez	\$115,000	+\$3,000
12 mos T/C	\$47,000	-

*Since last report (26/11/20)

Source: Fearnleys (09/12/20)

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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	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
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	Vision Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2011	Unikum Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
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	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
2016	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	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2017	Oizmendi	600	LNG	Bilbao	Yes	Itsas Gas
2017	ENGIE Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya

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 = 16th November 2020

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	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	Coral Encanto	30,000	LNG	China	Yes	Anthony Veder
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
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	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	Bunker Breeze	0	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2019	SM Jeju LNG1	7,500	LNG	Korea	Yes	Korea Line
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	SM Jeju LNG2	7,500	LNG	Korea	Yes	Korea Line
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	FuelLNG TBN	7,500	LNG	Singapore	Yes	FuelLNG
2020	CLS TBN	3,500	LNG	Japan	Yes	CLS
2020	Elenger TBN	6,000	LNG	NWE	Yes	Elenger
2020	ENN TBN	8,500	LNG	China	Yes	ENN
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2020	Ecobunker Tokyo Bay	2,500	LMG	Japan	Yes	Ecobunkers
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2021	Knutsen TBN	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	Gazprom Neft TBN	5,800	LNG	Russia	Yes	Gazprom Neft
2021	PE TBN	12,000	LNG	Singapore	Yes	MOL
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	TBN	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2022	Stolt TBN	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
2023	Cryopeak TBA	4,000	LNG	West Canada	Yes	Cryopeak
2024	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2024	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2026	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas
2026	Stolt TBN (option)	20,000	LNG	Worldwide	Yes	Stolt-Nielsen Gas

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

*Includes multi-gas, ethylene and LNG bunker ships with 40,000 cubic metres LNG cargo capacity or less
TBN = To Be Nominated indicates ships are still at construction/planning stage

** = project shelved † =Data to be verified Data last updated = 16th November 2020

WORLD LNG CARRIER ORDERBOOK

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Hyundai Ulsan 3243	Unknown	XDF	Hyundai	01/11/2022	174000	Knutsen OAS Shipping AS
Hyundai Ulsan 3244	Unknown	XDF	Hyundai	01/05/2023	174000	Knutsen OAS Shipping AS
Hyundai Ulsan 3191	Unknown	XDF	Hyundai	01/06/2023	174000	Korea Line
Hyundai Ulsan 3198	Unknown	XDF	Hyundai	01/08/2023	174000	Korea Line
Daewoo 2514	Unknown	TFDE - Azipod	DSME	01/12/2022	175000	Sovcomflot
Daewoo 2515	Unknown	TFDE - Azipod	DSME	01/04/2023	175000	MOL
Daewoo 2516	Unknown	TFDE - Azipod	DSME	01/07/2023	175000	Sovcomflot
Daewoo 2517	Unknown	TFDE - Azipod	DSME	01/09/2023	175000	Sovcomflot
Daewoo 2518	Unknown	TFDE - Azipod	DSME	01/10/2023	175000	MOL
Daewoo 2519	Unknown	TFDE - Azipod	DSME	01/12/2023	175000	MOL
Zvezda 046	Unknown	TFDE - Azipod	Zvezda SSK	01/08/2024	172600	Smart LNG
Zvezda 047	Unknown	TFDE - Azipod	Zvezda SSK	01/09/2024	172600	Smart LNG
Zvezda 048	Unknown	TFDE - Azipod	Zvezda SSK	01/10/2024	172600	Smart LNG
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
Hyundai Samho 8095	Unknown	XDF	Hyundai	01/05/2023	174000	Knutsen
Hyundai Samho 8096	Unknown	XDF	Hyundai	01/06/2023	174000	Knutsen
Hyundai Ulsan 3189	Unknown	XDF	Hyundai	01/03/2023	174000	ICBC Leasing
Hyundai Ulsan 3190	Unknown	XDF	Hyundai	01/05/2023	174000	ICBC Leasing
United Fortune	Unknown	XDF	Hudong-Zhonghua	01/04/2023	174000	China LNG Shipping
United Glory	Unknown	XDF	Hudong-Zhonghua	01/01/2023	174000	China LNG Shipping
United Prosperity	Not Applicable	XDF	Hudong-Zhonghua	01/10/2022	174000	China LNG Shipping
Hyundai Samho 8033	GTT MK III Flex	XDF	Hyundai	01/06/2022	173000	NYK
Hyundai Ulsan 3187		XDF	Hyundai	01/11/2022	174000	JP Morgan
Hyundai Ulsan 3188		XDF	Hyundai	01/12/2022	174000	JP Morgan
Hyundai Samho 8091	Unknown	XDF	Hyundai	01/08/2022	174000	Knutsen
Hyundai Samho 8092	Unknown	XDF	Hyundai	01/10/2022	174000	Knutsen
Hyundai Samho 8093	Unknown	XDF	Hyundai	01/11/2022	174000	Knutsen
Hyundai Samho 8094	Unknown	XDF	Hyundai	01/12/2022	174000	Knutsen
Hyundai Ulsan 3185		XDF	Hyundai	01/08/2022	174000	Korea Line
Hyundai Ulsan 3186		XDF	Hyundai	01/10/2022	174000	Korea Line
Daewoo 2508	Unknown	XDF	DSME	01/01/2022	174000	Maran Gas Maritime
Hyundai Samho 8026	GTT MK III Flex	XDF	Hyundai	01/06/2022	174000	H-Line
Samsung 2315	Unknown	XDF	Samsung	01/06/2022	173400	SinoKor
Samsung 2316	Unknown	XDF	Samsung	01/09/2022	173400	SinoKor
Samsung 2317	Unknown	XDF	Samsung	01/12/2022	173400	SinoKor
Samsung 2318	Unknown	XDF	Samsung	01/03/2023	173400	SinoKor
Samsung 2364	GTT MK III Flex+	XDF	Samsung	01/01/2023	174000	MISC

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 = 25th November 2020

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Samsung 2365	GTT MK III Flex+	XDF	Samsung	01/02/2023	174000	MISC
Daewoo 2509	Unknown	MEGI	DSME	01/08/2022	174000	BWGas
Daewoo 2510	Unknown	MEGI	DSME	01/09/2022	174000	BWGas
Hyundai Samho 8025		XDF	Hyundai	01/12/2021	174000	H-Line
Samsung 2355	GTT MK III Flex	XDF	Samsung	01/10/2021	174000	NYK
Zvezda 041	GTT MK III	TFDE - Azipod	Zvezda SSK	01/03/2023	172600	Smart LNG
Zvezda 042	GTT MK III	TFDE - Azipod	Zvezda SSK	01/09/2023	172600	Smart LNG
Zvezda 043	GTT MK III	TFDE - Azipod	Zvezda SSK	01/10/2023	172600	Smart LNG
Zvezda 044	GTT MK III	TFDE - Azipod	Zvezda SSK	01/11/2023	172600	Smart LNG
Zvezda 045	Unknown	TFDE - Azipod	Zvezda SSK	01/12/2023	172600	Smart LNG
Daewoo 2507	GTT 96 GW	XDF	DSME	01/10/2021	174000	Maran Gas Maritime
Hudong-zhonghua H1829a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/03/2022	170520	CSSC
Hudong-zhonghua H1830a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/06/2022	170520	CSSC
Hyundai Ulsan 3111	GTT MK III Flex	XDF	Hyundai	01/01/2023	174000	Capital Gas
Hyundai Ulsan 3157	GTT MK III Flex	XDF	Hyundai	01/12/2021	174000	Tsakos Energy Navigation
Hyundai Ulsan 3145	Unknown	XDF	Hyundai	01/09/2022	180000	SK Shipping
Hyundai Samho 8032	GTT MK III Flex	XDF	Hyundai	01/01/2022	174000	NYK
Hyundai Ulsan 2939	GTT MK III Flex	XDF	Hyundai	01/10/2021	180000	SK Shipping
Samsung 2319	GTT MK III Flex	XDF	Samsung	01/03/2022	174000	JP Morgan
Samsung 2336	GTT MK III Flex	XDF	Samsung	01/12/2021	174000	JP Morgan
Samsung 2337	GTT MK III Flex	XDF	Samsung	01/07/2022	174000	JP Morgan
Daewoo 2506	GTT 96	MEGI	DSME	01/11/2021	174000	Maran Gas Maritime
Clean Cajun	Unknown	XDF	Hyundai	01/04/2022	200000	Dynagas
Clean Copano	Unknown	XDF	Hyundai	01/07/2022	200000	Dynagas
Daewoo 2505	Unknown	MEGI	DSME	01/07/2021	174000	MOL
Asklipios	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	Capital Gas
Daewoo 2504	GTT 96	XDF	DSME	01/09/2021	174000	Maran Gas Maritime
Elisa Aquila	GTT MK III Flex	XDF	Hyundai	01/03/2022	174000	NYK
Daewoo 2502	GTT 96 GW	XDF	DSME	01/09/2021	173400	Nakilat
Daewoo 2503	GTT 96 GW	XDF	DSME	01/01/2022	173400	Nakilat
Adamastos	GTT MK III Flex	XDF	Hyundai	01/08/2021	174000	Capital Gas
Yiannis	GTT 96 GW	MEGI	DSME	01/06/2021	174000	Maran Gas Maritime
Hudong-zhonghua H1828a	GTT 96 L03+	XDF	Hudong-Zhonghua	01/01/2022	174000	CSSC
Mu Lan	GTT 96 L03+	XDF	Hudong-Zhonghua	01/06/2021	174000	CSSC
Samsung 2313	Unknown	XDF	Samsung	01/05/2021	180000	Celsius Shipping
Samsung 2314	Unknown	XDF	Samsung	01/08/2021	180000	Celsius Shipping
Minerva Chios	GTT MK III Flex+	XDF	Samsung	01/07/2021	174000	Minerva Marine
Marvel Swan	Unknown	XDF	Samsung	01/03/2021	173400	Navigare
Samsung 2332	GTT MK III Flex+	XDF	Samsung	01/11/2022	174000	Minerva Marine
Bw Helios	GTT 96 GW	MEGI	DSME	01/03/2021	174000	BWGas
Bw Lesmes	GTT 96 GW	MEGI	DSME	01/02/2021	174000	BWGas
Daewoo 2495	GTT 96 GW	XDF	DSME	01/06/2021	174000	Maran Gas Maritime
Energy Intelligence	GTT 96 GW	MEGI	DSME	01/06/2021	174000	Alpha Gas

Name	Containment system	Propulsion	Yard	Delivery date	Capacity	Primary Owner
Gail Bhuwan	GTT 96 GW	MEGI	DSME	01/02/2021	180000	MOL
Gaslog Wellington	GTT MK III Flex+	XDF	Samsung	01/06/2021	180000	GasLog
Lng Rosenrot	GTT 96 GW	MEGI	DSME	01/01/2021	180000	MOL
LNG Ships Express	GTT MK III Flex	XDF	Samsung	01/03/2021	174000	TMS Cardiff Gas
Samsung 2306	GTT MK III Flex	XDF	Samsung	01/09/2021	174000	NYK
Samsung 2307	GTT MK III Flex	XDF	Samsung	01/12/2021	174000	NYK
Samsung 2312	GTT MK III Flex+	XDF	Samsung	01/08/2021	180000	GasLog
Diamond Gas Crystal	GTT MK III Flex	XDF	Hyundai	01/05/2021	174000	NYK
Diamond Gas Victoria	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	NYK
Hellas Athina	GTT MK III Flex	XDF	Hyundai	01/09/2021	174000	Latsco Shipping
Hellas Diana	GTT MK III Flex	XDF	Hyundai	01/03/2021	174000	Latsco Shipping
Lngships Athena	GTT MK III Flex	XDF	Hyundai	01/03/2021	174000	TMS Cardiff Gas
Lngship Manhattan	GTT MK III Flex	XDF	Hyundai	01/04/2021	174000	TMS Cardiff Gas
Cool Racer	GTT MK III Flex	XDF	Hyundai	01/02/2021	174000	Thenamaris
Minerva Kalymnos	GTT MK III Flex+	XDF	Samsung	01/02/2021	174000	Minerva Marine
Samsung 2302	GTT MK III Flex	XDF	Samsung	01/03/2021	174000	NYK
Cobia Lng	GTT MK III Flex	XDF	Hyundai	01/02/2021	174000	TMS Cardiff Gas
Scf Timmerman	GTT MK III Flex	XDF	Hyundai	01/02/2021	174000	Sovcomflot
Celsius Canberra	GTT MK III Flex	XDF	Samsung	01/12/2020	180000	Celsius Shipping
Gaslog Galveston	GTT MK III Flex	XDF	Samsung	01/12/2020	174000	GasLog
Aristidis I	GTT MK III Flex	XDF	Hyundai	01/11/2020	174000	Capital Gas
Global Star	GTT 96	MEGI	DSME	01/01/2021	173400	Nakilat
Aristarchos	GTT MK III Flex	XDF	Hyundai	01/03/2021	174000	Capital Gas
Attalos	GTT MK III Flex	XDF	Hyundai	01/06/2021	174000	Capital Gas
Flex Freedom	GTT 96 GW	MEGI	DSME	01/11/2020	173400	Flex LNG
Flex Vigilant	GTT MK III Flex	XDF	Hyundai	01/05/2021	174000	Flex LNG
Flex Volunteer	GTT MK III Flex	XDF	Hyundai	01/02/2021	174000	Flex LNG
Energy Integrity	GTT 96 GW	MEGI	DSME	01/05/2021	173400	Alpha Gas
Energy Endeavour	GTT 96 GW	MEGI	DSME	01/12/2020	173400	Alpha Gas
Minerva Limnos	GTT 96 GW	MEGI	DSME	01/03/2021	173400	Minerva Marine
Minerva Psara	GTT 96 GW	MEGI	DSME	01/01/2021	173400	Minerva Marine
Dorado LNG	GTT MK III	XDF	Samsung	01/11/2020	174000	TMS Cardiff Gas

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 = 25th November 2020



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