

# LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

9 December 2021

## Jordan Cove cancelled

Oregon's planned Jordan Cove LNG export plant has been shelved.

A Canadian subsidiary of the developer, Pembina Pipeline Corp informed US energy regulators last week that it would not be moving forward with the project.

Pembina halted the development in April as the company could not secure permits and authorisations from various Oregon state agencies.

The \$8 billion Jordan Cove facility is one of several North American LNG projects that have been cancelled or delayed over the past year, Reuters reported.

As a result, the US and Canada have reached the final weeks of

this year without having approved any new projects.

Global natural gas prices are near record highs, as European and Asian utilities compete for any LNG cargoes on offer before the winter. LNG supply has not kept up with demand - and won't for several years, Reuters said.

### Spending ceased

Spending on new projects stopped in 2020, except for Venture Global (see page 4), as low prices from coronavirus-induced demand destruction caused buyers to shy away from signing long-term

supply contracts.

At the start of 2020 and again in 2021, about a dozen developers signalled plans for final investment decisions (FID) on proposed projects. However, only one, Sempra Energy's Mexican Costa Azul, started construction in 2020, while others have been pushed back to next year.

Several North American projects could get the green light in 2022, mostly in Texas and Louisiana, when the International Gas Union (IGU) estimated world demand would reach about 375 million tonnes per annum from 356.1 million in 2020.

However, these projects will do little to meet the growing demand in the short term, as it takes about three to five years for any new projects to start producing LNG, Reuters pointed out.

“Global natural gas prices are near record highs, as European and Asian utilities compete for any LNG cargoes on offer before the winter”

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# US set to become world's largest LNG exporter

Upon the completion of planned projects, US LNG export capacity will be the world's largest next year.

Since exports of LNG began from the Lower 48 states in February, 2016, US export capacity has grown rapidly. Within four years, the US became the world's third-largest LNG exporter behind Australia and Qatar.

Once the new LNG liquefaction trains at Sabine Pass and Calcasieu Pass come online in 2022, US LNG export capacity will become the world's largest, the US Energy Information Administration (EIA) said.

According to announced project plans, the following US LNG export capacity expansions will occur between December, 2021 and the Autumn of 2022:

- Completion of Train 6 at the Sabine Pass export facility. Train 6 will add up to 0.76 bill cu ft per day of peak export capacity. It began producing LNG in late November and its first export cargo is expected to be shipped before the end of this year.
- Increase in LNG production at Sabine Pass and Corpus Christi LNG terminals. The US Federal Energy Regulatory Commission (FERC) has approved an increase in annual LNG production at these two facilities by a combined 261 bill cu ft per year (plus 11.5%) through increased flow rates and modifications to maintenance.

Individually:

- FERC granted approval to increase LNG production at Sabine Pass from 1,509 bill cu ft per year to 1,662 bill cu ft across six liquefaction trains, an increase of 10%.
- Also approved was an LNG production increase at Corpus Christi from 767 bill to 875 bill cu ft per year across three trains currently operating, an increase of 14%.

In addition, the new LNG export facility at Calcasieu Pass in Louisiana has come online.

This project consists of nine blocks, each containing two mid-scale modular liquefaction units giving a total of 18 trains with a combined peak capacity of 1.6 bill cu ft per day.

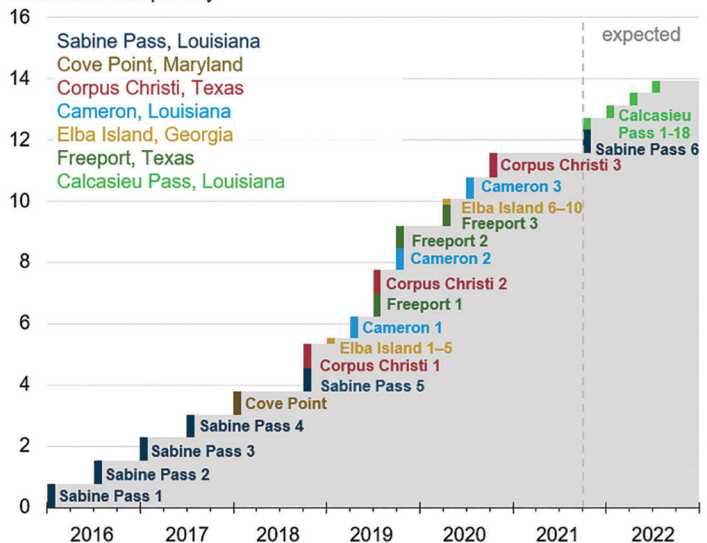
## Commissioning

Commissioning activities started in November, 2021 and the first LNG production is expected before the end of this year. All of the units are expected to be in service by the fourth quarter of 2022.

EIA estimated that as of November, 2021, existing US LNG nominal baseload liquefaction capacity was 9.5 bill cu ft per day and peak capacity was 11.6 bill cu ft, which included the higher LNG production rate capacity at Sabine Pass and Corpus Christi.

By the end of 2022, US nominal

U.S. liquefied natural gas export capacity by project (2016–2022)  
billion cubic feet per day



Source: Graph created by the U.S. Energy Information Administration (EIA)  
Note: The chart shows U.S. LNG peak export capacity buildup by quarter, project, and liquefaction train

capacity will increase to 11.4 bill cu ft per day and peak capacity to 13.9 bill cu ft across seven export facilities and 44 liquefaction trains, including 16 full-scale, 18 mid-scale, and 10 small-scale trains at Sabine Pass, Cove Point, Corpus Christi, Cameron, Elba Island, Freeport, and Calcasieu Pass.

As a result, next year, US LNG export capacity will exceed that of the two current largest global LNG exporters, Australia (11.4 bill cu ft per day) and Qatar (10.3 bill cu ft).

By 2024, when Golden Pass LNG – the eighth US LNG export facil-

ity – is complete and comes on-line, US LNG peak export capacity will further increase to an estimated 16.3 bill cu ft per day, EIA said.

In addition, FERC and the US Department of Energy have approved another 10 US export projects and capacity expansions at three existing LNG terminals – Cameron, Freeport, and Corpus Christi – totalling 25 bill cu ft per day of new capacity.

Developers of some of these projects have announced plans to take a final investment decision (FID) next year.

## NEWS NUDGE

### Tianjin receiving terminal to expand

China's state-owned Sinopec has received government approval to expand its Tianjin LNG receiving terminal, government

backed media reported earlier this week.

The expansion project will result in the annual LNG receiving capacity rising to 11.65 mill tonnes from the current 10.8

mill tonnes.

It includes the construction of five new LNG storage tanks with capacity of 270,000 cu m each.

A third phase of the Sinopec Tianjin LNG terminal, this expan-

sion project will further ensure gas supply to northern China and to Sinopec's Tianjin refinery as feedstock of its 1.2 mill tonnes ethylene facility, reported the Tianjin Daily news outlet.

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# Vietnam favours LNG despite headwinds

Vietnam's PetroVietnam Gas (PV Gas) will opt for LNG imports to offset falling domestic gas output, despite unfavourable market conditions for buyers and regulatory obstacles.

According to Poten and Partners' 'LNG in World Markets', two of its state-backed terminals have advanced LNG import plans.

PV Gas and the AES Corp joint venture sought term LNG supply for its proposed Son My LNG-to-power project via a limited participation tender in November, although tight global supply, credit and operational risks, lack of downstream power customers and a request for interim floating facilities, could hinder negotiations.

The company said last month that Vietnam will start importing LNG in the third quarter of next year, through the Thi Vai regasification terminal that is now around 90% complete. The state-run firm said it will take the lead in developing the necessary infrastructure, commercial arrangements, and downstream markets.

The joint venture is looking for around 1.5 mill tonnes per year of LNG for its Son My project in southeastern Binh Thuan province, with the first cargo to be delivered in 2026. It is flexible about duration and pricing, which suppliers should propose in their offer submissions, Poten said.

It is also looking to operate an FSRU or an FRU and an FSU hybrid, although tender participants have the option to submit LNG supply offers only. The unit must be moored at the Son My site for

around 12-18 months.

This temporary option is being pursued as the plant is expected to be ready for start-up ahead of the planned 3.6 mill tonnes per year onshore regasification terminal.

PV Gas/AES limited participation tender closed for submission in the first half of November, with offers valid for 180 days. A small number of firms and producers were invited to participate, including QatarEnergies and Petronas.

However, interest is expected to be lukewarm, as the project has yet to secure power purchase agreements (PPAs) with the state-run utility Vietnam Electricity (EVN).

## FSRU uncertainty

In addition, the floating unit's short term requirement is also a deterrent and there is also regulatory uncertainty over the use of FSRUs in Vietnam, as it is unclear if they will be classified as a port or a vessel, which would affect licensing and approval processes, Poten warned.

The long six-month bid validity period is also unpopular among suppliers, amid current bullish LNG markets and price volatility.

Meanwhile, the 1 mill tonnes per year Thi Vai import terminal in southern Vietnam's Ba Ria-Vung Tau province is on track to start next year, operator PV Gas said

last month. Terminal capacity could rise to 3 mill tonnes per year in subsequent phases.

PV Gas is thought to be seeking a commissioning LNG cargo for Thi Vai in 3Q22.

The company will focus on developing short- and medium-term LNG import sources for Vietnam and has established six master sale and purchase agreement (MSPA) frameworks thus far.

For foreign investors, there is uncertainty on the regulatory front. Legislative changes on build, operate and transfer (BOT) projects and public-private partnerships (PPPs) that took effect in January, 2021 will affect LNG projects, although how they play out is unclear.

Nearly a dozen LNG import projects have been proposed in Vietnam - excluding Thi Vai and Son My - nearly all of which involve foreign interests from countries like the US and Japan, Poten said.

Meanwhile, during an official visit of Vietnamese President, Nguyen Xuan Phuc to Russia, NOVATEK and PetroVietnam Power signed a co-operation agreement for LNG and power projects.

The agreement includes co-operation on LNG infrastructure projects to meet Vietnam's growing demand for electricity. NOVATEK has also opened a representative office in the country.

## Spot cargo news

Japan's largest LNG importer JERA has bought an additional 2 mill tonnes of spot LNG for delivery between November and March, 2022.

"We have additionally procured all of the 2 mill tonnes basically via JERA Global Markets," Takashi Noguchi, Executive Officer and head of the JERA optimisation department's strategy group, said in an online press briefing.

Elsewhere, South Korean energy company KOGAS has selected several suppliers to cover a tender issued for 10 spot cargoes, which closed on 24th November.

They will be mainly delivered in December and January, according to market sources, talking with newswires.

This move comes as South Korea's energy ministry announced that it would close up to 16 coal-fired power plants out of a total of 53 for three months from December, as part of its annual air pollution reduction policy.

Qatar was awarded four cargoes, and the remaining suppliers include Shell, BP and a European utility, trade sources said.

Two of the sources said prices were based on a premium of over \$5 per MMBtu, which was in line with recent market activity towards the end of November, as market participants looked to European gas prices to drive price changes in coming weeks, the newswires reported.

Initially, the tender called for deliveries from 1st December to 28th February to Incheon, Pyeong Taek, Tongyeong and Samcheok, traders said.

It was also reported that Abu Dhabi National Oil Co (ADNOC) had tendered nine LNG cargoes for delivery in the next two years.

They were offered on a delivered ex-ship (DES) basis and are for delivery between May, 2022 and December, 2023.

The tender was believed due to close on 9th December.



PV Gas has import plans

# Louisiana to get fourth LNG export terminal

Venture Global LNG is to invest more than \$10 bill to develop a fourth LNG export facility in Louisiana.

The new project, CP2 LNG (CP2) will be located in Cameron Parish, adjacent to the company's first facility - Calcasieu Pass.

This announcement brings Venture Global's total planned capital investment in Louisiana to more than \$20 bill. CP2 will create thousands of jobs and bring in an estimated \$2 bill in new local revenue during its lifetime.

"Venture Global is proud to continue our expansion in Louisiana with the launch of our next project, CP2 LNG. CP2 will be located in Cameron Parish, adjacent to our existing Calcasieu Pass terminal.

"These two projects, combined with our Plaquemines LNG facility now under construction, represent more than \$20 bill of investment in the State of Louisiana and will create thousands of jobs—including both permanent and construction jobs," said Venture Global CEO, Mike Sabel.

"With two major LNG export projects currently under active construction, Venture Global is on a mission to produce the cleanest,

low-cost LNG in North America. We are proud to partner with Louisiana in these efforts and in developing carbon capture and sequestration (CCS) for our facilities. Under the leadership of Governor John Bel Edwards, Louisiana is enhancing its status as an international hub for innovation to tackle the energy and climate challenges of our time," he added.

"Venture Global has invested significant in Louisiana's economy, and I am proud to celebrate this exciting new project with them," said Louisiana Governor, John Bel Edwards. "The CP2 facility in Cameron will create more than 1,000 new permanent jobs and thousands of construction jobs in the area, which will have a significant impact on our economy. And it is incorporating clean energy technology that reduces the amount of CO2 released into the atmosphere, which is significant for our environment.

"As Louisiana pursues a goal of net-zero emissions by 2050, projects that feature carbon capture



Venture Global CEO, Mike Sabel

and sequestration allow our state to sustain industry without sacrificing our long-term carbon reduction goals," he said.

Venture Global has submitted a formal application requesting authorisation from the US Federal Energy Regulatory Commission (FERC) to site, construct and operate CP2 LNG and the adjoining CP express pipeline.

CP2 LNG will build, own and operate the LNG terminal with a nameplate liquefaction capacity of 20 mill tonnes per annum. The CP Express pipeline will provide natural gas to the LNG facility. ■

## NEWS NUDGE

### OLT launches peak shaving tender

OLT Offshore LNG Toscana has launched a tender for a peak shaving service related to the gas year 2021/2022.

Starting from 6th and lasting to the 16th December, 2021, all of the documents necessary will be available to view and download from the website to participate in the public tender procedure.

The winner will need to supply an LNG cargo - of around 100,000 to 120,000 cu m - to be discharged at the OLT Terminal LNG Toscana between 28th December, 2021 and 17th January, 2022.

This service is one of the emergency measures requested by the Italian Ministry of Ecological Transition (MiTE) to the regasification terminals, which, during the winter period, can regasify and inject into the network at short notice the LNG previously unloaded and stored in the tanks of the terminals. ■

# Two Australian production units shut down

Shell's problematic giant LNG production unit 'Prelude FLNG' suffered another setback last week when a fire caused the FLNG to be shut down and led to the evacuation of round 150 crew.

A small fire was detected last Thursday in an electrical equipment area on the 488 m long unit.

A Shell spokesman told local media that the fire triggered auto-

matic fire systems and was extinguished before it spread further and all workers were safe and accounted for.

"The incident resulted in the

loss of main power and the facility is currently operating on backup diesel generators," he said following the incident. "While work is under way to restore main power, production on the 'Prelude' has been suspended temporarily."

A spokeswoman for Australian offshore safety regulator, National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) said that it had been informed of the fire by Shell and had started an investigation.

This latest setback comes after the 'Prelude' had achieved steady production for some time after

several problems in the first few years of operation.

The unit is moored some 475 km northeast of Broome, Western Australia.

Another outage has occurred on Chevron's Gorgon LNG plant.

This concerned Train 3 and follows Train 1's re-entry into service after maintenance.

"Following the successful repair and restart of Gorgon LNG Train 1, we have undertaken a controlled shutdown of LNG Train 3 to carry out repairs on piping associated with the dehydration unit," a Chevron spokesperson told newswires. ■



Shell's 'Prelude' has suffered a fire leading to a complete shutdown

## AIE finally signs FSRU charter

Australian Industrial Energy (AIE) has signed a long-term charter contract with Höegh LNG to supply an FSRU to operate at its Port Kembla Energy Terminal.

Under the agreement, the 'Höegh Galleon' will serve the AIE developed terminal, which is now under construction at Port Kembla. The terminal, the first to use an FSRU in Australia, is expected to be operational by mid-2023.

In addition, AIE and Höegh LNG

have agreed to collaborate on the design and development of a new generation FSRU capable of receiving clean fuels, which can be used in future green energy supply chains.

Initial feasibility work on the new FSRU concept will now begin

and while the final design is yet to be confirmed, the vessel is expected to have the capability of delivering both natural gas and green hydrogen or derivatives, unlocking further opportunities for the terminal to support a future hydrogen energy industry in Australia, AIE said.

Chairman of AIE and Tattarang, CEO Andrew Hagger, said the agreement with Höegh LNG supports AIE's vision to resolve the energy crisis on Australia's East Coast and accelerate the use of clean energy fuels that support net zero ambitions.

"With the phasing down of Australia's fossil fuel industry already underway, the terminal will be critical to ensuring hundreds of thousands of Australian businesses and households avoid supply

shortfalls from 2023 onwards," he said. "Now that critical infrastructure agreements and approvals are in place for the terminal, we look to NSW and Victorian natural gas retailers to now take active steps to help resolve the energy security crisis they have warned about."

Richard Tyrrell, Höegh LNG's Chief Development Officer, added; "We share AIE's clean energy vision and look forward to working together on the next generation capabilities that will ensure that the Port Kembla Energy Terminal remains at the forefront of the energy transition."

'Höegh Galleon' is the newest FSRU in Höegh LNG's fleet and she will be used to receive, store and regasify LNG at the terminal when operations begin. ■



Port Kembla is to play host to the 'Höegh Galleon'

## More Chinese deals announced

At least three more long term LNG sales deals to Chinese energy companies have been confirmed in the past couple of weeks.

For example, China Gas has formed a joint venture with commodity trader Vitol's Singapore arm to buy not less than 800,000 tonnes per year of LNG from 2023.

The LNG supply will be expanded to not less than 1 mill tonnes per year from 2024, and target more than 5 mill tonnes by the fifth year.

In addition, the partnership will give Vitol access to some of the fastest growing sectors in China's gas market and help China Gas develop its own long term trading capabilities.

Hong Kong-listed China Gas Holdings said that both parties will hold a 50% shareholding in the joint venture.

LNG supply will be sourced through long-term, short-term or annual sale and purchase agreements (SPAs) with price linkages to recognised indices. The JV will

also be allowed to develop LNG receiving terminals in China based on market conditions.

China Gas also said that it had signed a framework agreement with government-owned city gas distributor Beijing Gas Group to tap into combined natural gas resources, LNG storage and transportation assets, and downstream market access in gas related projects outside Beijing.

Beijing Gas is building a 5 mill tonnes per year LNG terminal in Tianjin Nangang, northern China, the first phase of which is scheduled for completion by the end of next year.

Another deal reported is Cheniere Marketing International's signing of a binding 20-year LNG sale and purchase agreement (SPA) with China's Foran Energy Group, following a Heads of Agreement agreed in November, 2020.



Cheniere has signed yet another supply deal with China

Under the SPA, Foran will purchase around 0.3 mill tonnes per annum of LNG from Cheniere on a delivered ex-ship basis for 20 years beginning in January, 2023.

The LNG purchase price will be indexed to Henry Hub, plus a fee.

Finally, QatarEnergy's LNG producing affiliate, Ras Laffan Liquefied Natural Gas Co, has signed a

long-term SPA with Guangdong Energy Group Natural Gas (GEG) to supply 1 mill tonnes per annum of LNG over a 10-year period starting in 2024.

Qatar's fleet of conventional Q-Flex and Q-Max LNGCs will be used to ship the LNG, which will mainly use the Dapeng and Zhuhai LNG receiving terminals. ■

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## Höegh LNG to buy Partnership

Höegh LNG Holdings has submitted a non-binding proposal to buy all the publicly held common units in Höegh LNG Partners for \$4.25 in cash per unit.

If approved, the transaction would be undertaken through a merger of the Partnership with a wholly owned Höegh LNG subsidiary.

This transaction is subject to the negotiation and approval of mutually agreed definitive

documentation by the parties involved.

If a final agreement is reached, the deal will also require the approval of the majority of the holders of outstanding common units in the Partnership.

It would also be subject to customary closing conditions and at this stage, there can be no assurance that definitive documentation will be executed or that any transaction will materialise, Höegh LNG said. ■

## Awilco LNG's results increase

Awilco LNG achieved a net result of \$5.1 mill and earnings per share of \$0.04 for third quarter of this year, up from \$3.3 mill and \$0.02 in 2Q21.

Third quarter net freight income was \$14.3 mill, compared with \$12.1 mill in the previous quarter. At \$10.8 mill, EBITDA was up from \$9 mill in 2Q21.

Average net TCE for both vessels in the quarter was \$78,000 per day, while vessel utilisation was 99%, compared to 100% in second quarter 2021.

Both vessels are on fixed term contracts until the start of 2Q22 at rates that secure significant positive cash generation over the period, the company claimed.

CEO, Jon Skule Storheill, com-

mented: "We are pleased to continue to deliver strong results on the back of our fixed rate contracts for both vessels, bringing the result for the first nine months of 2021 to \$15.3 mill and an average net TCE for the same period to \$78,000 per day.

"With both vessels chartered out until the start of second quarter 2022, earnings can be expected to remain at this level for the next quarters and we are focused on capitalising on the strong LNG freight market," he said. ■



Awilco LNG CEO Jon Skule Storheill

## Arctic LNG 2 to receive finance

NOVATEK's Arctic LNG 2 has signed loan agreements with international financial institutions and commercial banks.

The maximum total amount under the facilities to be provided by Russian and international banks is €9.5 bill for up to 15 years.

This external financing package secures the required external funding for the project, the developer said.

As for the banks, Chinese financial institutions, including the China Development Bank and the Export-Import Bank of China, signed credit facility agreements totalling up to €2.5 bill.

OECD financial institutions also signed credit facility agreements for up to €2.5 bill. These included the Japan Bank for International Co-operation (JBIC) and other

lenders insured by export credit agencies.

The finance to be provided by the syndicate of Russian banks, including PJSC Sberbank, Gazprombank and its subsidiary Bank GPB International, State Development Corp VEB.RF and Bank Otkritie Financial Corporation, will total €4.5 bill under a credit facility agreement signed earlier.

In addition, NOVATEK and German energy company RWE Supply

& Trading (RWE) have signed a memorandum of understanding (MOU) to co-operate in LNG supply and de-carbonisation.

Both parties also intend to deepen their co-operation in the supply of LNG (including carbon-neutral LNG) by NOVATEK to RWE by expanding existing spot supplies, as well as possible long-term supplies to be produced by the Arctic LNG 2 and other Russian projects. ■

## FLNG project for Sabah

Malaysia's PETRONAS has awarded two front end engineering design (FEED) contracts to a JGC Corp/Samsung Heavy Industries consortium and SAIPEM to develop a nearshore LNG facility in Sabah.

With a minimum capacity of 2 mill tonnes per annum, the project, involving an FLNG, will be the first of its kind in Malaysia.

Competition between the two candidates is expected to take place for 10 months with a final investment decision (FID) planned for end of 2022.

Subject to FID, the winning FEED contractor will also gain the engineering, procurement, construction and commissioning (EPCC) phase.

The LNG plant is planned to be ready for start up by the end of 2026.

Its design and construction is expected to be easier and upon completion, has the potential for improved production uptime as it will be located within a protected bay area, compared to an offshore FLNG facility in the open seas, Petronas explained.

PETRONAS Executive Vice President and CEO of Gas and New Energy, Adnan Zainal Abidin, said, "The development of Sabah's first nearshore LNG plant reflects our technological expertise where we continue to innovate modern solutions to monetise gas resources in an optimised and environmental-friendly manner."

Upon completion, the new LNG plant will increase PETRONAS' LNG production from FLNGs from 2.7 mill tonnes per annum to 4.7 mill tonnes.

Currently, PETRONAS operates two FLNGs, the 'PFLNG Satu' and 'PFLNG Dua', at the Kebabangan and Rotan offshore gas fields, respectively. ■

### LNG Shipping News

Due to the upcoming holiday break, the next issue of LNG Shipping News will be published on 6th January, 2022.

# Wilson in record Brazilian STS transfers

During the first 10 months of this year, Brazilian service provider Wilson Sons claimed a record number of LNG ship-to-ship operations (STS).

Wilson Sons towage unit was involved in more than 15 operations to transfer LNG from gas carriers to FSRUs. Most of the operations took place at Celse's terminal in Barra dos Coqueiros and GNA's terminal at Açú Port.

In October, there were six STS operations, one of which involved a Q-FLEX LNGC, a record for Brazil. By the end of this year, five more operations are planned for Sergipe.

"The year of 2022 also

promises good results for the port support market in the LNG sector. Three new terminals should go into operation, such as the one in Barcarena, the Gas Sul in Santa Catarina and the third in Suape," said Commercial Director, Elísio Dourado.

Currently, five FSRU LNG terminals are in operation in Brazil. Three are operated by Petrobras, one by Celse and another by GNA.

Wilson has operations at the Petrobras facility in Pecém (CE),

in addition to the Celse and GNA terminals. "The outlook remains positive in the medium term, with the possibility of new operators entering the market for gas to wire projects," Dourado added.

With 80 units, it has the largest and most powerful tug fleet on the Brazilian coast - 93% of the tugs are fitted with azimuth propulsion units (ASD) and four are escort tugs. In addition, this year, the construction of a series

of six high-powered tugs began at the Wilson Sons' shipyard in Guarujá (SP).

The new tugs will be of IMO TIER III standard, with a reduction of more than 75% of NOx emissions.

For STS operations, the company's Towage Operations Centre (COR) monitors vessels 24/7, in real time, through an AIS network and uses technologies, such as artificial intelligence to develop manoeuvring strategies. ■

## NEWS NUDGE

### Ships - Newbuildings, deliveries

BW Gas has ordered two, option a further two 174,000 cu m LNGCs from Daewoo (DSME).

The price per vessel was estimated at \$207 mill and the first vessels will be delivered in 2025.

GasLog Ltd has also ordered four 174,000 cu m vessels from DSME.

They will be fitted with ME-GI propulsion units and will be delivered in 2024 and 2025.

Samsung Heavy Industries has won two orders worth a combined Won734 bill to build three LNGCs.

Two contracts were signed for

Won488 bill with a Bermudan-based company, believed to be JP Morgan, to deliver the vessels by January, 2025.

The third contract was worth Won246 bill and was signed with an Oceania-based company, also for delivery by January, 2025, Yonhap new agency reported.

In a Hong Kong stock exchange filing, COSCO Shipping Energy Transportation (CSET) said it had ordered another three LNGCs from Hudong-Zhonghua Shipbuilding.

CSET also revealed that the total cost of the three 174,000 cu m vessels is \$554 mill.

Turning to deliveries, Capital Product Partners (CPLP) has taken delivery of the 'Adamastos' from Hyundai Heavy Industries.

Under an option to acquire three LNGCs from CGC Operating Corp, the Partnership took delivery of the vessel on 29th November, 2021.

'Adamastos' is a 174,000 cu m LNGC, fitted with an X-DF propulsion unit. She was acquired for \$220 mill comprising \$76.9 mill of cash at hand and the assumption of \$143.1 mill of debt.

Elsewhere, 'LNG Endurance', commercially managed by France LNG Shipping (jointly owned by

NYK and Geogas LNG) and under a long-term charter contract to TotalEnergies Gas & Power, was delivered on 1st December.

The 174,000 cu m vessel was built by Samsung Heavy Industries and is a sistership of the 'LNG Enterprise' and 'LNG Endeavour', which were completed in October this year.

They are fitted with WinGD X-DF diesel engines that can operate on fuel oil or boil-off gas stored in the cargo tanks and membrane-type tanks that will make use of advanced insulating materials to reduce the boil-off rate. ■

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# Two LNGC handling tugs at Acajutla

Two new tugs were recently delivered to Central and South America's SAAM Towage.

The 'SAAM Acajutla' and 'SAAM Centzunat' will provide services to an FSRU and arriving and departing LNGCs for the first project to import LNG to El Salvador at Acajutla.

This is a joint initiative involving Energía del Pacífico (EDP) and the US group Invenergy.

The handing over of the tugs was also part of the ceremony to celebrate the arrival of the FSRU, 'BW Tatiana', at Acajutla, which is the first FSRU to be stationed

on the Pacific Coast of Central America.

"This ground-breaking project for El Salvador will not only supply 30% of its energy demand, but will also bring clean, efficient energy. It will also diversify the energy matrix, which is a huge benefit for both end users and the environment in the country and the region," explained Alberto Osorio Liébana, EDP project director.

"We took on this commitment

with the professionalism and operational excellence we are known for, procuring machinery with the right features to provide support services at the terminal," added SAAM Towage Managing Director, Hernán Gómez.

Both tugs are equipped with specific safety features, such as a remotely operated gas detection and automatic isolation system and deck equipment and machinery with explosive atmosphere

certification (ATEX).

They are also fitted with a Fire-Fighting 1 system certified by Bureau Veritas.

The Rastar 3200W tugs, designed by Robert Allan, measure 32 m in length and were especially designed to meet the LNG terminal's needs.

In addition, with bollard pull of more than 80 tonnes, these vessels can work under dynamic traction loads of more than 135 tonnes at a speed of 10 knots. ■

## NEWS NUDGE

### GTT wins another seven LNGC tank designs

GTT's orderbook continues to grow with the announcement of seven more tank design contracts.

These included an order from Daewoo Shipbuilding & Marine Engineering (DSME) for the tank design of four 174,000 cu m LNGCs ordered by Mitsui OSK Lines (MOL).

GTT will design the tanks for navigation in cold temperatures. Each tank will be fitted with the the company's membrane containment system adapted to the extreme conditions to be found in the Arctic.

Deliveries of the vessels are expected during 2024.

In addition, GTT received an order from Hyundai Heavy Industries (HHI) and Hyundai Samho Heavy Industries (HSHI) for the tank design of three new LNGCs.

Two LNGCs will be built by HHI and the third by HSHI on behalf

of an undisclosed European shipowner.

All three vessels will also have a capacity of 174,000 cu m. The LNGC tanks will be fitted with a GTT Mark III Flex membrane containment system.

Associated engineering services will also be provided. Deliveries of these vessels are scheduled for the third quarter of 2024.

### Burckhardt appoints new CEO

Fabrice Billard is set to become CEO of Burckhardt Compression on 1st April, 2022.

After an intense evaluation process with internal and external candidates, the Board appointed Billard as the new CEO, to succeed Marcel Pawlicek.

Billard is a 51-year-old Swiss/French national and holds a Master's degree in Aeronautics & Space Technologies. He has led

the Burckhardt Compression's systems business since 2016.

### Excelerate handed Bahia terminal

Brazil's state-owned energy major, Petrobras has transferred operations of its LNG terminal in Bahia state to Excelerate Energy.

This clears the way for the US-based company to start injecting natural gas into the country's pipeline network, Petrobras said.

The transfer was made on 4th December, shortly after the Brazilian Justice Ministry's Antitrust Division (CADE), approved the leasing agreement on competition grounds.

Excelerate's FSRU is already moored at the Bahia terminal.

The US company will pay \$18.8 mill to operate the terminal at Baía de Todos os Santos and the related infrastructure until December, 2023, Petrobras said. The terminal can import

14 mill cu m per day.

Petrobras is also now free to move its leased FSRU 'Golar Winter' to its LNG terminal at Pecém in Ceará state.

### Teekay receives merger approvals

Teekay LNG Partners' common unitholders have voted to approve the proposed merger with Stonepeak Limestone Holdings, formerly Stonepeak Infrastructure Fund IV Cayman (AIV III).

This was agreed at a special meeting convened on 1st December.

In addition, Teekay LNG received all the required customer approvals to complete the merger.

Upon the closing of the merger, Teekay LNG's common unitholders will receive \$17 per common unit in cash. The merger is currently anticipated to close in mid-January, 2022. ■

## Monthly Large LNGC Values\*

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

\*Source: VesselsValue (22/10/21)

\*The above is updated each month courtesy of VesselsValue

## LNG rate assessments

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

| Region       | This week | Change*   |
|--------------|-----------|-----------|
| East of Suez | \$250,000 | -\$10,000 |
| West of Suez | \$195,000 | -\$5,000  |
| 12 mos T/C   | \$102,000 | -         |

\*Since last report (25/11/21)

Source: Fearnleys (08/12/21)

## WORLD SMALL SCALE LNG FLEET\*

| Built | Name                 | CBM    | Cargo Type       | Trading area              | Trading in LNG?   | Ship Owner / Operator |
|-------|----------------------|--------|------------------|---------------------------|-------------------|-----------------------|
| 1974  | Seagas               | 187    | LNG              | Sweden                    | Yes               | AGA                   |
| 1988  | Kayoh Maru           | 1,517  | LNG              | Japan                     | Yes               | Daiichi               |
| 1993  | Aman Bintulu         | 18,928 | LNG              | Malaysia - Japan          | Yes               | Perbadanan/NYK        |
| 1996  | Surya Aki            | 19,475 | LNG              | Indonesia - Japan         | Yes               | MCGC                  |
| 1997  | Aman Sendai          | 18,928 | LNG              | Malaysia - Japan          | Yes               | Perbadanan/NYK        |
| 1998  | Pelita Energy        | 18,800 | LNG              | Malaysia - Japan          | Yes               | Perbadanan/NYK        |
| 2000  | Triputra             | 23,096 | LNG              | Indonesia - Japan         | Yes               | MCGC                  |
| 2003  | Pioneer Knutsen      | 1,100  | LNG              | Norway                    | Yes               | Knutsen               |
| 2003  | Shinju Maru No.1     | 2,540  | LNG              | Japan                     | Yes               | Shinwa                |
| 2005  | North Pioneer        | 2,500  | LNG              | Japan                     | Yes               | Japan Liquid Gas      |
| 2007  | Sun Arrows           | 19,531 | LNG              | Malaysia - Russia - Japan | Yes               | Mitsui                |
| 2008  | Kakurei Maru         | 2,536  | LNG              | Japan                     | Yes               | Hogaki Zosen          |
| 2008  | Shinju Maru No.2     | 2,540  | LNG              | Japan                     | Yes               | Shinwa                |
| 2009  | Coral Methane        | 7,551  | LNG/LPG/Ethylene | Northwest Europe/Baltics  | Yes, sometimes    | Anthony Veder         |
| 2010  | Coral Favia          | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Anthony Veder         |
| 2010  | Coral Fraseri        | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Anthony Veder         |
| 2011  | Coral Furcata        | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Anthony Veder         |
| 2011  | Coral Fungia         | 10,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Anthony Veder         |
| 2011  | Akebono Maru         | 3,556  | LNG              | Japan                     | Yes               | Chuo Kaiun            |
| 2011  | Vision Spirit        | 12,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Teekay                |
| 2011  | Unikum Spirit        | 12,000 | LNG/LPG/Ethylene | Worldwide                 | No                | Teekay                |
| 2012  | Coral Energy         | 15,600 | LNG              | Northwest Europe/Baltics  | Yes               | Anthony Veder         |
| 2013  | Coral Anthelia       | 6,500  | LNG/Ethylene     |                           |                   | Anthony Veder         |
| 2013  | JX Energy TBN        | 2,500  | LNG              | Japan                     | Yes               | JX Energy             |
| 2013  | Kakuyu Maru          | 2,500  | LNG              | Japan                     | Yes               | Tsurumi Sunmarine     |
| 2015  | JS Ineos Ingenuity   | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2015  | JS Ineos Insight     | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2015  | JS Ineos Intrepid    | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2015  | LNG Barge TBN        | 3,000  | LNG              | US Coast                  | Yes               | LNG America           |
| 2015  | PetroChina TBN       | 30,000 | LNG              | China                     |                   | PetroChina            |
| 2016  | Hai Yang Shi You 301 | 30,000 | LNG              | Bali FSU                  | Yes               | CETS (CNOOC)          |
| 2016  | Clean Jacksonville   | 2,200  | LNG              | US Coast                  | Yes               | CME                   |
| 2016  | JS Ineos Indepence   | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2016  | JS Ineos Innvation   | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2016  | JS Ineos Inspiration | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2016  | LNG Prime            | 2,250  | LNG              | Northwest Europe          | Yes               | Veka Deen LNG         |
| 2017  | Coralius             | 5,800  | LNG              | Northwest Europe/Baltics  | Yes, for Skangas  | Anthony Veder         |
| 2017  | Coral EnergiCE       | 18,000 | LNG              | Northwest Europe/Baltics  | Yes               | Anthony Veder         |
| 2017  | Coral Encanto        | 30,000 | LNG              | China                     | Yes               | Anthony Veder         |
| 2017  | JS Ineos Invention   | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2017  | JS Ineos Intuition   | 27,500 | LNG/Ethylene     | Markus Hook - Rafnes      | Ethane, for Ineos | Evergas               |
| 2017  | Oizmendi             | 600    | LNG              | Spain                     | Yes               | Itsas Gas             |
| 2017  | LNG-Gorskaya TBN     | 7,300  | LNG              | Russia                    | Yes               | LNG-Gorskaya          |
| 2017  | LNG-Gorskaya TBN     | 7,300  | LNG              | Russia                    | Yes               | LNG-Gorskaya          |
| 2017  | LNG-Gorskaya TBN     | 7,300  | LNG              | Russia                    | Yes               | LNG-Gorskaya          |
| 2017  | Green Zeebrugge      | 5,000  | LNG              | Northwest Europe          | Yes               | NYK                   |
| 2017  | New Frontier 1       | 6,500  | LNG              | Northwest Europe          | Yes               | Shell                 |
| 2018  | Kairos               | 7,500  | LNG              | Baltic                    | Yes               | Bernhard Schulte      |

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

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

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

\*\* = project shelved † = Data to be verified Data last updated = 1st September 2021

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

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

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

\*\* = project shelved † = Data to be verified Data last updated = 1st September 2021

## WORLD LNG CARRIER ORDERBOOK

| Name                   | Containment system | Propulsion    | Yard            | Delivery date | Capacity | Primary Owner        |
|------------------------|--------------------|---------------|-----------------|---------------|----------|----------------------|
| Clean Cajun            | Unknown            | XDF           | Hyundai Heavy   | Q1, 2022      | 200000   | Dynagas              |
| Elisa Aquila           | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q1, 2022      | 174000   | NYK                  |
| Global Sealine         | Gtt96 Gw           | XDF           | DSME            | Q1, 2022      | 173400   | Nakilat              |
| Maran Gas Kythira      | Gtt96 Gw           | XDF           | DSME            | Q1, 2022      | 174000   | Maran Gas Maritime   |
| Orion Sea              | Gtt Mkiii Flex     | XDF           | Samsung         | Q1, 2022      | 174000   | JP Morgan            |
| Orion Star             | Gtt Mkiii Flex     | XDF           | Samsung         | Q1, 2022      | 174000   | JP Morgan            |
| Alexey Kosygin         | Gtt Mkiii          | TFDE - Azipod | Zvezda SSK      | Q1, 2023      | 172600   | Smart LNG            |
| Asterix I              | Gtt Mkiii Flex     | XDF           | Hyundai Heavy   | Q1, 2023      | 174000   | Capital Gas          |
| Hudong-zhonghua H1837a | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q1, 2023      | 79960    | Shenzhen Gas         |
| Hyundai Ulsan 3243     | Unknown            | XDF           | Hyundai Heavy   | Q1, 2023      | 174000   | Knutzen              |
| Samsung 2364           | Gtt Mkiii Flex+    | XDF           | Samsung         | Q1, 2023      | 174000   | MISC                 |
| Samsung 2365           | Gtt Mkiii Flex+    | XDF           | Samsung         | Q1, 2023      | 174000   | MISC                 |
| United Glory           | Unknown            | XDF           | Hudong-Zhonghua | Q1, 2023      | 174000   | ULT                  |
| DSME 1/4               | Unknown            | ME-GA         | DSME            | Q1, 2024      | 174000   | MOL                  |
| Hudong-zhonghua H1829a | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q1, 2024      | 170520   | CSSC                 |
| Hyundai Samho 8148     | Unknown            | XDF           | Hyundai Heavy   | Q1, 2024      | 174000   | Knutzen              |
| Hyundai Samho 8149     | Unknown            | ME-GA         | Hyundai Samho   | Q1, 2024      | 174000   | Knutzen              |
| Hyundai Ulsan 3244     | Unknown            | XDF           | Hyundai Heavy   | Q1, 2024      | 174000   | Knutzen              |
| Hyundai Ulsan 3292     | Unknown            | ME-GA         | Hyundai Heavy   | Q1, 2024      | 200000   | Dynagas              |
| Hyundai Ulsan 3293     | Unknown            | ME-GA         | Hyundai Heavy   | Q1, 2024      | 200000   | Dynagas              |
| Hyundai Ulsan 3294     | Unknown            | XDF           | Hyundai Heavy   | Q1, 2024      | 174000   | Hyundai LNG Shipping |
| Hyundai Ulsan 3297     | Unknown            | XDF           | Hyundai Heavy   | Q1, 2024      | 174000   | Hyundai LNG Shipping |
| Samsung 2461           | Gtt Mkiii Flex     | ME-GA         | Samsung         | Q1, 2024      | 180000   | Celsius Shipping     |
| Samsung Sovcomflot 4/4 | Gtt Mkiii Flex     | XDF           | Samsung         | Q1, 2024      | 174000   | NYK                  |
| SHI Oct 1/4            |                    | Other/unknown | Samsung         | Q1, 2024      | 174000   | JP Morgan            |
| ULT #5                 | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q1, 2024      | 174000   | ULT                  |
| ULT #6                 | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q1, 2024      | 174000   | ULT                  |
| BW DSME 1/2            |                    | ME-GA         | DSME            | Q1, 2025      | 174000   | BWGas                |
| Hudong-Zhonghua QP #3  | Unknown            | Other/unknown | Hudong-Zhonghua | Q1, 2025      | 175000   | Qatar Petroleum      |
| Qatar DSME 1/4         | Unknown            | MEGI          | DSME            | Q1, 2025      | 174000   | Qatar Petroleum      |
| Qatar HHI 1            |                    | Other/unknown | Hyundai Heavy   | Q1, 2025      | 174000   | Qatar Petroleum      |
| Qatar HHI 2            |                    | Other/unknown | Hyundai Heavy   | Q1, 2025      | 174000   | Qatar Petroleum      |
| Qatar SHI 1/2          |                    | ME-GA         | Samsung         | Q1, 2025      | 174000   | Qatar Petroleum      |
| Qatar SHI 2/2          |                    | ME-GA         | Samsung         | Q1, 2025      | 174000   | Qatar Petroleum      |
| Clean Copano           | Unknown            | XDF           | Hyundai Heavy   | Q2, 2022      | 200000   | Dynagas              |
| Grace Freesia          | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q2, 2022      | 173000   | NYK                  |
| Hudong-zhonghua H1788a | Gtt96              | XDF           | Hudong-Zhonghua | Q2, 2022      | 79960    | K-Line               |
| Lagenda Serenity       | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q2, 2022      | 79960    | K-Line               |
| Samsung 2337           | Gtt Mkiii Flex     | XDF           | Samsung         | Q2, 2022      | 174000   | JP Morgan            |
| Vivit Arabia Lng       | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q2, 2022      | 174000   | H-Line               |
| Daewoo 2515            | Unknown            | TFDE - Azipod | DSME            | Q2, 2023      | 172500   | Sovcomflot           |
| El Ferrol Knutsen      | Unknown            | XDF           | Hyundai Heavy   | Q2, 2023      | 174000   | Knutzen              |
| Extremadura Knutsen    | Unknown            | XDF           | Hyundai Heavy   | Q2, 2023      | 174000   | Knutzen              |
| Hudong-zhonghua H1833a | Unknown            | XDF           | Hudong-Zhonghua | Q2, 2023      | 174000   | ULT                  |
| Samsung 2426           | Unknown            | XDF           | Samsung         | Q2, 2023      | 174000   | Pan Ocean            |
| Daewoo 2522            | Unknown            | MEGI          | DSME            | Q2, 2024      | 174000   | Hyundai LNG Shipping |
| DSME 2/4               | Unknown            | ME-GA         | DSME            | Q2, 2024      | 174000   | MOL                  |
| Hudong-zhonghua H1830a | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q2, 2024      | 170520   | CSSC                 |

| Name                   | Containment system | Propulsion    | Yard            | Delivery date | Capacity | Primary Owner        |
|------------------------|--------------------|---------------|-----------------|---------------|----------|----------------------|
| Hyundai Ulsan 3295     | Unknown            | XDF           | Hyundai Heavy   | Q2, 2024      | 174000   | Hyundai LNG Shipping |
| Samsung 2579           | Gtt Mkiii Flex     | ME-GA         | Samsung         | Q2, 2024      | 180000   | Celsius Shipping     |
| SHI Oct 2/4            |                    | Other/unknown | Samsung         | Q2, 2024      | 174000   | JP Morgan            |
| BW DSME 2/2            |                    | ME-GA         | DSME            | Q2, 2025      | 174000   | BWGas                |
| Hudong-Zhonghua QP #4  | Unknown            | Other/unknown | Hudong-Zhonghua | Q2, 2025      | 175000   | Qatar Petroleum      |
| Hyundai Ulsan 3320     | Unknown            | ME-GA         | Hyundai Heavy   | Q2, 2025      | 174000   | JP Morgan            |
| Qatar DSME 3/4         |                    | MEGI          | DSME            | Q2, 2025      | 174000   | Qatar Petroleum      |
| Qatar HHI 3            |                    | Other/unknown | Hyundai Heavy   | Q2, 2025      | 174000   | Qatar Petroleum      |
| Samho Capital 1/3      | Mark III Flex      | ME-GA         | Hyundai Samho   | Q2, 2025      | 174000   | Capital Gas          |
| Samho Capital 2/3      | Mark III Flex      | ME-GA         | Hyundai Samho   | Q2, 2025      | 174000   | Capital Gas          |
| Bw Cassia              | Gtt96 Gw           | MEGI          | DSME            | Q3, 2022      | 174000   | BWGas                |
| Bw Iris                | Gtt96 Gw           | MEGI          | DSME            | Q3, 2022      | 174000   | BWGas                |
| Prism Diversity        | Unknown            | XDF           | Hyundai Heavy   | Q3, 2022      | 180000   | SK Shipping          |
| Santander Knutsen      | Unknown            | XDF           | Hyundai Heavy   | Q3, 2022      | 174000   | Knutsen              |
| Sm Albatross           |                    | XDF           | Hyundai Heavy   | Q3, 2022      | 174000   | Korea Line           |
| Sm Bluebird            |                    | XDF           | Hyundai Heavy   | Q3, 2022      | 174000   | Korea Line           |
| Daewoo 2516            | Unknown            | TFDE - Azipod | DSME            | Q3, 2023      | 172500   | Sovcomflot           |
| Daewoo 2517            | Unknown            | TFDE - Azipod | DSME            | Q3, 2023      | 172500   | MOL                  |
| H-line #3              | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q3, 2023      | 174000   | H-Line               |
| Hudong-zhonghua H1838a |                    | XDF           | Hudong-Zhonghua | Q3, 2023      | 79960    | K-Line               |
| Hyundai Samho 8105     | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q3, 2023      | 174000   | Sovcomflot           |
| Hyundai Ulsan 3290     | Unknown            | ME-GA         | Hyundai Heavy   | Q3, 2023      | 200000   | Dynagas              |
| Lng Harmony            | Unknown            | XDF           | Hyundai Heavy   | Q3, 2023      | 174000   | JP Morgan            |
| Orion Sage             | Unknown            | XDF           | Hyundai Heavy   | Q3, 2023      | 174000   | JP Morgan            |
| Samsung 2425           | Unknown            | XDF           | Samsung         | Q3, 2023      | 174000   | Maran Gas Maritime   |
| Samsung 2459           | Gtt Mkiii Flex     | ME-GA         | Samsung         | Q3, 2023      | 180000   | Celsius Shipping     |
| Samsung Sovcomflot 1/4 | Gtt Mkiii Flex     | XDF           | Samsung         | Q3, 2023      | 174000   | NYK                  |
| Sm Golden Eagle        | Unknown            | XDF           | Hyundai Heavy   | Q3, 2023      | 174000   | Korea Line           |
| Zvezda 042             | Gtt Mkiii          | TFDE - Azipod | Zvezda SSK      | Q3, 2023      | 172600   | Smart LNG            |
| DSME 3/4               | Unknown            | ME-GA         | DSME            | Q3, 2024      | 174000   | MOL                  |
| DSME 4/4               | Unknown            | ME-GA         | DSME            | Q3, 2024      | 174000   | MOL                  |
| DSME MOL               | Unknown            | ME-GA         | DSME            | Q3, 2024      | 174000   | MOL                  |
| Hyundai Ulsan 3221     | Unknown            | XDF           | Hyundai Heavy   | Q3, 2024      | 174000   | Pan Ocean            |
| Hyundai Ulsan 3224     | Unknown            | ME-GA         | Hyundai Heavy   | Q3, 2024      | 174000   | Pan Ocean            |
| Hyundai Ulsan 3296     | Unknown            | XDF           | Hyundai Heavy   | Q3, 2024      | 174000   | Hyundai LNG Shipping |
| Hyundai Ulsan 3298     | Unknown            | XDF           | Hyundai Heavy   | Q3, 2024      | 174000   | Hyundai LNG Shipping |
| Maran DSME             | Gtt96 Gw           | MEGI          | DSME            | Q3, 2024      | 174000   | Maran Gas Maritime   |
| Samsung 2473           | Unknown            | XDF           | Samsung         | Q3, 2024      | 174000   | Maran Gas Maritime   |
| Samsung 2474           | GTT Mark III Flex  | XDF           | Samsung         | Q3, 2024      | 174000   | Maran Gas Maritime   |
| Samsung 2584           | Gtt Mkiii Flex     | ME-GA         | Samsung         | Q3, 2024      | 180000   | Celsius Shipping     |
| Samsung 2585           | Gtt Mkiii Flex     | ME-GA         | Samsung         | Q3, 2024      | 180000   | Celsius Shipping     |
| SHI Oct 3/4            |                    | Other/unknown | Samsung         | Q3, 2024      | 174000   | JP Morgan            |
| Sovcomflot #1          | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q3, 2024      | 170520   | Sovcomflot           |
| Sovcomflot #2          | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q3, 2024      | 170520   | Sovcomflot           |
| Zvezda 046             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q3, 2024      | 172600   | Smart LNG            |
| Zvezda 047             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q3, 2024      | 172600   | Smart LNG            |
| Hyundai Samho 8102     | Unknown            | ME-GA         | Hyundai Heavy   | Q3, 2025      | 174000   | Knutsen              |
| Hyundai Ulsan 3321     | Unknown            | ME-GA         | Hyundai Heavy   | Q3, 2025      | 174000   | JP Morgan            |
| Qatar DSME 2/4         |                    | MEGI          | DSME            | Q3, 2025      | 174000   | Qatar Petroleum      |
| Qatar HHI 4            |                    | Other/unknown | Hyundai Heavy   | Q3, 2025      | 174000   | Qatar Petroleum      |

| Name                   | Containment system | Propulsion    | Yard            | Delivery date | Capacity | Primary Owner            |
|------------------------|--------------------|---------------|-----------------|---------------|----------|--------------------------|
| Samho Capital 3/3      | Mark III Flex      | ME-GA         | Hyundai Samho   | Q3, 2025      | 174000   | Capital Gas              |
| Zvezda 051             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q3, 2025      | 172600   | Smart LNG                |
| Zvezda 052             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q3, 2025      | 172600   | Smart LNG                |
| Tenergy                | Gtt Mkiii Flex     | XDF           | Hyundai Heavy   | Q4, 2021      | 174000   | Tsakos Energy Navigation |
| Vivirt City Lng        | Gtt Mkiii Flex     | XDF           | Hyundai Samho   | Q4, 2021      | 174000   | H-Line                   |
| Alicante Knutsen       | Unknown            | XDF           | Hyundai Heavy   | Q4, 2022      | 174000   | Knutsen                  |
| Daewoo 2514            | Unknown            | TFDE - Azipod | DSME            | Q4, 2022      | 172500   | Sovcomflot               |
| Hudong-zhonghua H1831a | Not Applicable     | XDF           | Hudong-Zhonghua | Q4, 2022      | 174000   | ULT                      |
| Huelva Knutsen         | Unknown            | XDF           | Hyundai Heavy   | Q4, 2022      | 174000   | Knutsen                  |
| Lng Prosperity         |                    | XDF           | Hyundai Heavy   | Q4, 2022      | 174000   | JP Morgan                |
| Malaga Knutsen         | Unknown            | XDF           | Hyundai Heavy   | Q4, 2022      | 174000   | Knutsen                  |
| Minerva Amorgos        | Gtt Mkiii Flex+    | XDF           | Samsung         | Q4, 2022      | 174000   | Minerva Marine           |
| Orion Song             |                    | XDF           | Hyundai Heavy   | Q4, 2022      | 174000   | JP Morgan                |
| Amore Mio I            | Gtt Mkiii Flex     | ME-GA         | Hyundai Heavy   | Q4, 2023      | 174000   | Capital Gas              |
| Axios II               | Gtt Mkiii Flex     | ME-GA         | Hyundai Heavy   | Q4, 2023      | 174000   | Capital Gas              |
| Daewoo 2518            | Unknown            | TFDE - Azipod | DSME            | Q4, 2023      | 172500   | MOL                      |
| Daewoo 2519            | Unknown            | TFDE - Azipod | DSME            | Q4, 2023      | 172500   | MOL                      |
| Daewoo 2520            | Unknown            | MEGI          | DSME            | Q4, 2023      | 174000   | MOL                      |
| Daewoo 2521            | Unknown            | MEGI          | DSME            | Q4, 2023      | 174000   | Hyundai LNG Shipping     |
| Hyundai Samho 8101     | Unknown            | XDF           | Hyundai Heavy   | Q4, 2023      | 174000   | Knutsen                  |
| Hyundai Samho 8139     | Unknown            | XDF           | Hyundai Samho   | Q4, 2023      | 174000   | Knutsen                  |
| Hyundai Ulsan 3291     | Unknown            | ME-GA         | Hyundai Heavy   | Q4, 2023      | 200000   | Dynagas                  |
| Jiangnan H2637         | Gtt Mkiii Flex     | XDF           | Jiangnan        | Q4, 2023      | 79800    | Jovo Energy              |
| Samsung 2460           | Gtt Mkiii          | ME-GA         | Samsung         | Q4, 2023      | 180000   | Celsius Shipping         |
| Samsung Sovcomflot 2/4 | Gtt Mkiii Flex     | XDF           | Samsung         | Q4, 2023      | 174000   | NYK                      |
| Samsung Sovcomflot 3/4 | Gtt Mkiii Flex     | XDF           | Samsung         | Q4, 2023      | 174000   | NYK                      |
| Sm Kestrel             | Unknown            | XDF           | Hyundai Heavy   | Q4, 2023      | 174000   | Korea Line               |
| ULT #4                 | Gtt96 L03+         | XDF           | Hudong-Zhonghua | Q4, 2023      | 174000   | ULT                      |
| Zvezda 043             | Gtt Mkiii          | TFDE - Azipod | Zvezda SSK      | Q4, 2023      | 172600   | Smart LNG                |
| Zvezda 044             | Gtt Mkiii          | TFDE - Azipod | Zvezda SSK      | Q4, 2023      | 172600   | Smart LNG                |
| Zvezda 045             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2023      | 172600   | Smart LNG                |
| DSME Gaslog 1/4        |                    | MEGI          | DSME            | Q4, 2024      | 174000   | GasLog                   |
| DSME Gaslog 2/4        |                    | MEGI          | DSME            | Q4, 2024      | 174000   | GasLog                   |
| Hudong-Zhonghua QP #1  | Unknown            | Other/unknown | Hudong-Zhonghua | Q4, 2024      | 175000   | Qatar Petroleum          |
| Hudong-Zhonghua QP #2  | Unknown            | Other/unknown | Hudong-Zhonghua | Q4, 2024      | 175000   | Qatar Petroleum          |
| Hyundai Samho 8100     | Unknown            | XDF           | Hyundai Heavy   | Q4, 2024      | 174000   | Knutsen                  |
| Hyundai Ulsan 3222     | Unknown            | XDF           | Hyundai Heavy   | Q4, 2024      | 174000   | Pan Ocean                |
| Hyundai Ulsan 3225     | Unknown            | ME-GA         | Hyundai Heavy   | Q4, 2024      | 174000   | Pan Ocean                |
| Hyundai Ulsan 3299     | Unknown            | XDF           | Hyundai Heavy   | Q4, 2024      | 174000   | Hyundai LNG Shipping     |
| Maran DSME 2           | Gtt96 Gw           | MEGI          | DSME            | Q4, 2024      | 174000   | Maran Gas Maritime       |
| Orion Sky              | Unknown            | XDF           | Hyundai Heavy   | Q4, 2024      | 174000   | JP Morgan                |
| SHI Oct 4/4            |                    | Other/unknown | Samsung         | Q4, 2024      | 174000   | JP Morgan                |
| Zvezda 048             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2024      | 172600   | Smart LNG                |
| Zvezda 049             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2024      | 172600   | Smart LNG                |
| Zvezda 050             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2024      | 172600   | Smart LNG                |
| DSME Gaslog 3/4        |                    | MEGI          | DSME            | Q4, 2025      | 174000   | GasLog                   |
| DSME Gaslog 4/4        |                    | MEGI          | DSME            | Q4, 2025      | 174000   | GasLog                   |
| Qatar DSME 4/4         |                    | MEGI          | DSME            | Q4, 2025      | 174000   | Qatar Petroleum          |
| Zvezda 053             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2025      | 172600   | Smart LNG                |
| Zvezda 054             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2025      | 172600   | Smart LNG                |
| Zvezda 055             | Unknown            | TFDE - Azipod | Zvezda SSK      | Q4, 2025      | 172600   | Smart LNG                |

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit  
Data last updated = Data last updated = 9th December 2021