

LNG Shipping News

AN LNG JOURNAL TITLE ON LNG CARRIERS

19 August 2021

BHP and Woodside confirm oil and gas merger talks

Woodside Petroleum and BHP Group have confirmed that negotiations are underway to combine their respective oil and gas portfolios.

This will be achieved by an all-stock merger, which when finalised will create a global top 10 independent energy company by production.

An expanded Woodside would be owned 52% by existing Woodside shareholders and 48% by existing BHP shareholders.

The new venture is expected to deliver substantial value creation for both sets of shareholders from across a range of areas, including:

- Greater scale and diversity of geographies, products and end markets through an attractive and long-life conventional portfolio
 - Resilient, high margin operating cash flows to fund shareholder returns and business evolution to support the energy transition
 - Strong growth profile with a plan to achieve targeted Scarborough FID in the 2021 calendar year and capacity to phase the most competitive, high-return options within the portfolio
 - Proven management and technical capability from both companies
 - Shared values and focus on sustainable operations, carbon management and ESG leadership
 - Estimated synergies of more than \$400 mill (100% basis, pre-tax) per annum from optimising corporate processes and systems, leveraging combined capabilities and improving capital efficiency on future growth projects and exploration
 - Greater financial resilience, relative to Woodside's and BHP's standalone petroleum businesses.
- Woodside CEO and Managing Director, Meg O'Neill said, "Merging Woodside with BHP's oil and gas

business delivers a stronger balance sheet, increased cash flow and enduring financial strength to fund planned developments in the near term and new energy sources into the future.

"The proven capabilities of both Woodside and BHP will deliver long-term value for shareholders through our geographically diverse and balanced portfolio of tier 1 operating assets and low-cost and low-carbon growth opportunities.

"The proposed transaction de-risks and supports Scarborough FID later this year and enables more flexible capital allocation. We will continue reducing carbon emissions from the combined portfolio towards Woodside's ambition to be net zero by 2050," she said.

BHP CEO, Mike Henry, added, "The merger of our petroleum assets with Woodside will create an organisation with the scale, capability and expertise to meet global demand for key oil and gas resources the world will need over the energy transition.

"Bringing the BHP and Woodside assets together will provide choice for BHP shareholders, unlock synergies in how these assets are managed and allow capital to be deployed to the highest quality opportunities. The merger will also enable the skills, talent and technology of both organisations to build a resilient future as the world's needs evolve."

Scarborough FID

Woodside and BHP have also jointly developed a plan to target a final investment decision (FID) for Scarborough (Australia) by the



Woodside's CEO Meg O'Neill will take over the merged company

end of the 2021 calendar year, prior to the proposed completion date for the merger.

As part of this plan, the companies have agreed an option for BHP to sell its 26.5% interest in the Scarborough Joint Venture to Woodside and its 50% interest in the Thebe and Jupiter joint ventures to Woodside, if the Scarborough Joint Venture takes a FID by 15th December, 2021.

This option is exercisable by BHP in the second half of the 2022 calendar year and if exercised, some \$1 bill is payable to BHP with adjustment from an effective date of 1st July, 2021. An additional \$100 mill is payable contingent upon a future FID for the Thebe development.

The combined business will be led by Meg O'Neill as the CEO and Managing Director.

Both the Woodside and BHP Boards have confirmed their support for the transaction, which is expected to be completed in the second quarter of the 2022 calendar year with an effective date of 1st July, 2021.

Woodside's financial advisers are Gresham Advisory Partners Limited and Morgan Stanley Australia Limited, and its legal advisers are King & Wood Mallesons and Vinson & Elkins LLP.

BHP's financial advisers are JP Morgan, Barclays and Goldman Sachs and its lead legal adviser is Herbert Smith Freehills.

SHIPPING NEWS AGENDA

BUSINESS

- Merger planned **1**
- Golar to split ops **2**

MARKETING



- Another FLNG needed **3**
- Indian cargoes **3**
- Southeast Asia imports **4**

FINANCE

- Charters boost Flex LNG **6**
- Drydockings hit Teekay **7**
- Golar revenues down **8**

TECHNOLOGY



- Nakilat upgrades software **10**
- EEXI explained **11**
- MOL tests regas system **11**

LNG ORDERBOOK

- LNG small scale fleet **12**
- LNG carrier orderbook **14**

Golar explains planned shipping/FLNG split

Golar has resurrected plans to separate its shipping and FLNG interests.

Starting with FLNG, Golar said that the contractual Brent Oil linked component of the 'Hilli Episeyo's' first 1.2 mill tonnes of annual production generates cash flows of about \$3 mill per annum for every dollar the Brent oil price is above \$60 per barrel, up to an agreed ceiling.

This would generate an additional \$34 mill of annual realised gain on oil derivative instruments assuming the Brent oil price on 6th August, 2021 is sustained.

Together with the last 12-months of adjusted EBITDA from the FLNG's tolling services and inclusive of the expected adjusted EBITDA from the increased capacity utilisation in 2022, 'Hilli's' consolidated 2022 earnings would be around \$225 mill, assuming current oil and gas prices and no changes to the existing accounting methods.

Further upside to Hilli's earnings from 2023 can be expected should operator Perenco's 2021 drilling campaign prove successful.

Golar's pro-rata earnings backlog from FLNG remains unchanged at \$3.4 bill, despite quarterly amortisation. This does not in-

clude potential additional backlog associated with Perenco/SNH exercising their option to increase 'Hilli' production from 2023.

Golar said in its results presentation (see page 8) that it expected to make significant progress on new tolling arrangement FLNG projects, as well as integrated gas projects over the next six to 12 months.

The most promising integrated gas projects currently under review are in West Africa and would utilise a Mark I FLNG solution. For integrated projects, Golar targets a combination of fixed price off-take and merchant sales.

Golar's second FLNG 'Gimi' is thus far unfixed and is over 70% complete in a Singapore shipyard where work was continuing.

Shipping division

As for its shipping division, based on fixtures to date, Golar expects a third quarter TFDE1 TCE1 of around \$47,000 per day. Seasonally strong LNG prices continued to be sustained by supply disruptions, a demand recovery in Asia, and strong demand in Europe



Golar's head, Karl Fredrik Staubo, is to oversee a divisional split

where inventories remain historically low.

Vessel spot rates also remain counter-seasonally strong and one-year timecharter rates remain above spot rates, signalling higher rates ahead. The term market is also expected to remain active, however the lack of available ships in 2021 means that the focus has shifted to 2022.

Most of the order book is now committed and charterers are increasingly focused on securing access to high quality vessels already on the water. Both rates and tenor are increasing. Golar said that it expected to benefit, as its exposure to this improved market increases.

Most of the current contracts were fixed in 2020 when the market was softer than the current market and what is forecast for 2022.

Compliance with recently approved environmental regulations from 2023 onwards (the IMO's EEXI) will mainly impact steam LNGCs that account for 254 of the

607 vessels on the water. The most viable compliance option for those carriers is to slow steam, however some may not be viable to trade. The current order book, therefore looks increasingly inadequate, while shipyards are busy with significant ordering activity in other ship types and steel prices have also increased.

As a result, newbuilding prices are rising. Shipyards are reported to be quoting above \$210 mill for LNGCs, up from \$185-\$190 mill in recent years. Rising asset values should benefit Golar's TFDE fleet.

Supported by recent long-term fixtures and the strong improvement in the underlying market, the company now expects materially positive contributions to the Groups results from shipping over the years ahead.

Golar concluded that favourable market fundamentals across its business segments supported the next step in the group simplification process and initiatives have restarted to separate the shipping and FLNG divisions.

NEWS NUDGE

Repsol takes control of Canaport

Canadian energy company, Irving Oil, has sold its 25% ownership interest in Canaport LNG to Repsol.

This transaction gives Repsol full ownership of Canada's first LNG receiving and regasification terminal, which is located at

Saint John (NB).

Irving Oil said that during the past number of months, all of the parties involved have been working together to finalise the deal.

The company added that confidentiality provisions prohibit it from commenting further. ■

LNG Shipping News

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

Publisher
Stuart Fryer

Editor

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

Ad sales enquiries

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

Subscriptions

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

Production

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

No part of this publication may be reproduced or stored in any form by any mechanical, electronic, photocopying, recording or any other means without the prior written consent of the publisher. Whilst the information and articles in LNG Shipping News are published in good faith and every effort is made to check accuracy, readers should verify facts and statements direct with official sources before acting on them as the publisher can accept no responsibility in this respect. Any opinions expressed in this publication should not be construed as those of the publisher."

PETRONAS targets third FLNG

Malaysia's national oil company, PETRONAS has reportedly issued a front end engineering and design (FEED) tender for a third FLNG.

Bids are due this month from interested parties, according to sources talking with Platts.

The FEED study is expected to start before the end of 2021 resulting in a final investment decision (FID) taken during the second half of 2022, sources said.

'PFLNG Tiga' as the FLNG will be called, will have an LNG production capacity of around 2 mill tonnes per year and the unit will be deployed near the shore in the eastern state of Sabah on the island of Borneo.

Offshore Sabah is home to PETRONAS' two other FLNGs currently in operation, 'PFLNG Satu' and 'PFLNG Dua'.

Platts said that factors supporting the economics of a third FLNG in Southeast Asia include - an FLNG can be built quicker than an onshore facility, LNG prices are expected to remain high and industry upheavals in the past year have led to supply-side projects being delayed or cancelled. The region is also close to the North Asian gas markets.

However, the tender raised eyebrows in oil and gas circles be-

cause Malaysia has been struggling with declining output from its upstream assets, there have been few major discoveries in recent years and it is unclear if there are enough gas reserves to necessitate a third FLNG, the newswire said.

Two regions

Malaysia's hydrocarbon exploration is split across two regions, - peninsular Malaysia and the eastern island of Borneo, where the states of Sabah and Sarawak together account for over two thirds of crude and condensate output, and more than three quarters of gas production.

Sarawak is the country's single largest gas producing region, mainly from the nine-train PETRONAS LNG complex at Bintulu with a capacity of 29.3 mill tonnes per year.

"Adding a third FLNG in Sabah's offshore looks more challenging, given the present state of discoveries," IHS Markit's Managing Director of Upstream, Nick Sharma, said. "The current resource base only meets the need for 'PFLNG Satu', 'Dua' and Sabah's domestic gas requirements for the coming

decade."

Sharma added that while the startup of PETRONAS' second FLNG was held back by a failure of a subsea component, both 'PFLNG Satu' and 'Dua' are now loading out volumes steadily. PTTEP aims to ramp up 'PFLNG Dua's' production to 270 mill cu ft per day, its state-owned parent group PTT has said.

Platts Analytics data showed that the Bintulu complex has averaged 85% utilisation since 2019. "This is more than enough to meet the contractual obligations for PETRONAS' customers [although] the lower utilisation rates would impact the NOC's exposure to the spot market," Jeff Moore, S&P Global Platts', Asia LNG Analytics Manager, said.

"PETRONAS can also choose to deploy 'PFLNG Tiga' in Malaysia, Brazil, Mexico and Africa where it has access to large, undeveloped gas reserves," Sharma said, adding that the exact deployment will only be clear after FID has been taken.

Some market sources linked the new FLNG tender to Sabah state government's ambition to

develop an industrial park and petrochemicals hub at Sipitang, the town closest to the Sarawak border, thus increasing revenue from oil and gas taxes and extending economic benefits to its people. ■

Cargoes - India leads the way

GAIL (India) has issued a swap tender offering LNG cargoes for US loading and was also seeking cargoes for delivery into India in 2021 and 2022.

The Indian energy concern wants 12 cargoes for delivery into India from 19th November through 10th October, 2022, and has offered 12 cargoes for US loading from 26th November through 10th October, 2022, sources told Reuters.

This tender was due to close on 17th August.

GAIL has 20-year deals to buy 5.8 mill tonnes a year of US LNG split between Dominion Energy's Cove Point and Cheniere Energy's Sabine Pass.

As for carbon neutral LNG cargoes, Eni said that it had agreed to deliver cargo to Taiwan's CPC Corp at the Yung An receiving terminal.

Eni joins a number of global LNG players to offer carbon neutral cargoes, including Shell, BP and Gazprom, as buyers continued their interest in securing greener LNG.

The LNG cargo will be shipped from Indonesia's Bon-tang liquefaction facility, as part of a contract with Eni Muara Bakau, a joint venture operated by Eni that owns and operates the Jangkrik gas field.

This cargo will be certified as carbon neutral according to the internationally recognised PAS2060 standard. ■



PETRONAS is reportedly seeking a third FLNG

Southeast Asia to increasingly rely on LNG imports

Despite being an LNG net exporter, Southeast Asia is to increasingly rely on imported LNG through 2030.

Imported LNG will meet the growing demand and support the waning domestic supplies, said GlobalData.

Southeast Asia represents a key growth region for natural gas over the next decade, as populations and economies continue to grow and several countries look to gas for meeting their ever-growing power demand.

Despite the region being a net exporter of gas supported mainly by major gas producers Malaysia and Indonesia, strong demand growth could outpace the regional

supply by the end of the decade.

Daniel Rogers, GlobalData's Senior Oil and Gas Analyst, said: "In the gas and LNG outlook for the region, both Thailand and the Philippines' gas supply-demand gaps are expected to widen as steady demand growth is met by the declining domestic supply. Both countries will look to the LNG market to fill the gap where domestic production or pipeline imports are unable to, through additional LNG regasification capacity.

"There is over 3 trillion cu ft of

regasification capacity in the pipeline, approximately 2 trillion of planned and 1 trillion of announced capacity across these two countries that could be online by 2030, this compares to just 0.5 trillion cu ft of capacity currently active," he said.

First cargo

Last year, Thailand and Singapore imported record LNG volumes, and Myanmar imported its first LNG cargo despite the pandemic. In Thailand, LNG imports are likely to become increasingly important for the country, as both domestic supply and imports from Myanmar face natural decline, while the demand growth from these two countries continues to rise.

Singapore is expected to remain heavily dependent upon gas up to 2030, as it represents almost all the country's power generation. Singapore's LNG imports jumped 20% last year and with the piped gas supply contracts expir-

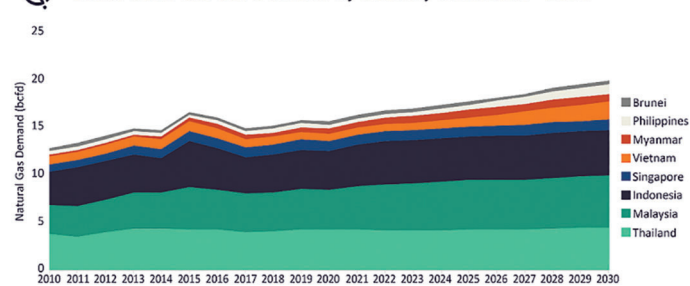
ing over the near term, LNG imports will be vital for supporting a gas hungry power mix.

Rogers added: "On the supply side, Malaysia and Indonesia have a project pipeline that will help boost production over the near term and just under 4 million tonnes per annum of increased LNG liquefaction capacity in Indonesia will increasingly be used to supply its domestic market.

"However, Brunei, Vietnam and Myanmar risk facing domestic supply declines over the forecast period unless they can progress their currently challenged, undeveloped gas projects. Progress of such projects will be pivotal for their supply outlooks.

"LNG exporters will be watching Southeast Asia closely as new entrants to the LNG import market emerge and a build out of regasification capacity will provide opportunity in the form of new buyers and more volumes directed to the region," he concluded. ■

South East Asia Gas Demand by Country from 2010 - 2030



Source: GlobalData Oil & Gas Intelligence Center

GlobalData.

US natural gas inventories to enter winter season below average

The US Energy Information Administration's (EIA) August, 2021 Short-Term Energy Outlook (STEO) forecast US natural gas inventories to reach 3,592 billion cu ft by 1st November, the beginning of the winter heating season.

However, this total is 159 billion cu ft below the previous five-year average (2016-2020). Above average natural gas withdrawals from storage in the 2020/2021 winter heating season and below-average injections into storage this summer contributed to the EIA's forecast of below-average inventories, along with relatively flat dry natural gas production and high natural gas exports, the administration said.

US dry natural gas production remained relatively flat, averaging 91.5 billion cu ft per day in 2021 (January/July), 0.4 billion cu ft lower than the same period in 2020.

Production in January, 2021 and July, 2021 both averaged 92.5 billion cu ft per day. Production declined in February, 2021 by more than 6.5 billion cu ft, due to ex-

cessively cold weather and well freeze offs, but it increased to 92 billion the following month.

US LNG exports reached record-high levels this year to date, due to newly added export capacity and increases in international natural gas and LNG prices.

In 2020, US LNG exports averaged 6.5 billion cu ft per day during a time of low global natural gas demand, following the onset of the COVID-19 pandemic.

In contrast, US LNG exports have averaged 9.4 billion cu ft thus far this year, and the EIA forecasts that exports will average 9.5 billion cu ft per day for the whole year.

The high level of US exports this year, combined with relatively flat production, has contributed to below average injections of

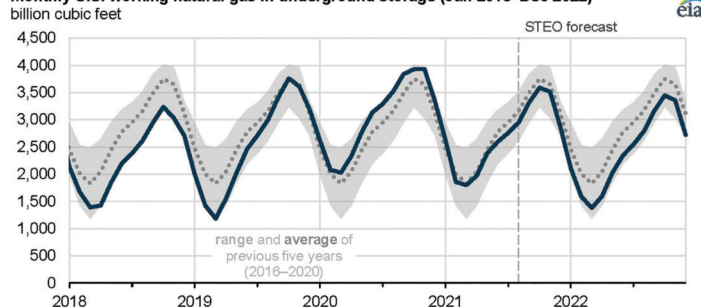
natural gas into storage this summer, as the winter heating season approaches.

Thus far, this injection season (1st April-31st October), US natural gas inventories have grown by 960 billion cu ft, 14% less than the five-year average inventory build up from April to July.

In this year's hottest June on

record, natural gas inventories grew by 207 billion cu ft, some 120 billion cu ft less than the five-year average inventory build up for June. In May and June, US consumption increased by 4.2 billion cu ft per day, or 6.2%, due to higher electric power sector consumption in response to the hot weather, the EIA said. ■

Monthly U.S. working natural gas in underground storage (Jan 2018-Dec 2022)



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

Enhance Your Company's Profile At The Leading LNG & Gas Exhibition In The Americas

Organized By
dmgevents



18TH

WORLD LNG & GAS SERIES AMERICAS SUMMIT & EXHIBITION

2 - 4 NOVEMBER 2021

GOLDEN NUGGET HOTEL, LAKE CHARLES - LOUISIANA

Expanded Exhibition For 2021

Showcasing Solutions, Services & New Technologies From The Entire LNG & Gas Value Chain



**Identify New
Partnerships & Generate
New Business**



**Profile
Technological
Innovation**



**Showcase
Technical
Excellence**



**Enhance
Your Brand
Exposure**

**Limited Number
Of Stands Available!**



Contact Us Today
Ingamericas@dmgevents.com

Endorsed By



Platinum Sponsors



VENTURE GLOBAL **LNG**



COMMONWEALTH
LNG

Gold Sponsor

Silver Sponsor



Bronze Sponsors

KING & SPALDING



Flex LNG takes advantage of long term charter opportunities

Flex LNG has reported revenues of \$65.8 mill for the second quarter 2021, compared to \$81.3 mill for the first quarter of this year.

Net income was \$12.7 mill and earnings per share were \$0.24 for 2Q21, compared to net income of \$47.2 mill and earnings per share of \$0.88 for the first quarter.

The average time charter equivalent (TCE) rate of \$57,780 per vessel per day in 2Q21, compared to \$75,399 per day for the previous quarter.

Adjusted EBITDA was \$46.8 mill for the second quarter, compared to \$64 mill for 1Q21, while an adjusted net income of \$15.7 mill,

compared to \$34.2 mill in 1Q21.

Since April, 2021, Flex LNG has secured long-term timecharter contracts for six LNGCs with aggregate firm periods of 20 years, plus charterer's options, which could extend this to 40 years.

A month later, the company completed its newbuilding programme following the delivery of the 13th newbuilding LNGC, 'Flex Vigilant'.

This month, an option was declared extending the variable rate

timecharter with an international energy major for 'Flex Amber', by another year.

Also in August, the Board authorised an increase in the maximum amount to be paid per share under the share buy-back programme from \$14 to \$15.

The Board declared a cash dividend for 2Q21 of \$0.40 per share.

Øystein M Kalleklev, Flex LNG Management CEO, commented: "We are pleased to announce second quarter results in line with

our guidance with revenues and adjusted net income of \$65.8 mill and \$15.7 mill respectively.

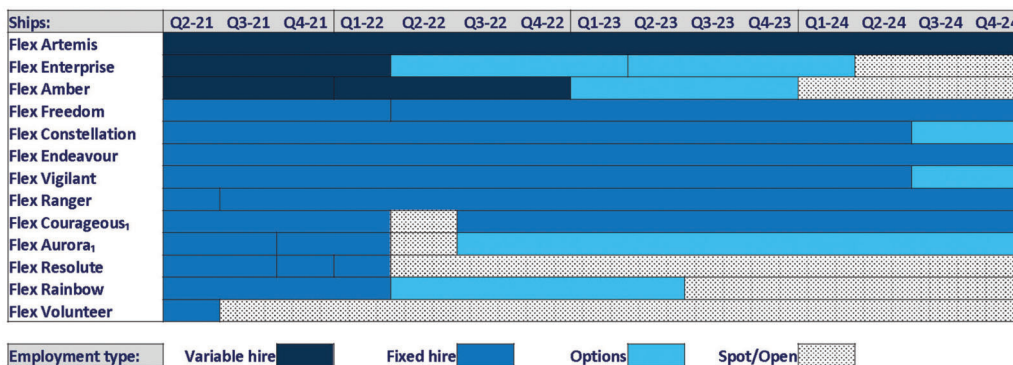
"In the second quarter, we took delivery of our last newbuilding 'Flex Vigilant' on 31st May, which commenced a minimum three-year charter following delivery. We thus have 13 state-of-the-art large LNG carriers on the water.

"As the market and outlook have significantly improved recently, due to strong LNG demand, we have acted on opportunities to add substantial length to our charter backlog with six new attractive long-term charters executed during the second quarter with an aggregate minimum duration of 20 years.

"As of today, we have booked 96% of the available days for the year but remain exposed to the general market through one ship trading spot and three ships on variable hire. As ships are rolling onto new contracts, we do expect revenues to grow steadily in the second half of the year.

"With a very healthy cash position, industry low cash break-even levels and high earnings visibility, we thus remain well positioned," he concluded. ■

Flex LNG has added significant backlog in Q2



Flex Resolute and Flex Aurora 3+3 and 6 months fixed hire options extended at substantial premium to firm period
 Flex Endeavour, Flex Vigilant and Flex Ranger on-hire with Cheniere with average minimum period of 3.4yrs
 Flex Amber variable hire TCP extended by one year until Q4-22

1) Under the Cheniere TCs, Flex LNG can nominate performing vessels for the TC and the actual vessels might differ from Flex Aurora and Flex Courageous depending on vessel availability and fleet portfolio management

Source: Flex LNG

Court rejects FERC's approval of two Texan LNG projects

The US Federal Energy Regulatory Commission (FERC) has been remanded by the US Court of Appeals for the DC on the November, 2019 approval of two LNG terminals and associated facilities in the Brownsville Channel, Texas.

In a 3rd August decision, the Court agreed with local organisations that FERC's analyses of the Rio Grande LNG and Texas LNG projects' climate change and environmental justice community impacts were deficient under the National Environmental Policy Act and the Administrative Procedures Act.

In addition, FERC had not adequately justified its finding that the projects are in the public interest under the Natural Gas Act.

FERC Chairman, Richard Glick, said the the court's decision reaffirmed the urgency behind his push for the Commission to adequately consider the effects of its decisions on climate change and the impacts of building these projects in environmental justice communities.

"As I said in my dissents when FERC approved these projects nearly two years ago, neither the Natural Gas Act nor the National Environmental Policy Act permit

FERC to assume away the impacts of building and operating any natural gas facilities," Glick said.

"This decision clearly demonstrates that the Commission has the authority and obligation to meaningfully analyse and consider the impacts from GHG emissions and impacts to Environmental Justice communities. Moreover, failure to do so puts the Commission's decisions - and the investments made in reliance on those decisions - in legal peril," he stressed.

Glick reiterated his commitment to revisiting these issues through FERC's natural gas pipeline Certificate Policy Statement that is currently pending before the Commission.

"I look forward to continuing to work on these issues with my colleagues with the hope that we can expeditiously update the Commission's Policy Statement applicable to the consideration of proposed gas infrastructure projects," he said. ■

Teekay's income falls due to drydockings

Teekay GP LLC, the general partner of Teekay LNG Partners LP, suffered a drop in income for the second quarter of this year.

Teekay LNG reported a GAAP net income of \$53.3 mill and GAAP net income per common unit of \$0.53 for 2Q21, compared with \$87.6 mill for 1Q21 and \$44.9 mill for 2Q20.

Adjusted net income was \$57 mill and adjusted net income per common unit was \$0.57. In addition, total adjusted EBITDA was \$183.5 mill, compared with \$184.3 mill for 1Q21 and \$192.3 mill in 2Q20.

The Partnership also reported that its LNG fleet was 98% fixed for the remainder of 2021, and 89% fixed for 2022.

Teekay explained that the net income reduction was primarily due to an increase in scheduled drydockings during 2Q21, and the timing of planned repairs and

maintenance activities. Income was also negatively impacted by changes in unrealised gains and losses on non-designated derivative instruments, compared to 1Q21.

"Teekay LNG reported another quarter of strong results today, with second quarter of 2021 adjusted net income of \$0.57 per common unit and over \$183.5 mill of total adjusted EBITDA," said Mark Kremin, Teekay Gas Group Ltd's President and CEO. "As expected, our results in the second quarter reflect a heavier than normal drydock schedule.

"Looking ahead, our third quarter 2021 results are also expected to be impacted by a heavy drydock schedule; however, for the fourth quarter of 2021, we are ex-

pecting a bounce back as a result of a substantially reduced number of drydock days across the fleet.

"The spot and term charter market for LNG carriers has been counter-seasonally strong over the past six months, and LNG supply and demand fundamentals are pointing to continued strength through the rest of 2021 and into 2022. This should benefit the 'Creole Spirit', which is on a market-linked contract until mid-February 2022.

"We believe this market strength could also be a tailwind for Teekay LNG next year, as we have a few LNG carriers expected to roll-off of their current contracts during the first half of next year. We do, however, continue to have nearly all of our 2021 and

the vast majority of our 2022 revenue days already secured on fixed-rate charters and generating consistent cash flow," he concluded. ■



Teekay's Mark Kremin has announced long term charters

MISC enjoys revenue rise - bullish on LNG

LNGC owner and operator, MISC reported that second quarter 2021 and first six months Group revenue was higher than the corresponding quarter of 2020.

Group revenue for 2Q21 of RM2,353.8 mill was 7.7% higher than the corresponding 2020 quarter's revenue of RM2,186.3 mill, aided by higher revenue from the Offshore Business and the Marine Heavy Engineering segments.

However, the LNG Asset Solutions segment recorded a lower operating profit, mainly due to higher vessel operating costs and an impairment charge on receivables in the quarter.

MISC also reported a higher profit before tax of RM534.7 mill, compared to RM186 mill in 2Q20 from a higher operating profit and lower impairment loss mainly in the Marine & Heavy Engineering segment.

Group revenue for 1H21 of RM4,894.7 mill was 4.1% higher than the corresponding six months of 2020's revenue of RM4,700.1 mill. Operating profit for the six

month period was RM1,090.8 mill, some 20.3% lower than the corresponding period last year of RM1,368 mill. The LNG Asset Solutions segment also recorded a lower operating profit.

MISC reported a profit before tax of RM940.4 mill compared to a loss before tax of RM959.4 mill in 1H20.

In the LNG shipping market, spot charter rates rebounded in April and May, 2021, an earlier than the usual seasonal pick-up ahead of winter, compared to previous years. LNG shipping rates are expected to remain firm in the short term, sustained by robust vessel demand for LNG imports into Asia, Europe, and South America.

Long term charters

As most of the Group's LNGCs are on long-term charters, including the six VLECs, the LNG Asset Solu-

tions segment's revenue is expected to remain steady. In the meantime, the segment will pursue growth opportunities selectively in the market, MISC said.

Yee Yang Chien, MISC's President and Group CEO, said, "We steered firmly into the second quarter with a consistent strategy and paced ourselves well for a steady performance.

"In the second quarter, we completed the delivery of the remaining Very Large Ethane Carrier (VLEC) - 'Seri Elbert', which now makes us the single owner of six largest VLECs of its kind in the world. The current year also saw recognition of revenue from the conversion of an FPSO.

"These reflect our deliberate strategy in positioning ourselves to capitalise on market opportunities across operating environments. Our strong core earnings and

trends reflect a structurally enhanced business model that is well-positioned to deliver sustainable returns for our shareholders.

"As vaccination rates rise and mobility restrictions ease in certain parts of the world, we are cautiously optimistic that the global oil demand will continue to rebound in tandem with the economy, but with differing recoveries amidst high uncertainty, due to the ongoing global health crisis and other geopolitical factors.

"We will remain focused on maintaining our growth momentum across our businesses. With the emergence of new variants rapidly increasing COVID-19 cases across the globe, we will not budge from our continued commitment to keep health and safety as our top priority for our global workforce at sea and shore," he concluded. ■

Cheniere increases 2021 EBITDA guidance

Cheniere Energy has reported consolidated adjusted EBITDA of about \$1 bill and \$2.5 bill for the second quarter and first six months of this year, respectively.

Distributable cash flow was about \$340 mill and \$1.09 bill for the periods, an increase of around 30%, compared with the first half of 2020.

However, the company reported a net loss of \$329 mill and net income of \$64 mill for 2Q21 and 1H21.

Cheniere also increased its full year 2021 consolidated adjusted EBITDA guidance to \$4.6 - \$4.9 bill and full year 2021 distributable cash flow guidance to \$1.8 - \$2.1 bill, due mainly to improved LNG market margins and an increase in forecast production.

In July, Corpus Christi Liquefaction Stage III signed an integrated production marketing (IPM) agreement with Tourmaline Oil Marketing Corp by which CCL Stage III

will purchase 140,000 MMBtu per day of natural gas from Tourmaline, at a price based on the Platts JKM, for around 15 years beginning in early 2023.

Year to date, Cheniere revealed that it had entered into fixed-fee LNG sales agreements with multiple counterparties for around 12 mill tonnes of LNG to be delivered between 2021 and 2032.

Jack Fusco, Cheniere's President and CEO, commented; "Our strong second quarter results are the product of our relentless focus on operational excellence and continued strength in the global LNG market.

"Our outlook for the balance of the year has improved yet again, with sustained higher

LNG prices and an improved production forecast from our LNG facilities enabling us to increase our full year 2021 financial guidance for the third consecutive quarter.

"We executed our third IPM transaction in support of Corpus Christi Stage 3, this time with Tourmaline, the largest natural gas producer in Canada. This transaction further reinforces our track record of creating collaborative, innovative solutions to meet our customers' needs and support Cheniere's growth.

"We remain focused on leveraging our market-leading LNG platform to continue to commercialise new LNG capacity, supported by robust LNG market fundamentals," he concluded. ■



Cheniere's head Jack Fusco

NEWS NUDGE

Brazil's first Q-Flex ship-to-ship transfer

Brazilian agency Wilson Sons' tug operating subsidiary has participated in the first ship-to-ship Brazilian LNG offshore transfer operation involving a Q-Flex.

According to local media, this operation took place at Celse's terminal, in Barra dos Coqueiros (SE), which supplies the Porto de Sergipe Thermo-electric Power Plant (UTE).

The UTE terminal was opened in July by the National Electric System Operator (ONS), and Celse is planning two more operations through next month with Q-Flexes.

Four Wilson tugs were reportedly used to manoeuvre the unnamed LNGC.

China to build Kamchatka facility

Norwegian media has reported that China Communications Construction Company (CCCC) has won the contract to build Novatek's Kamchatka LNG transhipment terminal.

The transhipment hub is intended to handle LNG loaded in the Arctic for discharge in Asia.

It had earlier been reported that Japanese companies had expressed interest in participating in the Kamchatka transhipment terminal.

It will be used to tranship Yamal LNG from Arc7 type LNG carriers to conventional LNGCs for onward transits to Asian destinations. ■

Golar's results buoyed by asset sales

Golar LNG has enjoyed its best quarterly net income amounting to \$471.4 mill during the second quarter of this year.

The total was boosted by a gain on the disposal of Hygo Energy Transition and Golar LNG Partners to New Fortress Energy (NFE) during the period.

This disposal gain proves that Golar is building shareholder value in its asset portfolio significantly in excess of book values. The company will seek to continue to simplify its group structure to crystallise value, it said.

In addition, on 20th July, 2021, Golar signed an agreement to increase the capacity utilisation for the FLNG 'Hilli Episeyo'.

Based on TTF1 forward prices at the time of the announcement and assuming Perenco exercises its option for a rise of 0.4 mill tonne per year from 2023/2026, the increase in capacity utilisation will add around \$113 mill of incremental earnings backlog for 'Hilli' on TTF1 forward curves, or \$373 mill if the 6th August, 2021 spot TTF1 price is assumed to prevail over

the same timeframe.

The oil price increase has also increased Golar's earnings from 'Hilli' through the Brent oil related tariff. 'Hilli' generates an increased \$3 mill of Adjusted EBITDA for every US dollar the Brent oil price is above \$60 per barrel, of which Golar has an 89.1% economic interest.

FLNG team expands

As for its FLNG technology, Golar has increased its upstream team and is currently exploring several fields already producing associated gas, as well as stranded gas opportunities.

On the tolling side of the FLNG business, Golar said that it continued to work with existing and prospective clients on attractive growth projects. These are significant infrastructure investments for clients that require, amongst other prerequisites, regulatory approvals and supporting infrastruc-

ture, which are often the key drivers of a project timeline, rather than the construction of the unit.

Golar revealed that specific commercial and technical discussions have taken place with an existing client for use of a 5 mill tonne Golar Mark III newbuilding design.

The shipping business also benefited from higher gas prices and regional price differences. Longer-term employment opportunities at attractive rates are now available. For example, Golar recently fixed one of its vessels for five years.

Golar said that it expected a material improvement in cash generation over the next two years, based on the strong trend seen in the LNG shipping market, 'Hilli's' increased utilisation, the higher oil and gas price environment and the commencement of an FLNG 'Gimi' contract in 2023. ■

LNG Solutions for the Marine Industry



Chart's maritime LNG solutions reduce operating costs while dramatically improving emissions for compliance with today's stringent requirements in the marine industry.

Cryogenic Solutions for:

- LNG ship fueling systems
- FLNG
- FSRUs
- Bunkering vessels
- Bunkering stations
- Port power applications

www.ChartLNG.com
LNG@ChartIndustries.com



Innovation. Experience. Performance.®

Nakilat upgrades vessel software

Nakilat has teamed up with class society DNV and others on a joint development project (JDP) to enhance vessel software reliability and maintenance.

The JDP, which was initiated in 2020 by the Qataris, has resulted in the launch of a new DNV Recommended Practice (DNV-RP-0582), published in June, 2021.

Today, critical vessel functions rely heavily on computerised software-based systems that are becoming more complex, automated and integrated, Nakilat said.

Software failures or reliability issues can now result in significant safety risks, as well as lost revenue, due to off-hire days.

To help address these risks, DNV and Nakilat brought together shipyards and system suppliers - ABB, Honeywell, Kongsberg and Wärtsilä, plus Hudong-Zhonghua, to contribute to the development of the RP.

Nakilat CEO, Eng Abdullah Al-Sulaiti, said: "With one of the largest LNG shipping fleets in the world, we are intimately aware of the importance of Information

Technology (IT) integrity in ensuring safe, sustainable and reliable vessel operations.

"With the experience gained from completing our own fleet-wide digitalisation exercise, we are pleased to be partnering with key players in the industry to share our insights and contribute towards the improvement of vessel IT and computerisation reliability and quality.

"The newly published RP will act as a key enabler for the safe implementation of new digital technologies on board, helping other vessel managers and owners to mitigate the risks of digitalisation while improving the safety of the crew, environment, vessel and cargo," he said.

"Our recent white paper highlighted an emerging safety gap in shipping rooted in the rapid digitalisation of the industry and the increasingly complex on board sys-

tems of modern vessels," said Knut Ørbeck-Nilssen, DNV Maritime CEO. "Addressing these emerging risks is essential to our mission as a classification society, but it requires a collective effort. This is why we are very pleased that there is such a strong industry participation in this project, as it further underlines the growing

importance of this topic.

"The RP is designed to help owners and operators deal with software in the same way they would machinery or other physical systems on board and with the RP now available, we hope to see this implemented soon in both new-buildings and the existing fleet," he said.



Nakilat has upgraded its shipboard software

NEWS NUDGE

Ship deliveries, charters and recyclings

Recent LNGC deliveries include Capital Gas Ship Management Corp's 174,000 cu m newbuilding LNGC 'Attalos'.

Built by Hyundai Heavy Industries, the vessel is propelled by X-DF engines and equipped with an air lubrication system and increased filling limits (excess 99%).

She is the fourth of nine vessels to be delivered between 2020/2023 and has been chartered to BP for up to 13 years.

Maran Gas, part of the Angelicoussis Group, has taken delivery of the 174,000 cu m LNGC 'Isabella'.

She is Maran Gas' first to be fitted with WinGD's X-DF propulsion.

In addition, Samsung Heavy Industries has delivered the

fourth LNGC to Celsius Shipping, according to the Danish company's website.

The 180,000 cu m 'Celsius Carolina' will be operated by Cheniere under a long term charter.

All four are fitted WinGD XD-F propulsion and GTT's Mark III Flex containment system with a reliquefaction capability, plus an air lubrication system and have an increased filling ratio.

In the small-scale sector, Gazprom Neft has completed the construction of Russia's first LNG bunkering vessel.

The final stage of building the 5,800 cu m 'Dmitry Mendeleev' involved the testing of gas and cryogenic equipment, loading systems, LNG storage and off-loading pumps and compressors.

She will shortly begin her maiden voyage towards her base in the Baltic Sea. She will pro-

vide ship-to-ship LNG transportation and refuelling at ports throughout the Gulf of Finland and the Baltic Sea - including St Petersburg, Ust-Luga, Primorsk, Kaliningrad and Vyborg.

Brokers reported that Golar had chartered the 160,000 cu m, 2014-built 'Golar Frost' for five years to CNOOC for \$65,000 per day (see page 2).

Finally, the MOSS type steam powered, 1983-built 125,929 cu m 'Baltic Energy' has been sold to Bangladesh recyclers for \$750 per ldt.

She has 3,500 tonnes of aluminium on board, brokers said and was built as the 'Bishu Maru'.

NOVATEK moves into Vietnam

PAO NOVATEK has established a representative office in Hanoi, Vietnam.

The new office will facilitate NOVATEK's expansion into the global gas markets and provide continuous support for the company's prospective energy projects in Vietnam, it said.

Its main tasks will be to interact with partners, state-owned and private companies in Vietnam to define and develop new projects to supply LNG from NOVATEK's portfolio to the local market.

"Vietnam offers NOVATEK the prospects of developing gas-related energy projects in the dynamically growing Asian Pacific region," said Leonid V Mikhelson, Chairman of the Management Board, "and, is of strategic importance for us in implementing our long-term aim of delivering affordable and secure natural gas for many decades in a sustainable manner."

EEXI to cause LNGC operators problems

The entry into force of the IMO's Energy Efficiency Existing Ship Index (EEXI), due on 1st January, 2023, will cause problems for LNGC owners and operators.

When considering LNGCs in relation to the EEXI, two areas are immediately exposed as not taking into account the uniqueness of the vessels and their operations, Carla Audroing, Marine Auditor, Verifavia Shipping explained to LNG News.

First is in respect to the EEXI calculation, which does not fully account for the differing propulsion systems. EEXI is essentially the Energy Efficiency Design Index (EEDI) calculation but for existing ships. The EEDI initially separated LNGCs from gas carriers and this was extended to the EEXI calculation. However, the steam turbine propulsion system uses quite a lot of boil off gas (ie cargo), which can result in a biased calculation result.

The conundrum is this: transportation of LNG is at -165 deg C, which causes LNG to turn into natural gas (NG), which then causes increased pressure in the tank. Some pressure is good as it keeps

tension on the surface of the liquid preventing further boil off, but too much pressure is not good, she said.

To relieve the pressure in the tanks, this boil off gas is used as fuel for the engine and, in the case of steam turbines, is burned to heat the boilers to avoid direct release into the atmosphere.

CO2 excess

Steam turbines produce an excess of CO2 when compared to other propulsion systems but, in the scope of LNG operations, it is actually a solution to an issue that arises from transport of the cargo.

Now, modern ships are mostly equipped with reliquification plants, which in itself requires a large amount of energy. But overall, the EEXI calculation allows for the power from the excess boil off gas to be subtracted, if approved by the verifier.

Propulsion systems that use

dual fuels or even multiple fuels can be dealt with in the calculation but the key is to consider them separately.

The second area was the baseline and reference line for LNGCs. What was seen from EEDI calculations is that smaller vessels fall below the baseline but that larger vessels fall above. Another issue, for example, is dual fuel diesel electric (DFDE) propulsion vessels showed to be below the baseline when burning boil off gas and significantly above the baseline when burning fuel oil.

"This really highlights the uniqueness of the EEXI and EEDI issue with LNGCs - applying this calculation creates scattered results and treats the vessels unfairly. It seems that the IMO is trying to compensate for this by including the phrase 'with the approval of the verifier' in the MEPC 76 draft regulations, allowing some leeway," she added.

It is also important to recognise that the use of the recommendation of engine power limitation (EPL) may have the adverse effect on steam turbines, making them less efficient and more pollutant. The global LNG fleet is a little over 600 vessels and about 4% of deadweight tonnage of the global fleet - and growing.

Looking at the entire GHG reduction strategy and the overall purpose of EEXI in that context, it's not an unreasonable regulation.

"The first vessel I sailed on as a cadet was a grand old Moss type LNGC and I have a special affection for them. But like this vessel, now retired off the coast of Brazil, the same fate will most likely occur for the older vessels and especially the steam turbines, either retired to storage tankers or reliquification plants, as retrofitting these vessels for compliance may not be practical. This is a transition, after all," Audroing concluded. ■

Regas system for FSRUs passes test

Mitsui OSK Lines (MOL) and Daewoo Shipbuilding & Marine Engineering (DSME) have carried out a demonstration test of an FSRU cryo-powered regas (CPR) system.

This test was carried out at DSME's Okpo shipyard.

FSRUs regasify -160 deg C LNG through heat exchange.

Previously, LNG's cold energy had not been utilised in FSRUs and was released. By installing a CPR system, cold energy will be transferred to another heating medium, and the generated steam will be sent to a turbine to generate electricity. As a result, the FSRU's fuel consumption

and CO2 emissions will be reduced.

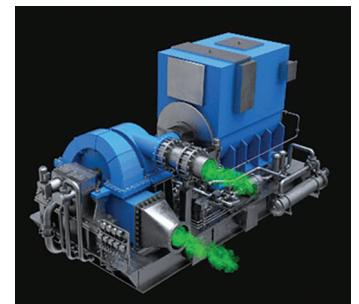
A small-scale version of the system was assembled in DSME's R&D premises. The turbine generator used in this system was designed and constructed by Mitsubishi Heavy Industries Marine Machinery & Equipment specifically for the system.

Through this test, MOL and DSME verified that the system could successfully generate elec-

tricity up to its rated capacity.

The results confirmed that through the use of a CPR, fuel consumption and CO2 emissions of new generation FSRUs can be reduced by 50% at maximum rated regas flow rate, compared to conventional existing FSRUs.

The CPR is now ready for implementation in FSRU projects and MOL said that it was already in discussions with multiple potential users. ■



3D Image of the Turbine Generator

Monthly Large LNGC Values*

Newbuildings (174,000 cu m)	\$186.54 mill
Five years old (160,000 cu m)	\$142.86 mill
Total Fleet (523 ships)	\$58.17 bill
Orderbook (134 ships)	\$26.13 bill

Source: VesselsValue (20/07/21)

*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	\$67,000	+\$10,000
West of Suez	\$72,000	+\$7,000
12 mos T/C	\$93,000	-

*Since last report (05/08/21)

Source: Fearnleys (18/08/21)

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	Bilbao	Yes	Itsas Gas
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya

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

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

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

** = project shelved † = Data to be verified Data last updated = 28th April 2021

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Green Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	LNG London	3,000	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2018	Bunker Breeze	1,200	LNG	Barcelona	Yes	Suardiaz Energy Shipping
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2019	SM Jeju LNG1	7,500	LNG	Korea	Yes	Korea Line
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	Avenir Advantage	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Accolade	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Aspiration	7,500	LNG		Yes	Avenir LNG
2020	Kaguya	3,500	LNG	Japan	Yes	CLS
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Ecobunker Tokyo Bay	2,500	LMG	Japan	Yes	Ecobunkers
2020	Optimus	6,000	LNG	NWE	Yes	Elenger
2020	ENN TBN	8,500	LNG	China	Yes	ENN
2020	FueLNG Bellina	7,500	LNG	Singapore	Yes	FueLNG
2020	SM Jeju LNG2	7,500	LNG	Korea	Yes	Korea Line
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2021	Avenir Ascension	7,500	LNG		Yes	Avenir LNG
2021	Avenir Allegiance	20,000	LNG	Worldwide	Yes	Avenir LNG
2021	Bergen LNG	850	LNG	Norway	Yes	Bergen Tankers
2021	Dmitry Mendeleev	5,800	LNG	Russia	Yes	Gazprom Neft
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	Ravenna Knutsen	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	PE TBN	12,000	LNG	Singapore	Yes	MOL
2021	TBN	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2022	Veder TBN	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Kuntsen TBN	5,000	LNG	Spain	Yes	Knutsen OAS
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
2023	Cryopeak TBA	4,000	LNG	West Canada	Yes	Cryopeak
2023	Kuntsen TBN	12,500	LNG	Spain	Yes	Knutsen OAS
2023	SM Jeju LNG3	7,500	LNG	Korea	Yes	Korea Line
2023	Pan Ocean TBN	18,000	LNG	USG	Yes	Pan Ocean Co
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG

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

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

** = project shelved † = Data to be verified Data last updated = 28th April 2021

WORLD LNG CARRIER ORDERBOOK

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

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit
Data last updated = 23rd June 2021

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

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

DFDE = dual fuel diesel engines, STRH = steam turbine reheat / ultra steam turbine, MEGI = marine electric gas injection, DRL = slow speed diesel, FSRU = vessel with regas capacity, FLNG = floating LNG production unit
Data last updated = Data last updated = 23rd June 2021



LNG Journal Subscription Package



LNG Journal is a ten-in-one subscription product with end-to-end insight into liquefied natural gas.

The LNG Journal platform includes:

LNG JOURNAL	Monthly Online + optional print magazine
LNG UNLIMITED	Online every Tuesday
GAS TO POWER JOURNAL	Online every Friday
LNG MARKET TRACKER	Online every Wednesday
LNG SHIPPING NEWS	Online every second Thursday
LNG MONTHLY MARKETS	Online Monthly
LNG CHINA	Online every second month
LNG NORTH AMERICA	Online every second month
LNG FUELLING	Online every quarter
DAILY UPDATES and Newsletters	

Subscription Contacts

For new subscriptions or general subscription queries please contact:
Stephan Venter
+44 207 017 3407
venter@lngjournal.com

To renew an existing subscription or to upgrade your package, please contact:
Gabi Weck
gabi@lngjournal.com

Sign up now for an Online Subscription from only
US\$1095; €835 or £755
Discount options are available for multi-users
Contact us for more information or to arrange a free trial