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LNG journal
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July/August 2023

In this issue:

Canadian LNG prospects navigate an evolving Pacific market

Canadian LNG proposals have been plentiful but few projects remain on the Pacific coast in 2023. They find a changing Pacific market with new major buyers emerging and Australia being accused of 'quiet quitting', our Markets Editor Alexander Wilk reports.

In 2019, LNG Canada's CEO Andy Calitz acknowledged that his project operates in 'a complex world'. Following the global demand slump during the height of the pandemic in 2020 and a very tight market during the summer of 2022 as Europe scrambled to replace Russian pipeline gas, there are now signs of important changes to the Pacific LNG market. Not only are countries like China and Thailand quickly increasing their gas consumption, but concerns have also been raised over Australia's long-term commitment and ability to bridge the gap between environment ambitions and sufficient gas production to maintain current LNG supply levels.

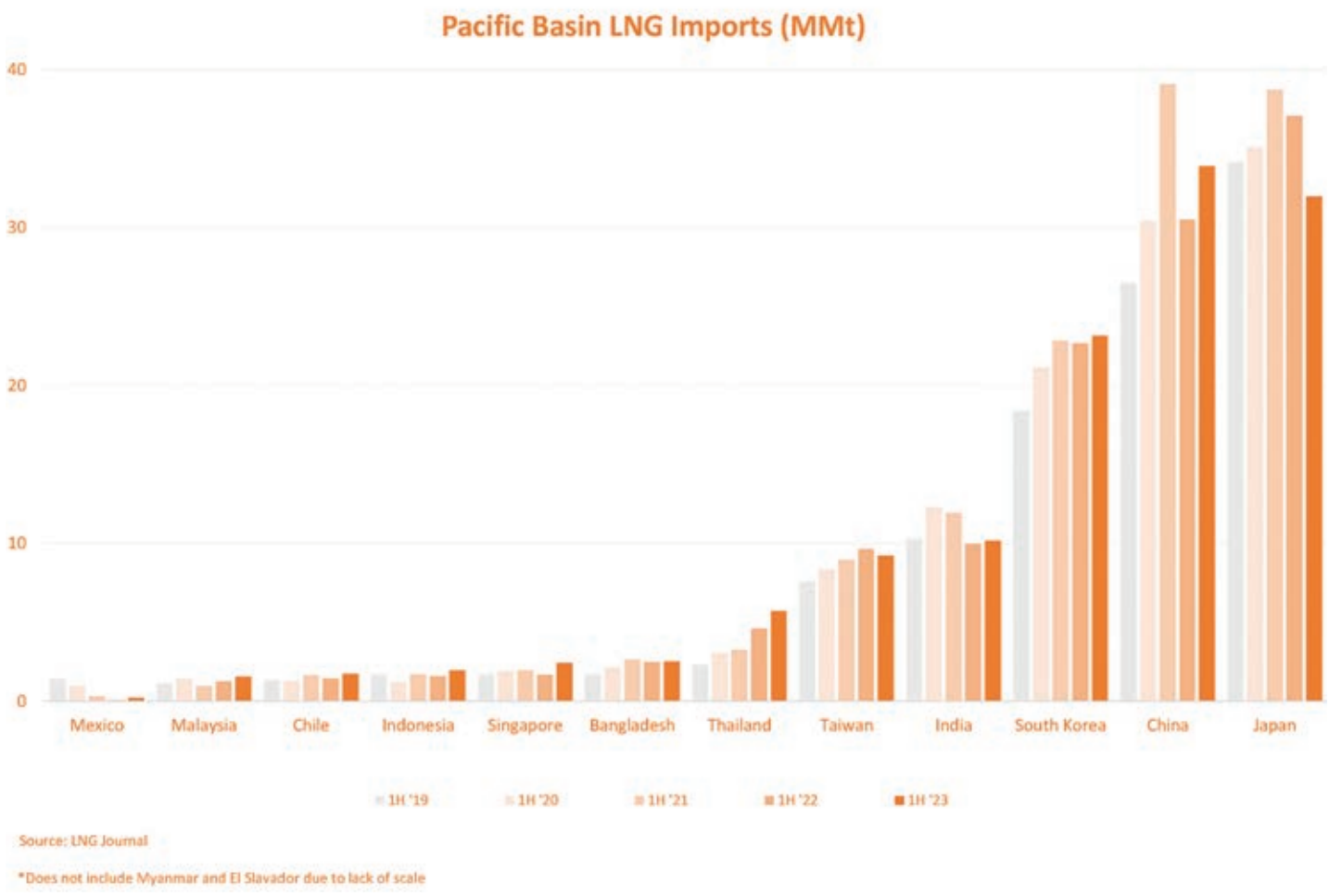
Notably, Japan, which is still the world's historic top LNG importer by volume, is likely to lose that spot to China in the near future. The country's energy portfolio is likely to change over the next decade as it seeks to cut greenhouse gas emissions. A government report released in July 2021 shows Japan aims to produce 20 percent of its power from natural gas in 2030, down from 37 percent in 2019. This is also a significant decrease from its previous 2030 target of 27 percent. Concurrently, the country wants to increase the share of renewables in its energy portfolio from 18 percent in 2019 to around 37 percent in 2030 at the expense of coal.

Japanese demand wobbles

Although Japan has so far retained top spot as the largest importer by cumulative LNG imports since 2019, its offtakes have been decreasing since last year. This was not only the case in Japan – other Asian importers such as China also cut back due to high LNG spot prices averaging US$34/MMBtu in 2022, which were more than double than the average in 2021. However, Japan is the only buyer in the Pacific set to see another drastic cut-back in LNG imports in the first half of this year. According to our data and market visibility at the time of writing, Japanese LNG demand in 1H 2023 is likely to see a reduction by 4.87mmt whilst most other offtakers in Asia are not only bouncing back, but in the case of China, Thailand and South Korea boosting their offtakes beyond 2021 levels.

Pacific still in growth mode

At the same time, South Korean offtakes have remained broadly steady whilst China has returned to demand growth



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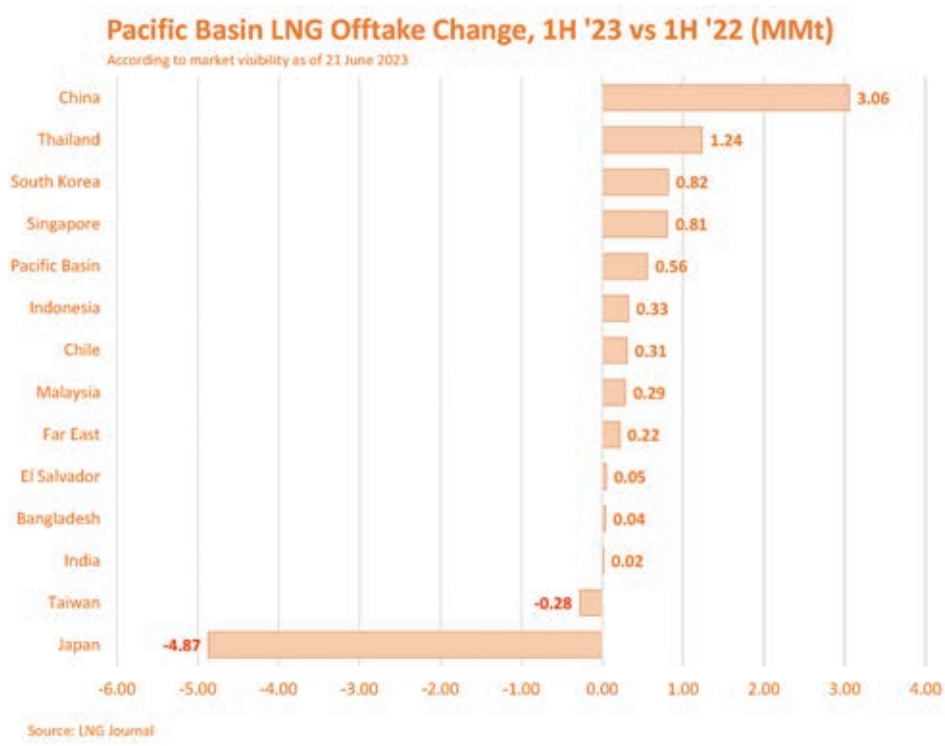


with a goal in Zhejiang Province, for example, to increase the domestic use of gas in urban areas to 60 percent of the total energy mix. Zhejiang's provincial government is planning to have seven LNG import nodes by 2025 – including the already built Wenzhou LNG, Zhejiang LNG, Zhoushan LNG and the small-scale Zhejiang Hangjiaxin LNG terminals. Three more LNG projects are currently at various development stages in Zhejiang, according to the Chongqing Petroleum and Gas Exchange.

Overall, LNG demand in the Pacific has returned to growth after a dip in 2022. Demand in 1H 2023 for the whole Pacific Basin is likely to be up by 2.48mmt (2 percent) from 121.45mmt in 1H 2022 to 123.93mmt in 1H 2023.

Late entry

Over the past decade, a plethora of LNG projects have been proposed for Canada's Pacific coast, all targeting Asian markets, to diversify its gas export economy. However, Canada still has no operational LNG export plant whilst its only significant foreign customer for natural gas — the United States — has developed its own gas resources and ascended as a major LNG exporter.

The majority of the original LNG proposals have since been withdrawn, either due to LNG price concerns in 2017, lack of financing or logistical and feedgas issues. What originally ballooned to a massive project book of more than 250mtpa of proposed capacity by around 2030 has since been reduced drastically to just one project currently under construction and one other – Woodfibre LNG – reported by the developer to be on track to meet its announced in-service date.

Notably, only LNG Canada has provided direct updates on its construction progress. At the time of writing, it seemed that construction of substantive LNG infrastructure had not yet begun at Woodfibre. A British Columbia Environmental Assessment Office letter asserting work had started without a permit only referred to a 'passenger dock and associated infrastructure'.

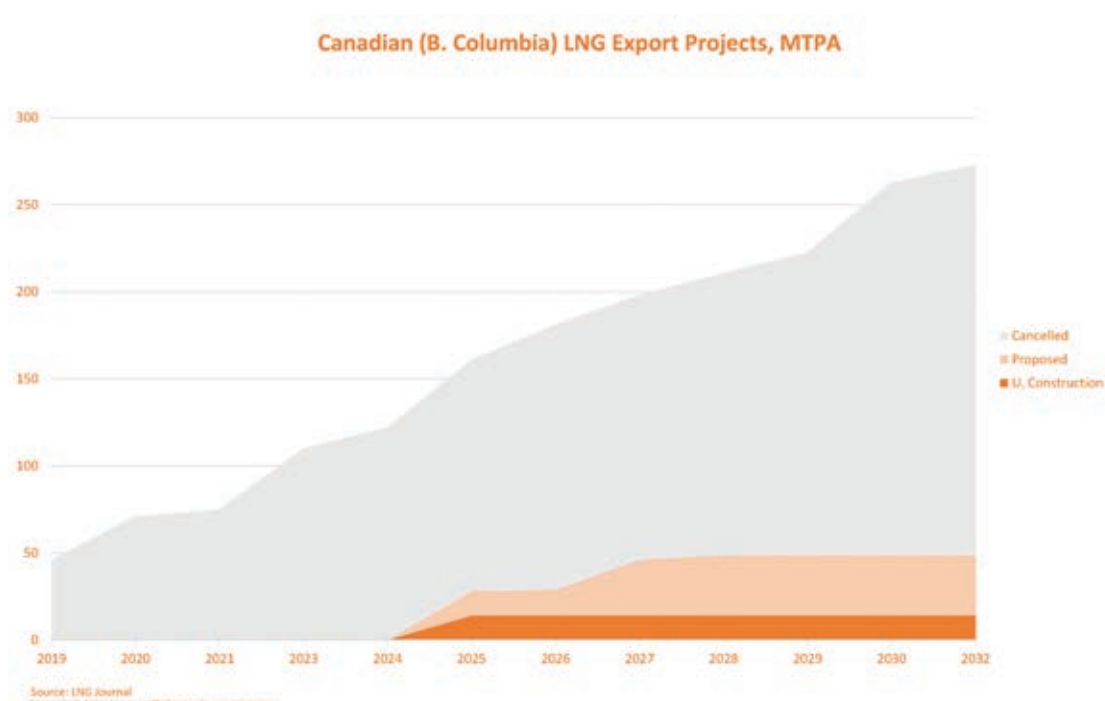
Ongoing Pacific demand growth should thus be positive news for the prospects of Canada's remaining Pacific coast LNG projects. Although a not insignificant share of capacity at Canada LNG has been contracted to Japanese buyers such as the JERA cooperative, the bulk of capacity of Canada LNG and Woodfibre LNG – Canada's two Pacific coast projects currently under construction – appears to be earmarked for the respective supply portfolios of Shell, Petronas, PetroChina and BP. With a thinned out field of Canadian competitors, the remaining projects should therefore find it easier to lock in buyers.

LNG Canada

The Shell-led LNG Canada project already had a substantial development history before its FID in 2018. It was first conceived in 2011 and obtained a 25-year LNG export license from the National Energy Board (NEB) of the Government of Canada in 2013 and a 40-year license in 2016. However, construction did not commence until 2018 as Shell was mulling its options as Australia continued to ramp up exports and capture Asian market share. Concurrently, issues such as steel tariffs and environmental questions in Canada added to the delay.

The LNG Canada Joint Venture – comprising Shell, Petronas, PetroChina, Mitsubishi and KOGAS – geared the project towards LNG exports to Asian markets and is now planned to put Canada on the map as an LNG exporter by 2024/25. Initially, it will have an annual capacity of 14 million tonnes per annum (mtpa) via two 7mtpa trains and two storage tanks of 225,000m3 each. A potential second phase would double capacity to 28mtpa.

The first phase of the project includes the US$6.2-billion, 670-kilometre (420 mile) Coastal GasLink Pipeline through northern British Columbia, which is built and will be operated by



TC Energy (formerly TransCanada Corporation). The pipeline will have initial capacity of about 2.1 billion cubic feet per day (Bcf/day), with the potential for expansion of up to 5 Bcf/day, and supply gas from the Montney basin in British Columbia, one of the biggest natural gas reserves Western Canada. According to TC Energy, as of June 2023, construction work of the pipeline and its associated infrastructure was in its final stages with an in-service date in 2023. The pipeline project is backed by 25-year transportation service agreements between TC Energy and the LNG Canada JV.

LNG Canada currently has firm supply deals amounting to 3.6mtpa with Japanese buyers JERA, Tokyo Gas and Toho Gas, South Korea's KOGAS as well as portfolio player Vitol. Presumably, the remaining 11.4mtpa will be folded into the respective portfolios of the JV partners.

The Woodfibre LNG project, meanwhile, is underpinned by two supply deals with BP Gas Marketing amounting to roughly 1.47mtpa, which represents 70 percent of the plant's planned annual capacity, for 15 years.

Australia

The build-up to first Canadian LNG exports by around 2025 comes amid a backdrop of concern over Australia's long-term commitment and ability to maintain LNG exports whilst also covering growing domestic demand and meeting ambitious climate goals. In a speech at a private function of Australian parliamentarians on 30 March this year, Takayuki Ueda – President and CEO of INPEX – did not mince words and warned of a 'deteriorating' hydrocarbon investment climate in Australia. In particular, he highlighted a policy direction aimed at tackling an ongoing domestic gas price surge in eastern Australia by potentially restricting LNG exports to increase available gas to Australian east coast consumers via the 2017 Australian Domestic Gas Security Mechanism (ADGSM).

Security mechanism

According to the latest guidelines published by the Australian Department of Industry, Science and Resources in March this year, the ADGSM is a 'measure of last resort', only to be used 'if market-based solutions and other regulatory interventions fail to provide sufficient gas to Australian consumers'. It grants the Minister responsible an executive and discretionary power to prohibit LNG exports to alleviate a domestic gas shortfall. Crucially, the ADGSM can be invoked based on forecasts.

Whilst Ueda acknowledged there was yet insufficient detail on how exactly this policy option would be implemented and that his company was not directly affected, he said it was a 'cause for concern' at INPEX, equating the ADGSM to Australia 'quiet[ly] quitting' the LNG market.

The federal government has responded by assuring international buyers of Australian LNG that that the country will continue to be a reliable LNG supplier. However, this assurance comes with a backdrop of falling hydrocarbon investments – as alluded to by Ueda – whilst several important legacy gas fields are reaching the end of their lives. Concurrently, increasing natural gas production may lead to higher greenhouse gas emissions without significant investments in carbon capture and storage (CCS), but which the Australian government remains 'hesitant to "lean in" on', according to Ueda. In his speech, he alluded to ideological reasons for that hesitancy that eschew the more pragmatic scaled production of 'blue hydrogen' (i.e., the production of low-carbon hydrogen from methane) in favour of solely investing in 'green hydrogen' (i.e., hydrogen produced from water using only renewable energy).

Underscoring the degree of seriousness with which major LNG consumers view this complex of issues, Australian newspaper The Australian Financial Review reported on 'an exceptional example of North Asian solidarity' as China's embassy in Canberra echoed Ueda's concerns about Australia's 'quiet quitting' by stating that 'it's a major issue involving concerns of both [China and Japan]'. The Chinese embassy's statement continued to say that China will consider this case 'with serious attitude', The Australian Financial Review reported. This is not surprising as China accounted for more than half of east coast LNG purchases in 2022.

The Australian government swiftly sought to dispel concerns over a potential supply shortfall to its key Asian LNG buyers, pointing out that the ADGSM also includes a weighing of its impact on international relations.

Whilst the Australian government did not invoke the ADGSM before an April deadline for any measure to become effective come September, that restraint is contingent on a higher-than-expected supply forecast by the Australian Competition and Consumer Commission (ACCC) and LNG producers actually being able to close a domestic supply gap that would have otherwise triggered the Mechanism.

Potential supply gap

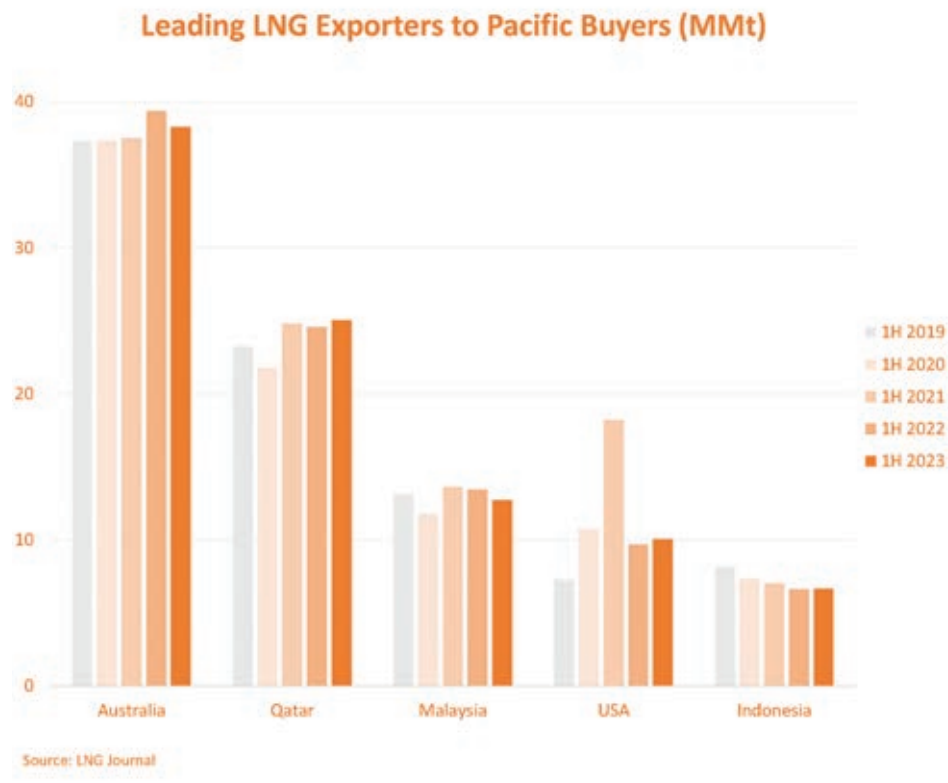
Notably, the ACCC still sees risk of a potential shortfall next year, which would potentially table the question of invoking the Mechanism once again. The Agency warned that 'some caution is recommended in relation to [our] revised forecasts. A risk remains that lower-than-expected gas supply, including from the Northern Territory or the Gippsland basin, or higher than expected domestic demand, such as for gas-powered generation could lead to lower available gas supply'.

Importantly, Australia's conventional gas production has decreased in 2020-21, according to Geoscience Australia (GA). Whilst GA asserts this was due to the COVID-19 pandemic, a government dataset for 2022 was not yet available at the time of writing. However, our data at the time of writing indicated whilst Australian LNG exports rebounded in 2022, they are set decreased noticeably by 1.10mmt in 1H 2023 compared to 1H 2022 even as Pacific demand is growing.

Accordingly, the Australian gas industry remains concerned. Samantha McCulloch, chief executive of the oil and gas industry lobby group APPEA, said 'the updated guidelines will do little to allay the energy security concerns raised by our regional energy partners'. Similarly, in its interim report of January 2023, the ACCC anticipated that 'production [will be] insufficient to meet forecast demand in the east coast from 2027', a greater shift towards electrification in Australia notwithstanding.

Concluding thoughts

What transpires, then, is not a lack of demand for Pacific LNG but an apparent reluctance by the Australian government to stimulate the development of remaining gas resources to supply sufficient feedgas supply growth to overcome fields' natural decline and supply increasing demand both at home and abroad. It remains to be seen to what extent Australian government policy will counteract that development. For Canada, however, the apparent hesitancy by one of its main Pacific competitors does not mean plain sailing. Qatar and developers in the United States are looking to expand their respective capacities by almost 100mtpa by 2027. Whilst exporters in British Columbia may have an advantage in terms of proximity to Asian markets and feedgas supply not (yet) impinged by domestic demand, much will still depend on LNG demand growth in Europe. Lower LNG demand there would likely result in excess US volumes being pushed into Asia. Accordingly, the time window for Canadian LNG projects without a construction date firmly in sight and supply contracts concluded may already be closing fast. ■



LNG-to-power demand in Northeast Asia shows little sensitivity to price

Though tender activity is picking up across Northeast Asia, the power generation sector shows little responsiveness to lower spot LNG prices. Analysts see demand largely being driven by South Asia, while rising nuclear generation limits coal-to-gas switching in Japan and South Korea where power sector LNG demand is forecast to fall by 1.1 million tons and 0.6 Mt, respectively. Our Markets Editor Anja Karl has more.

Vortexa shipping data indicates that Japan's LNG imports plunged to more than a decade-low of around 4 Mt in May, coinciding with a 4.9 Gigawatt year-on-year rise in nuclear availability and a 3.1 GW reduction in the country's overall electricity demand. Energy Aspects analysts hence forecast LNG demand from Japanese power generators to fall by 1.1 Mt year-on-year to 21.1 Mt in the second half of 2023.

Still, spot LNG demand is recovering: Latest deals include a DES cargo sold by Shell to the Japanese trader Marubeni for late-July delivery at close to $9/MMBtu, Energy Aspects was told, as well as a late-August DES cargo sold by Australia's Woodside to an unknown buyer and a June-loading FOB cargo from Darwin, possibly for onward delivery to South Korea.

Outright JKM prices are forecast to bottom out in August, although analysts reckon prices will stay quite flat around $8-9/MMBtu until November – when there might well be a bigger step up.

Limited coal-to-gas switch in Korea

In South Korea, there are signs of a shift towards spot LNG in the electric power sector with gas' share of total fossil power output forecast to rise by 0.5 percent through the remainder of the year. In fact, the Korean utility Komipo just issued a tender for an early-August DES cargo, hence analysts reckon that "lower prices are starting to stimulate power-sector gas demand via coal displacement."

But outright LNG consumption from the Korean energy sector is anticipated to fall by 0.6 Mt, equivalent of 0.9 GW, in the second half of this year to 10.4 Mt – largely due to higher nuclear power output, comparatively cheap coal and a 0.6 GW rise in renewable generation.

Looking at competing fuels, the value of imported coal to Korea is $128 per ton this summer, down from an average of $179 per ton in the October-February period, according to customs data. Comparatively cheap thermal coal imports limit fuel switching: Energy Aspects' JKM balance-2023 price forecast of $17.69/MMBtu is higher than its South Korean fuel-switch trigger at $14.18/MMBtu, considering costs for importing coal and taxes.

"Korea's contractual thermal coal commitments and lack of a liberalised power market with deep liquidity makes fuel-switching in response to spot price dynamics much slower and weaker compared to in Europe. A fall in spot prices below $7.50 for a sustained period would therefore be needed to trigger some significant switching," Energy Aspects' senior LNG analysts Jake Horslen told *LNG Journal*.

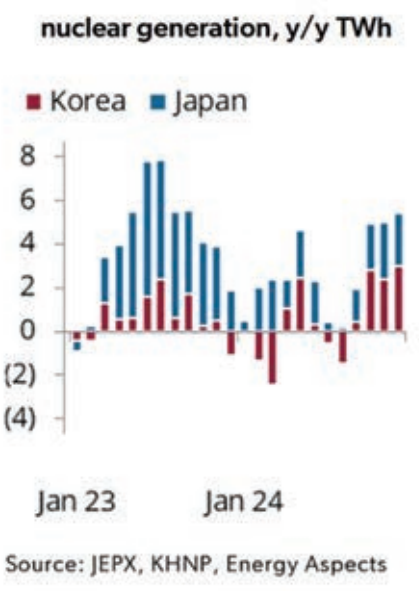
For a 48 percent efficient gas-fired power plant competing with a 38 percent coal-fired plant, the August-Dec average fuel-switch price is around $7.50-8.00/MMBtu, based on average thermal coal import costs. Most Korean utilities source their gas from the incumbent Kogas and are not importing LNG directly, with power sector demand for spot LNG anticipated around 0.3 million ton per month – little more than half of what was used in past years.

Responding to soaring oil and gas prices since Russia's invasion of Ukraine, the government of South Korea has issued a new energy policy. The aim is to increase nuclear power generation to nearly 35 percent of the energy mix, while lowering gas-burn by 22.9 percent by 2030 – though analysts noted that rising global supplies and falling spot LNG prices would actually support rising imports over the next three years. In its 10th Basic Plan for Long-term Electric Supply and Demand (BPLE), the government in Seoul supports nuclear as a baseload power source, with comparatively low operating costs, aiming for it to constitute over a third of installed capacity by the end of the decade, up from 24 percent forecast in earlier proposals. To that end, retired nuclear plants are meant to be brought back into operation and the new 1.4 GW Shin Hanul 2 rector is scheduled to come online in September 2023, though analysts assume start-up will be delayed to mid-January 2024 as it has not yet secured an operating permit.

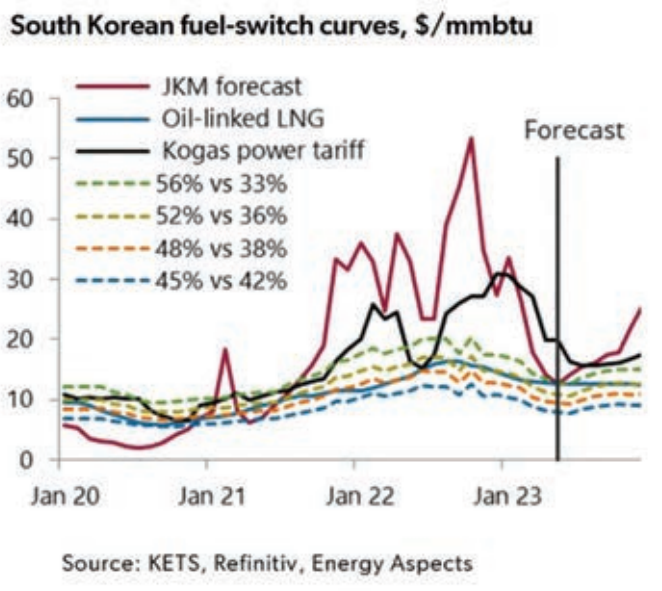
Scope for LNG demand growth in India

South Asia, in contrast, is strongly responding to lower forecast spot prices, analysts said, anticipating now TTF balance-of-the year at $10.78/MMBtu, down by $1.43. Forecast Indian LNG imports have been raised by 5.1 Mt year-on-year to 24.4 Mt for this year and there is scope for even stronger growth if spot prices fall further.

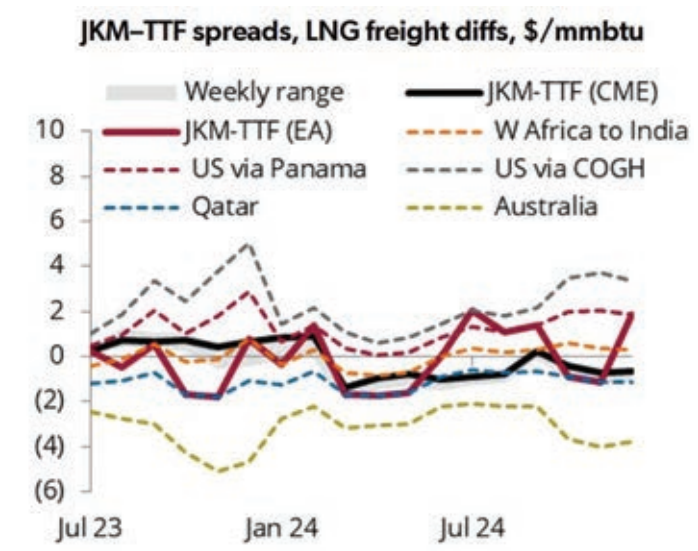
"Much of the additional demand comes



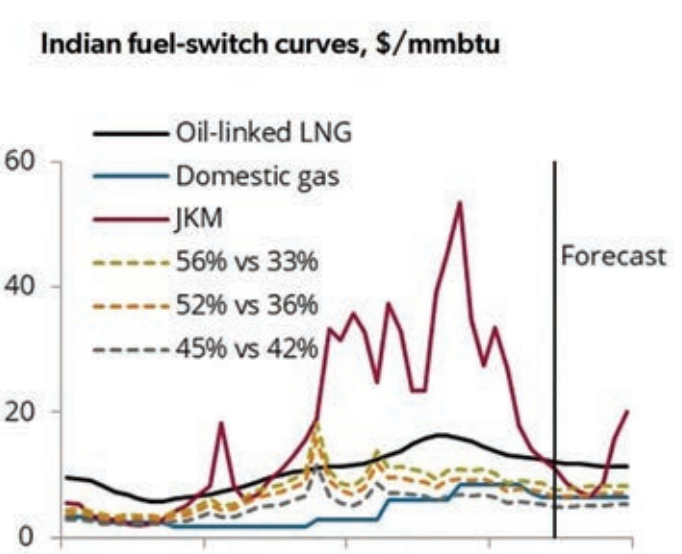
Source: JEPX, KHNP, Energy Aspects



Source: KETS, Refinitiv, Energy Aspects



Note: Freight diffs are the increases in freight costs to send cargoes to Northeast Asia instead of Europe
Source: CME, Fearnleys, Argus Media Group, Energy Aspects



Source: Refinitiv, Indian Coal Ministry, Energy Aspects

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from the industrial sector via LPG-to-gas switching for refining, but spot prices are getting closer to potentially triggering some coal-to-LNG switching in the power sector as well," analysts commented.

Energy Aspects said it sees 10-ppt fuel-switch trigger for spot LNG in the Indian power market at around $6/MMBtu, based on a $72/t landed cost for Indonesian NAR 3,800 kcal/kg thermal coal. Most of India's fleet of coal-fired power stations is, however, fuelled by domestic coal which is much cheaper than imported supply at around $30/t. Hence just a small fraction of coal-fired generation would be shut if spot LNG prices do fall below the implied fuel-switch trigger.

In May, gas-fired power generation in India increased for the first time in 30 months to 2.8 GW on average, analysts pointed out, though gas' share of total fossil fuel burn still just stands at 2.6 percent. As early as mid-April, six cities in India's north and eastern regions recorded temperatures above 44°C, which boosted demand for air-conditioning and propelled up the share of natural gas in the country's power generation mix. To pre-empt fuel shortages and blackouts, the Indian Ministry of Power introduced a set of emergency rules to ensure that gas peaking plants can run at full capacity.

A staggering number of 31 gas-fired power station with a combined 24.9 GW capacity have for long been stranded or run at sub-optimal levels due to a lack of fuel. To avoid blackouts during a crunch period from mid-April to the end of May, India's power ministry procured 4 GW of electricity from gas-fired power stations through a tender. But to operate 12.5 GW of existing gas generating capacity as peaking plants, the government would have to revise its gas allocation strategy which would incentivise utilities to procure more spot LNG.

Strikingly, India's largest gas distributor is understood to have just issued a swap tender, offering 12 cargoes for loading from the US Sabine Pass terminal and seeking cargoes for delivery into its Dhamra regas terminal this year and in early 2024. ■

China's economic rebound fuelled mostly by coal, not natural gas

Though China's imports of pipeline gas and LNG increased 17.3 percent in May, according to customs data, it is thermal coal that powers most of the country's economic rebound. Domestic coal production in China was up 5.5 percent to 1.15 million in the first quarter, while imports soared 63.1 percent to 101.8 million as thermal coal has become the preferred fuel for power generation.

Throughout May and in early June, however, LNG imports recovered slightly amid falling spot prices. Customs data show that gas imports in Mach reached 10.64 million tons, up from 9.07 million tons in the same month last year.

Most LNG and pipeline gas imports are sourced under long-term contracts that are indexed to oil prices. The government disclosed China paid about $26.8 billion for gas imports in the first five months of this year, a 0.5 percent rise year-on-year.

Six new regas terminals are scheduled to start up this year, including Beijing Gas Group's 5 mtpa Tianjin Nangang terminal, Guangzhou Gas's 1 mtpa Nansha terminal and the 6 mtpa Chaozhou terminal by Huaying Natural Gas. But the impact on spot markets is likely to be small. "Large amounts of (long-term) contractual volumes are expected to meet most of China's LNG import demand. Therefore, not much spot buying is required," said Rystad Energy analyst Wei Xiong.

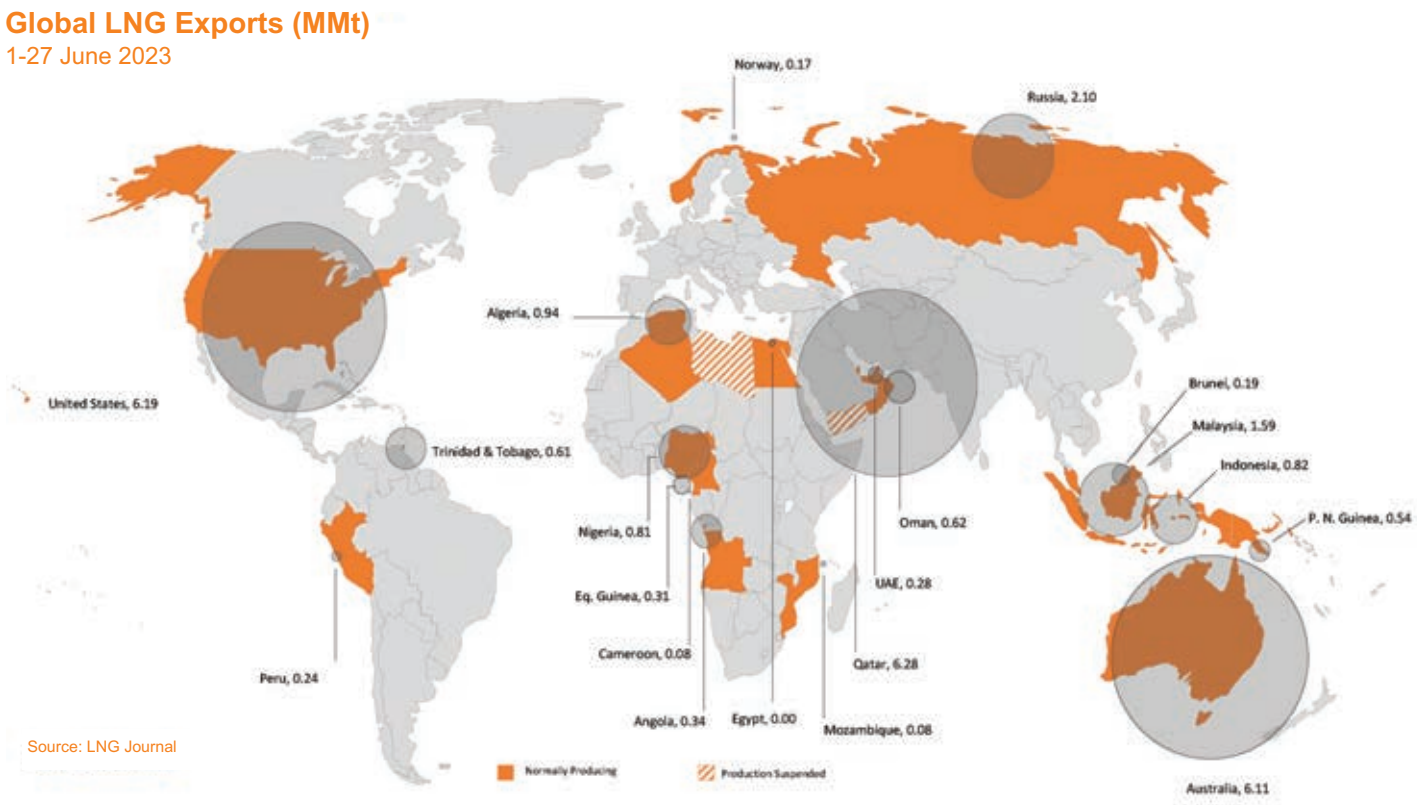
With about 13 bcm of new LNG contracts starting delivery in 2023, China's contracted LNG volume is on course to reach nearly 110 bcm this year – substantially higher than projected demand. Analysts suggest China could ramp up its LNG imports back to the 2021-peak without having to buy expensive spot cargoes. ■

Higher Middle Eastern exports cushion lower US and Russian output

Our data on 27 June showed weaker LNG output globally whilst exports dipped year-on-year. Meanwhile, net demand also saw a slight decrease, our Market Editor Alexander Wilk reports.

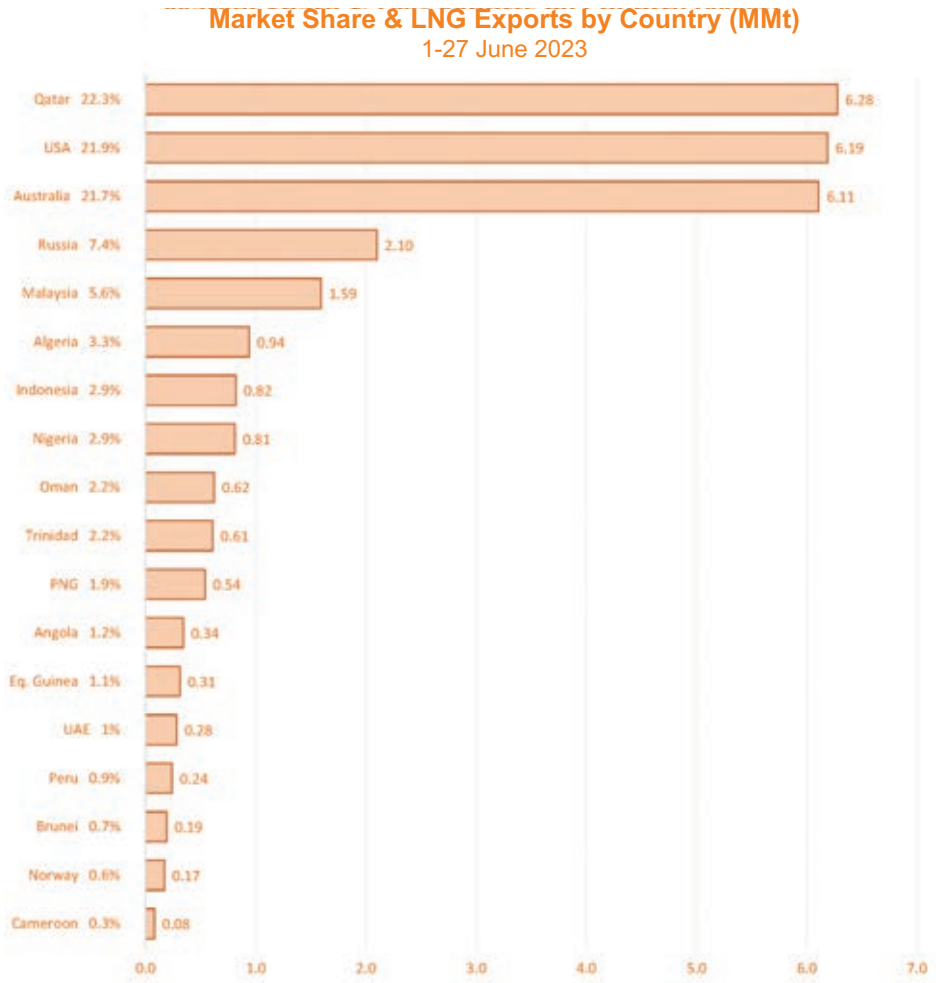
Our data at the time of writing showed global LNG trade was down for the month to 27 June compared to the equivalent period in May. The shipped amount of 28.22mmt represented negative growth of 1.50mmt (-5 percent) from 29.72mmt shipped by 27 May. Year-on-year exports saw more moderate negative growth of 0.85mmt (-3 percent) for the reporting period of the first 27 days in June. June's performance to date was mainly due to significant export decreases by the United States and Russia compared to the equivalent period in May even as major exporters such as Qatar produced robust export increases. However, with June not yet over, we anticipate the monthly trade figure to have improved by the end of the month.

Meanwhile, strong demand growth in China and Japan cushioned significant offtake reductions among major European and Far Eastern importers – led by the United Kingdom and South Korea in the month to date.



Exports

At the time of writing on 27 June, 28.22mmt of global LNG exports were down 1.50mmt (-5 percent) compared to their May counterparts of 29.72mmt. Pacific Basin shipments lagged their May counterparts by 0.70mmt (-6 percent) at 10.30mmt. Atlantic Basin exports saw a more significant gap of 1.23mmt (-10 percent) to 10.74mmt. We also recorded a significant export increase in the Middle East, where shipments were up by 0.43mmt (6 percent) to 7.18mmt from 6.75mmt in May. Exports for June to date were down by 0.85mmt (-3 percent) year-on-year.



Source: LNG Journal

Pacific Basin

Our June data at the time of writing showed Pacific exports had reached 10.30mmt, coming in below May's volume of 11.0mmt by 0.70mmt (-6 percent). Consequently, annualised capacity utilisation stood at 83 percent at the time of writing. Exports were down by 0.86mmt (-8 percent) year-on-year.

Australia: In contrast to the Basin's overall export lag, its most significant exporter by installed capacity – Australia – was leading its equivalent May volumes by 0.17mmt (3 percent) with exports of 6.11mmt at the time of writing compared to 5.94mmt in May. Pluto LNG showed lower LNG exports by 0.44mmt (-85 percent) at 0.08mmt in June, having shipped 0.52mmt the previous month. Australia Pacific LNG also decreased exports by 0.12mmt (-16 percent) to 0.65mmt. Concurrently, Queensland Curtis LNG reduced its exports to 0.62mmt (-10 percent) in June compared to 0.69mmt in shipment this time in May. NWS LNG and Gladstone LNG showed reduced exports by 0.05mmt (-5 percent) to 1.03mmt and by 0.01mmt (-3 percent) to 0.38mmt, respectively. Prelude FLNG, meanwhile, kept its exports steady at 0.27mmt. As such, negative growth in June's Australian LNG supply to date was only partially compensated by exports from Darwin LNG as well as Wheatstone LNG, Gorgon LNG and Ichthys LNG. Together, the four facilities were leading their equivalent May exports by 0.86mmt (39 percent) at 3.08mmt.

Australian shipments to Japan and Thailand had decreased considerably as of 27 June, down by 0.34mmt (-18 percent) to 1.59mmt and by 0.22mmt (-52 percent) to 0.20mmt, respectively. Alongside these month-on-month reductions, there were export decreases to Malaysia, Taiwan and Indonesia amounting to 0.31mmt. At the time of writing, completed Australian LNG exports in June had only seen a significant increase in Chinese offtakes by 0.38mmt (21 percent) to 2.15mmt alongside growth of 0.28mmt (56 percent) and 0.12mmt (50 percent) in South Korea and Singapore, respectively. Roughly 0.31mmt still had to declare their destinations within the Pacific.

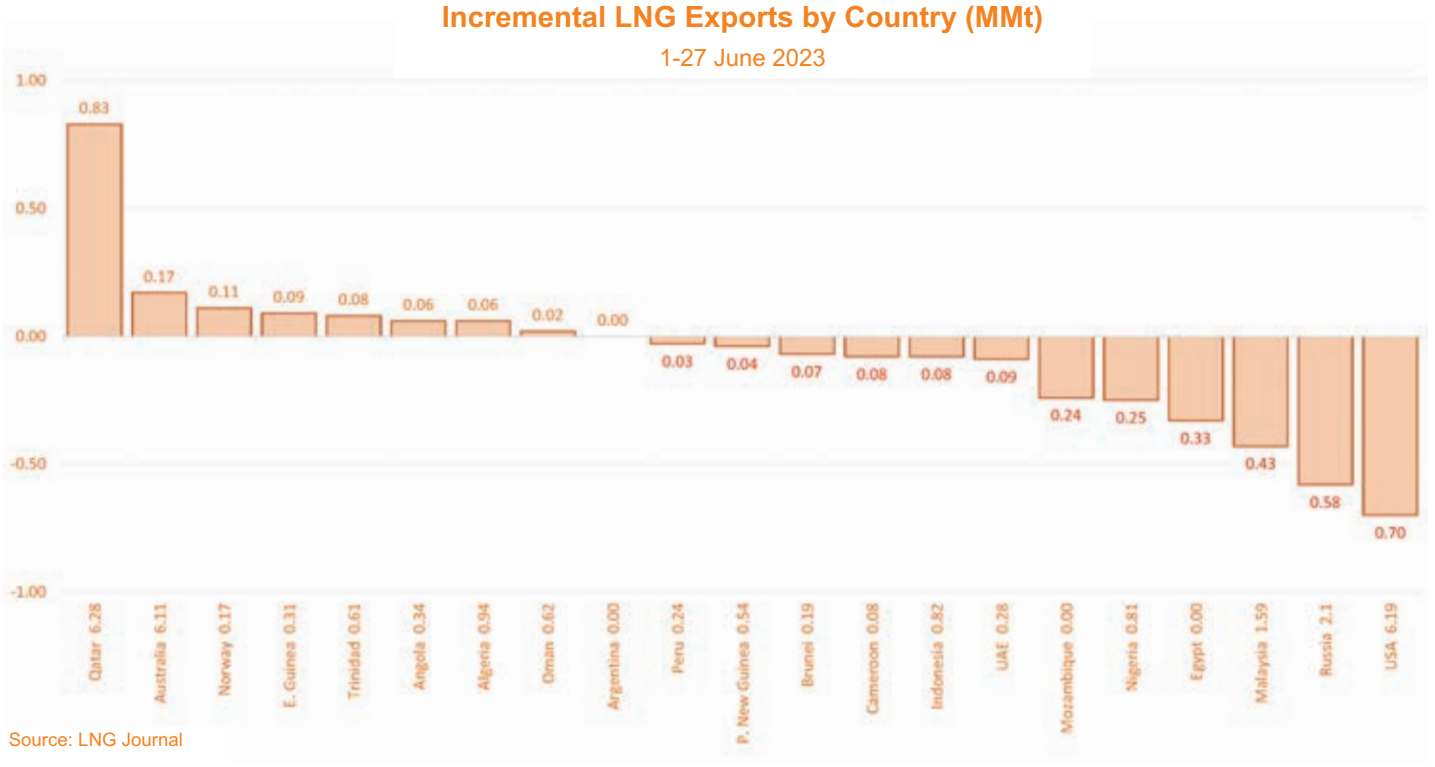
Southeast Asia: North of Australia, Papua New Guinea's PNG LNG saw shipments decrease by 0.04mmt

(-7 percent) month-on-month to 0.54mmt to date in June from 0.58mmt in May. PNG LNG gained some market share in Japan, but this growth was outweighed by the cutting of exports to China and Taiwan. PNG LNG produced at 88 percent of annualised nameplate capacity.

In neighbouring Indonesia, the amount of LNG shipped had dropped significantly period-on-period. Exports were down by 0.08mmt (-9 percent) to 0.82mmt on 27 June from 0.90mmt recorded on 27 May. Whilst the Donggi-Senoro LNG plant produced at 108 percent of annualised capacity and thereby saw steady output month-on-month, the Bontang facility slashed shipments by 0.06mmt (-21 percent) to 0.22mmt period-on-period. Bontang was thus producing at only 28 percent of annualised capacity. Concurrently, Tangguh LNG also had decreased LNG exports by 0.02mmt (-4 percent) to 0.44mmt, producing at 78 percent of annualised capacity.

In contrast, Malaysia saw an increase in shipments by 0.43mmt (-21 percent) to 1.59mmt as of 27 June compared to 2.02mmt during the equivalent reporting period in May. This was mainly due to a 0.43mmt (-24 percent) decrease to 1.38mmt at the Malaysia LNG plant. Malaysia LNG had thus decreased annualised utilisation down to 73 percent from 99 percent this time in May. Meanwhile, the PFLNG Dua vessel had halved its production to 0.07mmt at the time of writing, pegging annualised utilisation at 79 percent, our data showed, whilst the PFLNG Satu facility doubled exports during the month to 27 June to 0.14mmt. Its annualised capacity utilisation stood at 158 percent at the time of writing.

Incremental LNG Exports by Country (MMt)
1-27 June 2023



Source: LNG Journal

Brunei, meanwhile, had decreased LNG exports as of 27 June by 0.07mmt (-27 percent) to 0.19mmt from 0.26mmt in May, with annualised capacity utilisation at 36 percent. The plant had not yet exported LNG to South Korea at the time of writing compared to 0.13mmt this time in May. Only steady exports to China of 0.07mmt offered some compensation as shipments to Japan were down by 0.02mmt (-14 percent) to 0.12mmt.

Russia, Peru & Mozambique: Elsewhere in the Pacific, Russia's Sakhalin-2 LNG had increased LNG exports slightly by 0.02mmt (3 percent). The plant's shipments amounted to 0.81mmt on 27 June compared to 0.79mmt in May. June's performance benefitted from higher exports to South Korea and China, which was only tempered by a demand reduction for Sakhalin deliveries by 0.24mmt (-48 percent) to 0.26mmt in Japan. The plant thus continued to see high annualised capacity utilisation of 114 percent.

Meanwhile, Peru's Pampa Melchorita plant also decreased exports. Shipments of 0.24mmt were down by 0.03mmt (-11 percent) from the 0.24mmt recorded in May and pegged the plant's annualised capacity utilisation at 73 percent. The plant typically exports between 0.30mmt and 0.40mmt per month, our historical data show.

Finally, Mozambique's Coral Sul FLNG unit had not yet seen exports in June at the time of writing compared to 0.24mmt during the equivalent period in May.

Atlantic Basin

In line with negative growth in the Pacific, the Atlantic Basin's overall shipped LNG had decreased by 27 June, with exports down by 1.23mmt (-10 percent) to 10.74mmt. This translated into annualised export capacity utilisation of 70 percent for the Basin.

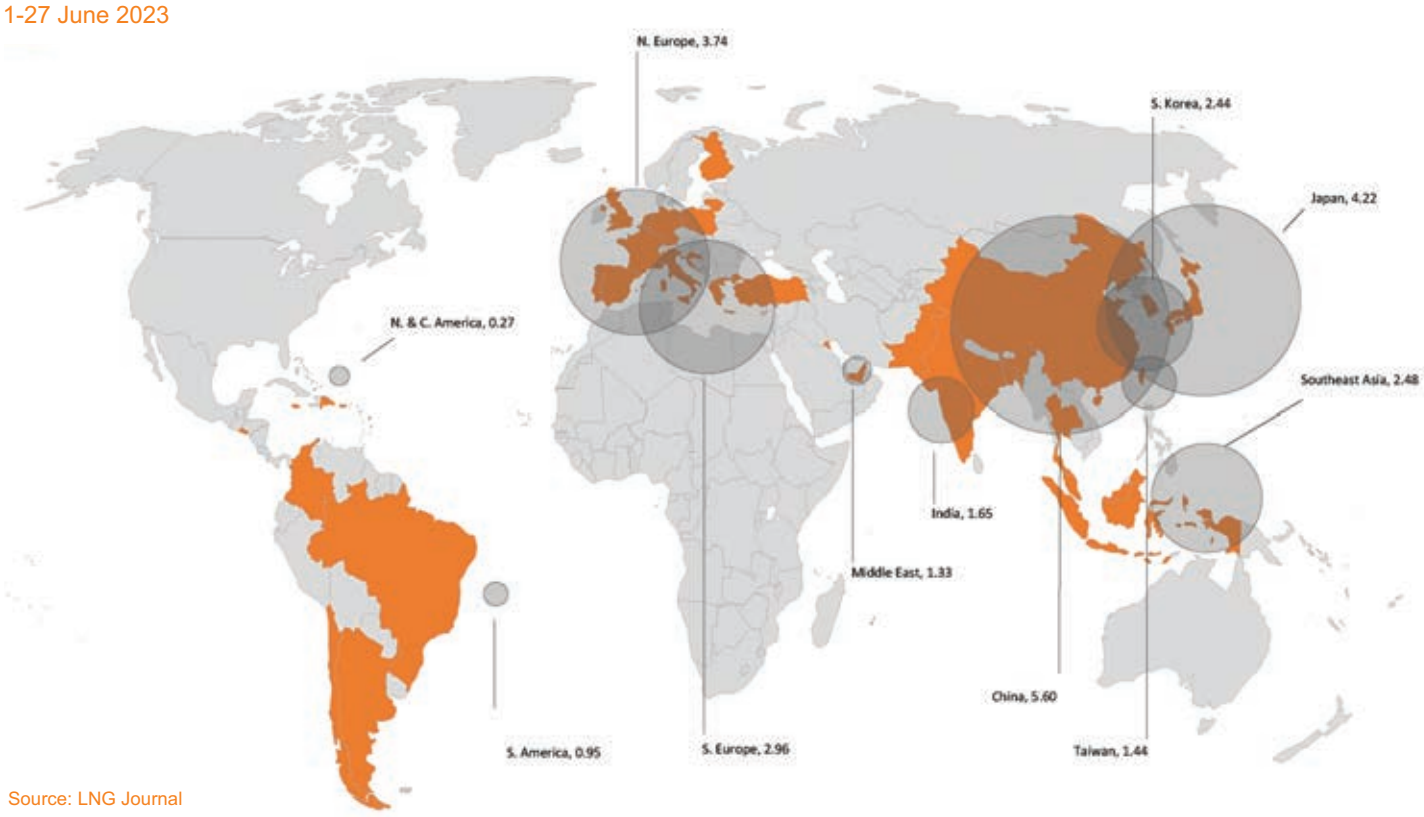
North Africa & Europe: The amount of LNG shipped from within its northeastern part – comprising the EEA, Russia and North Africa (and not including re-exports) – had decreased by 0.43mmt (-15 percent) to 2.40mmt from 2.83mmt this time in May.

At 1.29mmt, Russia's LNG exports from its capacity in the Atlantic Basin were down by 0.60mmt (-32 percent). Output from Yamal LNG was down by 0.54mmt (-31 percent) to 1.22mmt whilst it thus still produced at 100 percent of annualised nameplate capacity. Portovaya LNG exports were also down by 0.06mmt (-46 percent) to 0.07mmt. The plant thus produced at 47 percent of annualised nameplate capacity at the time of writing in June.

This negative growth was only partially compensated by higher output from Snøhvit LNG in Norway. The plant shipped 0.11mmt (183 percent) more to reach 0.17mmt following exports of 0.06mmt this time in May. The plant had thus produced at 55 percent of annualised capacity at the time of writing.

Concurrently, Algeria had exported 0.06mmt (7 percent) more at the time of writing in June. Whilst the Skikda plant had decreased shipments by 0.04mmt (-14 percent) to 0.24mmt with 41 percent of annualised capacity utilisation, Arzew

Global LNG Imports (MMt)
1-27 June 2023



Source: LNG Journal

LNG grew exports by 0.10mmt (17 percent) to 0.70mmt. It thereby produced at 46 percent of annualised capacity utilisation.

West Africa: West African exports were down by 0.18mmt (-10 percent) to 1.54mmt at the time of writing in June.

Nigeria had seen negative LNG export growth as of 27 June, decreasing shipments by 0.25mmt (-24 percent) to 0.81mmt. This pegged annualised capacity utilisation at 49 percent, according to our calculations. Concurrently, Cameroon LNG halved exports to 0.08mmt, pegging its annualised capacity utilisation at 45 percent. These reductions were only tempered by Angola LNG increasing output by 0.06mmt (21 percent) to 0.34mmt, pegging its annualised capacity utilisation at 88 percent. EG LNG, meanwhile, raised exports by 0.09mmt (41 percent) to 0.31mmt. The plant thus operated at 113 percent of annualised nameplate capacity as of 27 June.

Overall, West African exporters lost market share in Europe in particular as well as in South America but shipped more to the Pacific Basin. Notably, 0.31mmt still had their destinations to be determined within the Pacific Basin and Europe at the time of writing.

Americas: Exports from the US Gulf Coast were down by 0.70mmt (-10 percent) to 6.19mmt as of 27 June compared to the 6.89mmt we recorded during the equivalent period in May. The negative growth at the time of writing was mainly due to Sabine Pass LNG slashing exports by 1.01mmt (-38 percent) from 2.67mmt to 1.66mmt. Cove Point LNG, meanwhile, decreased shipments by 0.12mmt (-21 percent) from 0.57mmt in May to 0.45mmt in June, which still pegged its annualised capacity utilisation at 116 percent. Concurrently, Freeport LNG and Calcasieu Pass LNG decreased exports by 0.01mmt (-1 percent) to 1.25mmt from 1.26mmt and by 0.03mmt (-7 percent) to 0.43mmt from 0.46mmt in May, respectively. Period-on-period growth, meanwhile, came from Elba Island LNG, which grew shipments by 0.13mmt (87 percent) to 0.28mmt from 0.15mmt and continued to produce significantly above annualised nameplate capacity. Exports from Corpus Christi LNG and Cameron LNG, meanwhile, had increased by 0.15mmt (16 percent) to 1.07mmt and by 0.19mmt (22 percent) to 1.05mmt, respectively.

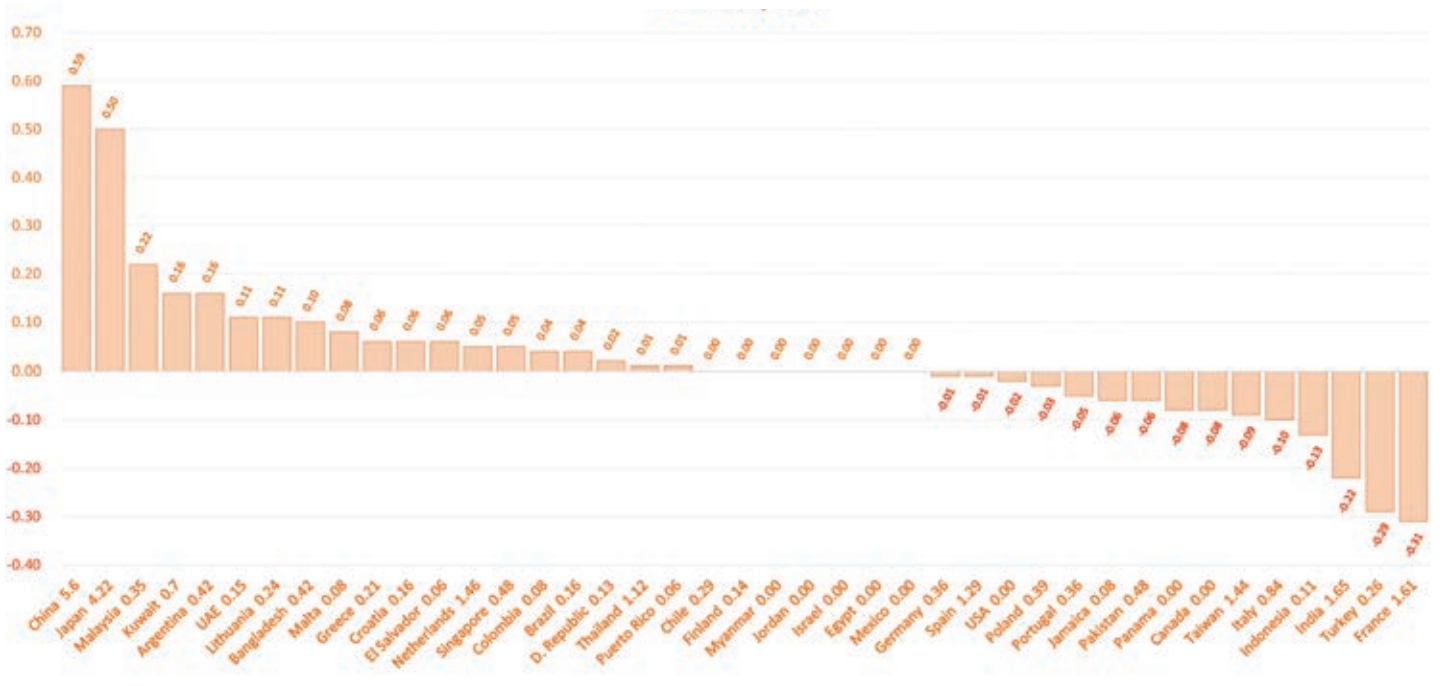
In South America, Atlantic LNG in Trinidad & Tobago had seen exports climb by 0.08mmt (15 percent) to 0.61mmt as of 27 June from the 0.53mmt we recorded for the equivalent period in May. Atlantic LNG shipments suffered from lower exports to Canada in particular whilst offsetting those reductions with additional cargoes to Europe.

Middle East

Shipments from Middle Eastern plants had increased significantly month-on-month. Regional LNG exports were up by 0.43mmt (6 percent) from 6.75mmt to 7.18mmt at the time of writing. Accordingly, our data showed the Basin's annualised utilisation of operational export capacity (i.e., excluding Yemen) at 103 percent at the time of writing on 27 June.

The Middle East's overall export growth was pushed by Qatar's Ras Laffan LNG complex. The facility increased exports to 6.28mmt, up by 0.83mmt (15 percent) from 5.45mmt this time in May. In line with the month-on-month increase, the Ras Laffan complex returned to flat-out production at 110 percent of annualised capacity utilisation. Notably, Qatar's June trade continued to grow in the Middle East whilst exports to

Incremental LNG Imports by Country (MMt)
1-27 June 2023



Source: LNG Journal

key offtakers in Europe such as the United Kingdom were down as of 27 June.

However, except for Oman, which grew exports slightly by 0.02mmt (3 percent) to 0.62mmt, Middle Eastern export growth at the time of writing had been tempered by the UAE and Egypt. In the UAE, exports were down by 0.09mmt (-24 percent) to 0.28mmt as of 27 June from 0.37mmt on 27 May.

In Egypt, the Damietta LNG plant had shipped 0.33mmt in May but had not yet been seen in the market in June at the time of writing. Idku LNG had been absent since the end of April.

Imports & Domestic Trade

Global LNG imports as of 27 June had decreased by 1.18mmt (-4 percent) to 29.06mmt compared to the 30.24mmt we recorded on 27 May. Negative demand growth at the time of writing was mainly due to lower imports in the Atlantic Basin, which was only partially compensated by higher demand in the Pacific and the Middle East.

Pacific Basin

Month-on-month Pacific Basin imports were up by 0.66mmt (4 percent) net to 18.18mmt as of 27 June from 17.52mmt in May. Among larger-scale importers, China and Japan increased their offtakes by 1.09mmt (12 percent) in total to 9.82mmt. This was only tempered by demand decreases totalling 0.74mmt in South Korea, India and Taiwan.

Concurrently, the roster of smaller Pacific buyers– including Bangladesh, Thailand, Chile, Indonesia, Malaysia, Mexico, Singapore, El Salvador and Myanmar – collectively saw imports increase by 0.31mmt (12 percent) to 2.83mmt at the time of writing in June. This increase was primarily due to demand growth in Malaysia and Bangladesh, where offtakes were up by 0.22mmt (170 percent) to 0.35mmt and by 0.10mmt (31 percent) to 0.42mmt, respectively. This growth was tempered, however, by reductions totalling 0.13mmt (-54 percent) to 0.11mmt in Indonesia. Mexico and Myanmar had not been seen in the market at the time of writing.

Atlantic Basin

In contrast to the Pacific, LNG demand in the Atlantic Basin decreased. Demand was down by 2.05mmt (-18 percent) to 9.55mmt as of 27 June compared to 11.60mmt for the equivalent period in May, with annualised utilisation of installed capacity at 45 percent.

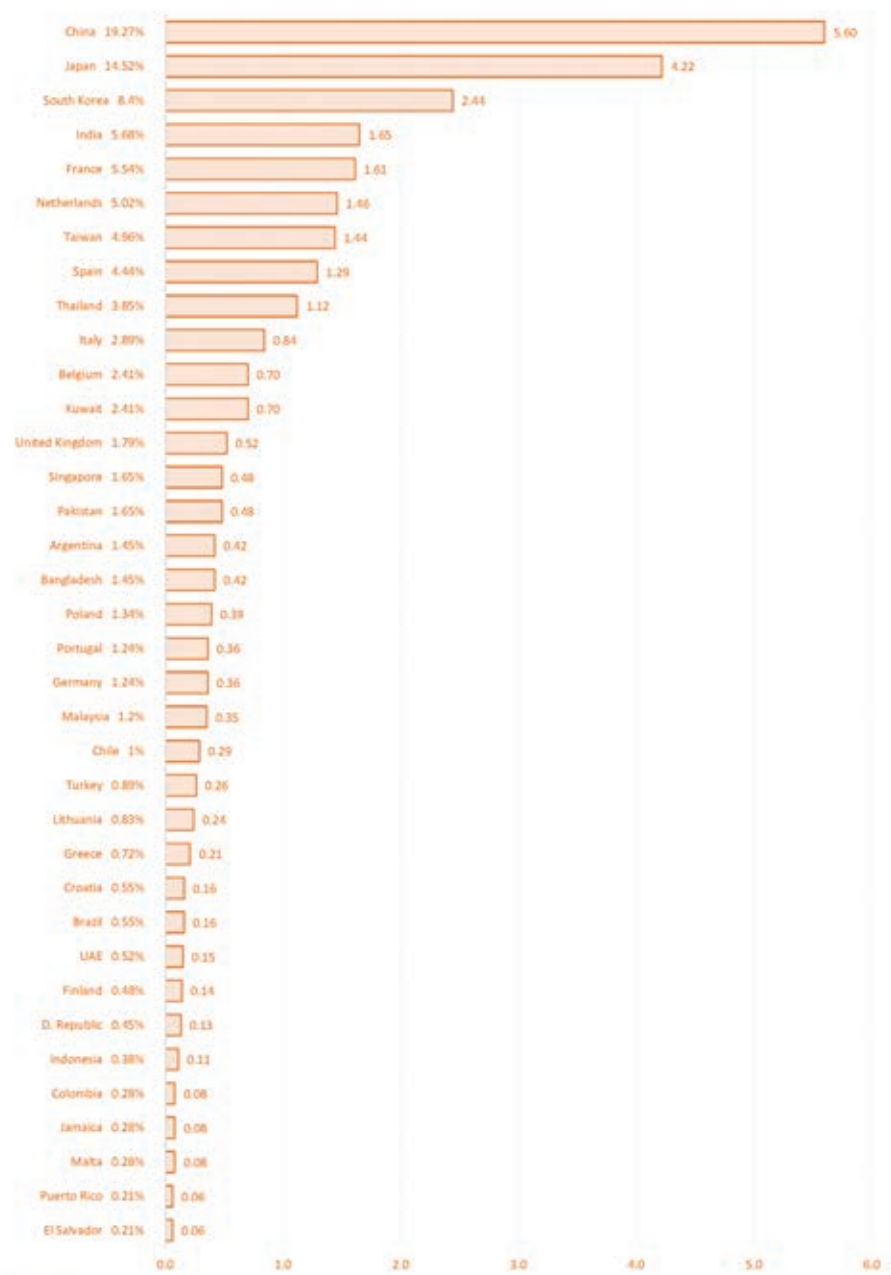
A European demand reduction totalling 2.08mmt (-24 percent) to 8.77mmt was the leading factor. Strong negative import growth in the United Kingdom by 1.28mmt (-71 percent) to 0.52mmt in addition to reductions totalling 1.16mmt in Belgium, France, Turkey, Italy, Portugal, Poland, Spain and Germany could not be compensated by growth of 0.36mmt stemming mainly from several smaller-scale European buyers such as Lithuania and Greece.

There had also been no significant demand increase in the Americas, with total imports up by only 0.03mmt net as of 27 June. Net offtake growth of 0.13mmt was limited to the Caribbean and South America. At the time of writing, the region had seen monthly LNG demand grow particularly in Argentina, where offtakes were up by 0.16mmt (61 percent) to 0.42mmt. Colombia, the Dominican Republic and Brazil also increased their total offtakes to 0.37mmt alongside demand in Puerto Rico and Jamaica totalling 0.14mmt. This growth in the Caribbean was only tempered by a demand reduction of 0.06mmt (-43 percent) to 0.08 in Jamaica and Panama's market absence after it had imported 0.08mmt this time in May. We also did not record demand in Canada or the United States, bringing a reduction of 0.10mmt month-on-month.

Middle East

Overall Middle Eastern LNG demand of 1.33mmt had seen robust growth of 0.21mmt (19 percent) as of 27 June compared to the 1.12mmt we recorded as of 27 May. Offtake levels were underpinned by demand growth of 0.16mmt in Kuwait, which compensated for a 0.06mmt (-11 percent) reduction to 0.48mmt in Pakistan. Concurrently, the UAE's month-on-month demand was up by 0.11mmt (275 percent) to 0.15mmt. Jordan, meanwhile, had not yet imported a cargo in June whilst Egypt's FSRU at Ain Sokhna and Dubai's FSRU had also not been seen in the market. As such, the Middle East's annualised import capacity utilisation stood at 22 percent at the time of writing. ■

Market Share & LNG Imports by Country (MMt)
1-27 June 2023



Source: LNG Journal

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A virtual advantage: Exploring the impact of digital twins on the LNG sector

The rapid evolution of technology has found its way into every corner of industry and commerce, and the LNG sector is no exception.

Among the emerging technologies that show considerable promise in the LNG landscape, one stands out - the digital twin*.

As the name suggests, a digital twin is a virtual replica of a physical entity – be it an entire plant, a process or an individual piece of equipment. To create a digital twin, engineers first build a detailed model and then pair it with inspection and sensor data. As new information is fed into the twin, the asset owner gets detailed insights into risk areas to optimise maintenance and inspection and prevent failures.

Leveraging real-time data, simulation, and analytics, digital twins provide deep insights, enabling organisations to streamline processes, prevent breakdowns, enhance safety, and ultimately drive profitability. Digital twins help formulate more informed and accurate decisions by giving a comprehensive view of operations, making them a crucial tool in LNG operations.

LNG Plants

In LNG plants, operational efficiency and safety are paramount. Here, a digital twin can virtually replicate the entire plant, capturing every detail from the large equipment to the smallest valve. These twins constantly learn and update themselves with the influx of data from various sensors installed throughout their physical counterparts.

Imagine the twin predicting the failure of a compressor or a heat exchanger days or weeks before it happens. By identifying such issues before they become catastrophic failures, operators can plan maintenance activities more effectively, reducing unplanned downtime and enhancing overall operational efficiency.

Moreover, digital twins enable operators to run simulations for process improvements without disturbing the actual plant operations. The technology allows operators to undertake virtual inspections of equipment that is practically uninspectable due to prohibitive cost or because they are inaccessible.

Revolutionising LNG shipping

LNG shipping is another area where digital twins can have a significant impact. These vessels, often moving in harsh sea conditions, have an array of machinery and systems, each with a critical role.

Real-time data from sensors installed on the ship can be fed into a twin, enabling operators to monitor the vessel's health, anticipate potential equipment failures, and schedule preventive maintenance. In addition, the twin can simulate different weather scenarios and their impact on the ship's stability, structural stress, and fuel consumption.

The Akselos digital twin of the Shell 'Bonga' FPSO provides an example of how real-time sensor data and predictive modelling can optimise operations, improve maintenance strategies, and reduce the risk of unplanned downtime of large maritime vessels.

The twin identified 94 critical hotspots that operators could perform maintenance on pro-actively, which unlocked hundreds of millions in additional asset value and helped extend the lifespan of the ship by five years.

A berth's digital twin

LNG regasification

Digital twins can also bring transformative advantages to the regasification process by offering unparalleled detail and accuracy in system analysis, facilitating early detection and mitigating potential issues.

The technology has already made its mark on the European stage, notably enhancing the operational efficiency and lifespan of the critical LNG infrastructure. For example, Akselos has partnered with Adriatic LNG to harness the groundbreaking capabilities of digital twin technology to revitalise the operations of the Italian regasification terminal.

The Adriatic LNG terminal houses four open rack vaporisers (ORVs), critical components in regasification. The seawater flowing through heat exchanger tubes in the ORVs vaporises LNG, often stressing the pipes due to temperature differentials. Un-addressed, this can lead to ORV breakdowns and significant asset downtime as a single ORV can take up to two years to replace.

Unfortunately, operators do not have visibility into exactly which pipes are most stressed and, therefore, likely to fail due to legacy simulation software tools which are based on finite element analysis (FEA) - a commonly used method in engineering and manufacturing to help engineers to simulate a system's stress, deformation and other physical properties.

While FEA has its strengths, it is limited when analysing large and complex systems like ORVs. Therefore, a new simulation software was developed, called reduced basis finite element analysis (RB-FEA). RB-FEA builds on the key principles of FEA to deliver faster and more accurate simulations of larger assets.

When an RB-FEA simulation is paired with live data from an asset, the result is a digital twin that enables operators to detect safety issues and pre-emptively

'Bonga' FPSO's digital twin

Italy's Adriatic LNG terminal

An Akselos dashboard

solve problems accurately.

In Italy, RB-FEA was used to build a digital twin of an ORV using input data from drawings, inspection data, and load history. A Fitness for Service (FFS) assessment, validated by Bureau Veritas (BV), was conducted, revealing certain pipes needed early maintenance. The results were displayed on a user-friendly dashboard, ranking tubes based on fatigue life. Thanks to the digital twin, Adriatic LNG can now conduct continuous FFS assessments, enabling predictive maintenance down to the millimetre level, avoiding downtime and ensuring a steady natural gas supply.

The road ahead

Still in its infancy in the LNG industry, digital twin technology is poised for rapid growth. As advancements in the Internet of Things (IoT), artificial intelligence (AI), and machine learning revolutionise data collection and analytics, digital twins' potential applications and capabilities will expand dramatically.

One of the standout advantages of this technology is its potential to curtail unexpected downtime. Digital twins allow operators to inspect previously inaccessible areas, enabling a thorough understanding of the system's condition. This can be leveraged to quickly identify and rectify impending issues, enabling proactive maintenance and preventing sudden operational disruptions. Moreover, the utility of digital twin technology can benefit other integral components of the LNG process, such as the loading arms and piping.

As this innovative technology matures, it promises to significantly enhance existing operations and the operational standards of new LNG facilities. By enabling a comprehensive examination of systems in a risk-free virtual environment, digital twins can potentially optimise future facilities.

This pioneering approach is set to launch the LNG industry into an era marked by improved safety, greater efficiency and reduced costs. ■

***This article was written by Ricardo Pinto, Akselos' Vice President S Europe/ LATAM**

DNV helps Gastrade with FSRU project

Greece's 'Alexandroupolis' offshore LNG FSRU terminal project is much more than just an initiative to diversify the energy market: it promotes co-operation and solidarity among Southeastern Europe, class society DNV said.

The FSRU is scheduled to start operating on 1st January, 2024. It can trace its history back to 2009 when the supply of Russian gas to Europe was halted in the wake of a Russia/Ukraine gas dispute.

Greece's natural gas suppliers and infrastructure operators realised that dependence on a single source and delivery route harboured unacceptable risk, which prompted the formation of Gastrade in 2010 to develop an offshore LNG terminal for Greece and its neighbours.

Konstantinos Sifnaios, Gastrade's Vice President and Managing Director, talking with DNV, said: "We realised how vulnerable Southeastern Europe was to a disruption if only one source for gas supply was available, and how important it was to have alternatives in terms of both supply routes and sources."

Installing an offshore LNG FSRU terminal was new to Greece, Sifnaios pointed out. "We had to educate the public sector and the competent authorities about what we were trying to do. We had to explain what the proposed terminal would physically entail. There was no legislation or regulatory framework for such an installation, so we helped the authorities develop the framework for handling an FSRU."

Gastrade partnered with DNV from the beginning. "DNV has been at the forefront of FSRU development since the world's first floating storage and regasification unit commenced operations in 2009," explained Leonidas Karystios, DNV's Regional Business Development & Gas Segment Director based in Piraeus.

"A lot has happened in the years since Gastrade began planning for the Alexandroupolis project. Today, we can implement such projects much more rapidly thanks to a complete system of regulations and standards, and we can offer a set of class notations for FSRUs that covers every technical aspect. All that was still in its infancy when Gastrade decided to create a framework for FSRU operations in Greece," he said.

Sifnaios added; "They (DNV) went with us to the different authorities to work with them in developing the required legal and regulatory framework addressing safety, operations, inspection regimes, environmental issues and certification requirements. It has been a very constructive co-operation that continues today."

DNV prepared and submitted a study and proposal to the responsible authorities regarding the minimum safe complement of the planned FSRU. During the FSRU tendering process, the class society reviewed the specifications submitted, followed by the provision of class, approval and statutory services during the current conversion phase.

Owned by GasLog, a partner in the Gastrade consortium, 'Alexandroupolis' is the former 153,500-cu m LNGC 'GasLog Chelsea' built in 2010 and is the first FSRU conversion project under the Greek flag for operation in the Aegean Sea.

She entered Keppel Shipyard in Singapore in early February, 2023 for the regasification equipment to be installed, much of which was assembled in advance, and is scheduled to leave the yard on 8th November, before arriving at Alexandroupolis in northern Greece a few weeks later.

Offshore mooring

Following the commissioning tests, the FSRU should be ready for operations by the end of December, Sifnaios said. She will be moored about 10 km offshore. Permanent infrastructure, including the mooring system and a connecting pipeline, is currently under construction.

The FSRU will have an annual regasification capacity of around 5.5 bill cu m.

The Gastrade consortium includes DEPA, Greece's public gas company, the Hellenic Natural Gas Transmission System Operator DESFA, plus Bulgartransgaz, the Bulgarian transmission system operator.

A major portion of the gas provided by the FSRU will be exported to Bulgaria and Romania.

Gastrade is already preparing for its next FSRU project. Now in the licensing stage, the second unit will have roughly the same technical capacity as 'Alexandroupolis' and could begin operating in 2025.

Sifnaos added: "During all these years, DNV has helped us interact with the EU commission, understand the logistics and how to improve the financing, optimise the tax regimes, and address maritime legislation. Furthermore, as our class society, DNV is part of the conversion works and has supported us with details such as when to change the class from 'ship' to 'offshore'."

The wider implications of Gastrade's LNG terminal projects cannot be overemphasised, Sifnaios concluded. "This is a project that can contribute to a lot of causes. It demonstrates that energy can be a tool for regional co-operation and solidarity. To me, this is its greatest value by far." ■

LNG fuels Europe's maritime regulation ambitions

As Europe prepares for the implementation of the new FuelEU Maritime Regulation, a fragmented landscape still threatens to cause headaches for shipowners planning investments. Fuelling Editor Malcolm Ramsay has more.

Following productive trilogues between the European Parliament, Commission and Council, in March a provisional agreement has now been reached on FuelEU Maritime Regulation, establishing LNG as the stepping-stone to more renewable fuels like bio and synthetic e-LNG in the future.

"With the long-term outlook of this agreement, we are sending a clear signal to the sector across the value chain," Adina Vălean, Commissioner for Transport, affirms, "from shipowners and operators to fuel producers, shipyards and equipment manufacturers, that it is worthwhile and necessary to invest in sustainable maritime fuels and zero-emission technologies."

The rule will apply to ships above 5000 gross tonnage — the vessels responsible for nearly 90% of CO2 emissions — and all energy used within or between EU ports, including 50% of energy used on voyages with non-EU ports.

Renewable fuel journey

Poised to be finalized and published in the Official Journal of the European Union by the end of this year, the regulation boosts LNG's prominence as a fuel for shipping, acknowledging it as a transitional fuel with potential to incorporate biogas or e-fuels over time.

"Given its application for the last 20 years as a marine fuel and carbon dioxide (CO2) levels 20-25% lower than heavy oil, LNG has been crucial as a transition fuel," Oddmund Føre, Head of Shipping & Offshore at Rystad Energy, tells *LNG Journal,* "due to the readiness and infrastructure/technology that we already have in place we expect LNG also to play an important role in years to come."

The FuelEU maritime framework agreement introduces new targets for reducing the greenhouse gas intensity of energy used onboard ships and proposes a systematic, phased approach to cut emissions below the 2020 level of 91.16 grams of CO2 per MJ. This will involve a steady tightening of both legal penalties and targets, with a 2% reduction expected by 2025, followed by 6% in 2030, 14.5% in 2035, 31% in 2040, 62% in 2045, and an 80% reduction in 2050.

Additionally, it encourages the use of renewable fuels of non-biological origin (RFNBO), and Føre sees this emerging as a key area of growth in the longer term, stating that while "deliveries up to 2025 have been predominantly LNG, we see a gradual increase in new vessels also being ordered with methanol/green methanol ready engines."

Last year, the Port of Antwerp-Bruges converted its first tugboat to operate on methanol and container line Maersk is also exploring use of the fuel, with a multi-billion-dollar programme aimed at adding the first methanol-powered boxships to its fleet by 2024.

While LNG has only around a third of the volumetric energy density of diesel, standards agency DNV notes that "LNG, methanol and LPG are competitive in terms of energy cost", even though "hydrogen, ammonia and methanol have only "around 40-50 %" of the volumetric energy density of LNG.

Vessels such as ElbBlue are already fuelled by synthetic LNG

FuelEu Maritime is expected to redefine fleet fuel choices

"LNG is relatively high in energy density which makes it favourable to many other alternative fuel sources [but] both LNG and methanol are not a perfect solution," Føre adds. "If the upstream side is not able to mobilize on the creation of green methanol these ships might end up running on diesel which again makes LNG a preferred solution given fuel availability and also the potential to upgrade to other fuel configurations from an LNG setup."

Regulatory concerns

While the new regulation paints a promising picture for the adoption of LNG, it also poses potential challenges, mainly due to Europe's reliance on imported LNG rather than liquefied pipeline gas, which lead to significantly higher "well to wake" emissions.

Nikoline Bromander, Senior Analyst at Rystad Energy's Gas Market, elaborates, "The emission intensity for LNG from wellhead to the European market is far greater than for piped gas. Rystad Energy estimates European upstream emissions from gas imports alone will rise by as much as 15 million tonnes of CO2 in 2022 and could climb by another 20 million tonnes in 2023 as piped Russian gas is replaced by LNG from the US, Africa, and elsewhere."

Moreover, the specifics of the regulation will significantly impact investment decisions, since even minor differences in penalties can lead to substantial consequences when spread across an entire fleet. Fragmented legislation is already causing headaches for shipowners as investment decisions are delayed or cancelled in wait of clearer regulatory direction.

"When LNG as a marine fuel is included in the EU ETS, it will lower demand," Bromander continues, "[but] new EU proposals will see free allowances phased out and allocated 10% from 2026 when the EU Carbon Border Adjustment Mechanism (CBAM) takes effect. CBAM aims to mitigate the risk of carbon leakage across EU borders and traded in a parallel market."

Further complicating the investment scenario is the growing ESG pressure on financial institutions, as loans are tied to sustainability metrics. As these pressures mount, lenders expect further distortions in funding, as the rates for investment by vessel type are increasingly determined by complex legal and technical measures related to projected emissions profiles.

"Although it is likely that there will be a good mix of different shipping fuels for many years, we expect that ammonia is the fuel that can really help drive emission reduction levels and the one that is most viable for deepsea shipping. That said we don't expect any fundamental adoption before we go into the 2030's and we might get to 2040 before we see ammonia being a dominant player in the world of shipping fuels."

"Price has been of key interest in the past year as we saw a big hike in gas prices/electricity prices causing a few players to retrofit back to heavy oil engines to be able to defend the cost associated with fuel and bunkering. Such a volatility might cause more shipowners to opt for dual engines capabilities to hedge for price uncertainty," Føre concludes. ■

There is new energy in the heart of the Mediterranean

OLT Offshore LNG Toscana is the company which manages the floating storage and regasification unit "FSRU Toscana". The Terminal is technologically innovative and well-advanced. It guarantees the maximum standards in terms of environmental sustainability and safety. "FSRU Toscana" is permanently moored off the Italian coast – between Livorno and Pisa – in the heart of the Mediterranean Sea. The Terminal has a maximum authorized regasification capacity of 5 billion Standard cubic meters per year and an LNG storage capacity of 137,100 cubic meters. New SSLNG service soon available.

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OLT Offshore LNG Toscana

For the Record

ANGOLA LNG loaded the carrier "Lobito", a vessel with 160,000 cubic metres of capacity, in mid-June with the 400th cargo to depart from the Soyo LNG export plant on the 10th anniversary of production at the facility.

It was a decade last month that Angola shipped its first LNG cargo to Brazil in 2013.

The joint venture company supplies buyers through spot sales and a portfolio of mid-term sales comprised of a variety of different counterparties and a main customer has been India.

About 60 percent of Angola's LNG cargoes have been delivered to India since the start-up of the plant that uses associated gas from offshore oil fields and is located in the northwest of the country, just south of the Congo River Basin.

"Our plant is strategically located and is one of the world's most modern LNG processing facilities," said Angola LNG.

"More recently, and for much of 2022, Europe has been an increasingly important market for Angolan cargoes," it added.

"Angola LNG is now celebrating the loading of our 400th LNG cargo and 10th anniversary of shipping our first cargo. Throughout this period, we have stayed committed to a culture of safety and teamwork and we are proud of our reputation as a valuable community partner and a role model for sustainable development in Angola," the company declared.

"As a trusted partner to our buyers, Angola LNG is playing its part in unlocking gas reserves to provide clean and reliable energy, connecting resources with the right markets to help meet worldwide energy demands," Angola LNG said.

To celebrate 10 years of service, Angola LNG shared 10 blocks of facts about the project:

1. At $12 billion, the Angola LNG project, was built to create value from offshore gas resources and is one of the largest ever single investments in the Angolan oil and gas industry and the sale of gas has promoted economic growth in Angola.
2. Angola LNG built one of the world's most modern LNG processing facilities and is the world's only plant operating entirely from associated gas from offshore oil blocks, located 350km north of Luanda in Soyo, at the mouth of the Congo River.
3. We have delivered 400 LNG cargoes and cargoes have been delivered to about 30 countries worldwide and have covered more than 2,800,000 nautical delivery miles.
4. India has been our most important market and, over the last few years, though more recently Europe has been an increasingly important market.
5. Angola LNG maintains an annual environmental and social programme fund and $590M has been invested in the local community of Soyo and Zaire province since 2013.
6. Angola LNG cares for the environment and through our operations we have improved the quality of air through the elimination of gas flaring and by reducing emissions and greenhouse gases.
7. We undertake a wide range of projects that protect and enhance indigenous ecosystems, for example through our mangrove restoration, sea turtle and Giant Black Sable antelope protection programmes.
8. We invest in education and young people. Angola LNG's investment contributed towards building a multipurpose facility complete with library, laboratories, 12 new classrooms and sports and play facilities providing for over 1,200 children at the Bairro da Marinha School, and our pioneering "Little Stars" project transforms the lives of children through the power of sport and art.
9. We invest in Infrastructure. The construction of local roads and bridges; a new power plant; upgrades to the airport's infrastructure; investment in social housing; and upgrades to the Soyo Municipal hospital in collaboration with local authorities and partners. The company also provides training programmes for local people.
10. We invest in Community Engagement. Angola LNG facilitates partnerships between entrepreneurs and the local community with the objective of aiding the growth of small businesses. The N'Tempo project empowers women by teaching them valuable skills so they can improve their lives and contribute to the economy. Angola LNG has also supported local fishermen with the provision of equipment so that they can operate safely and effectively at sea.

BAKER HUGHES, the US energy technology company and LNG equipment supplier, has been awarded a major contract in the Côte d'Ivoire in West Africa where the Baleine project for offshore oil and associated gas is currently moving forward to maintain the country's status as an African energy hub.

Baker Hughes was chosen for the contract by Italian oil and gas company Eni and the African nation's state energy company, Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (Petroci).

Eni and Petroci are initiating Africa's first Scope 1 and 2 carbon-dioxide emissions reduction plan as part of the Baleine oil and gas field Phase 2 development.

The Baleine field, taking its name from the French word for "whale", was discovered in 2021 as the largest commercial discovery in the country in the last 20 years and set to contribute substantially to boosting energy production in Côte d'Ivoire.

The Côte d'Ivoire's mainly oil production has varied significantly over the past two decades as existing fields have become depleted, closed for maintenance or development works and as new discoveries have been made but have needed further investment.

"This award, which includes eight deep water trees, three Aptara™ manifolds, the relevant subsea production control system, and flexible risers and jumpers, strengthens Baker Hughes' presence in West Africa and unlocks considerable growth potential in the country," explained the Houston, Texas-based company.

"Baker Hughes will deliver a configured-to-order product portfolio across subsea production and flexible pipe systems, designed for optimum cost effectiveness, installation and life-of-field value," added the company.

Baker Hughes said that these deepwater trees and manifolds, supplemented with subsea production controls and flexible pipe systems, are aimed at providing efficiency and cost-effectiveness under demanding conditions.

"This collaboration between Baker Hughes and Eni is Africa's first development project with clear Scope 1 and 2 carbon reduction goals and will deliver innovative technology that will enhance the energy security in Ivory Coast," said Maria Claudia Borras, executive vice president for Oilfield Services & Equipment at Baker Hughes.

"Ensuring that energy is locally available is an increasingly profound challenge, and we applaud the efforts of Eni and companies like it to shape an abundant energy future for Africa. We are proud of the confidence placed in us to accelerate the execution of this important project," Borras added.

Baker Hughes is additionally a key player in the LNG equipment supply sector and its most recent contract award was in April 2023 to supply two main refrigerant compressors (MRCs) for the North Field South (NFS) LNG expansion project in Qatar.

The Ivorian Baleine project is offshore block CI-101 and is forecast to hold up to 2.0 billion barrels of oil in place and 2.4 trillion cubic feet of associated gas located at water depth of 1,200 metres.

In addition to the CI-101 block, Eni owns stakes in four other blocks in the Ivorian deepwater.

They are CI-205, CI-501, CI-504 and CI-802, all with the same partner Petroci.

The Côte d'Ivoire's regional neighbours to the north, Senegal and Mauritania, are currently developing floating LNG projects, while among its southern neighbours, Nigeria is an established world-scale LNG and oil exporting nation and Cameroon has a small FLNG project in operation.

BUREAU VERITAS, the French classification society, has approved a joint development project involving several companies from Japan, South Korea and France for wind-assisted ship propulsion (WASP) for an LNG carrier and a Very Large Crude Carrier.

The BV Approval in Principle (AiP) was presented to Hyundai Heavy Industries, Hyundai Global Service, Japan's main shipping company Mitsui OSK Lines and TotalEnergies Gas and Power Ltd, a subsidiary of the French oil and gas major.

The AiP was presented on the successful completion of a Joint Development Project (JDP) between all four companies to better understand and validate the potential for WASP on these ship types.

Matthieu de Tugny, President of Bureau Veritas Marine & Offshore, presented the AiP certificates to the representatives of HHI, TotalEnergies and MOL.

"The JDP focused on three wind propulsion technologies, two of which were wing sails and one a rotor sail system," said BV.

"The principal conclusion of the project and the subsequent issuance of the AiP demonstrate that all of these systems are compatible with existing classification rules and regulations for VLCCs and LNG carriers, thereby paving the way for more detailed work to address specific risks that would enable detailed design and arrangement work to proceed," the French class society explained.

BV said that it actively participated in multiple WASP projects to support the development of innovative technologies.

In March 2021, BV released an update to its rule note for Wind Propulsion Systems (WPS) Nr. 206.

"Building on pre-existing BV rules released in 1987, the rule note provides the classification requirements for modern wind-powered ships," said BV.

"BV Rule Note Nr. 206 provides load cases and coefficients for all types of wind propulsion technologies, including free standing rigs, wing sails, kite sails, suction sails and rotors," it added.

BV noted that these "dedicated rules" serve as the key classification framework for wind-assisted propulsion.

"Firstly, during the design review stage, the rules ensure the safety and proper integration of wind propulsion systems with other onboard systems," said BV.

"Secondly, throughout the vessel's in-service life, the rules address survey regimes and maintenance requirements," it added.

CHART Industries Inc., a leading global engineering design and manufacturer of highly engineered equipment with LNG and industrial gas applications, is furthering its partnership with Canadian cleantech company Kathairos.

Chart said that the Kathairos contract already included Chart's MicroBulk tanks and would now include products such as Chart's Orca™ Delivery Systems.

Kathairos has also agreed to extend its contract with Chart for a minimum of two more years.

Kathairos, whose Greek name in English means to "cleanse", offers services such as liquid nitrogen-powered field technologies and a world-class carbon accounting and reporting tool.

The Calgary, Alberta-based company is working on methane emissions reductions from more than 400,000 remote well sites across Canada and the US.

"This increase in the scope of our partnership was initiated due to the positive feedback from the market about our combined solution being effective and easy to operate and the resulting rapid adoption and scale rollout of industry-leading companies," explained Chart.

"To date, our combined solution has helped to mitigate 21.69 million standard cubic feet (SCF) of methane emissions and eliminated 20,132.55 metric tons of CO2 equivalent emissions from our customers' operations," added Atlanta, Georgia-based Chart.

Dick Brown, Kathairos President and Chief Executive, welcomed the extension of its work with the US company.

"With our customers' aggressive plans to eliminate methane venting from their wellsite operations, this agreement with Chart ensures Kathairos will have the capacity to meet oil and gas industry targets for methane reduction by deploying tens of thousands of our proprietary nitrogen systems throughout North America over the next few years," Brown stated.

Jill Evanko, CEO of Chart, said the contracts were welcome with more demand anticipated from customers.

"We wanted our companies closely aligned to meet and exceed the market's needs as they look to decarbonize the oil and gas sector," stated Evanko.

"Together, we will continue to collaborate to help our customers meet their ambitious methane elimination targets," Evanko added.

Chart continues to booked LNG orders including a recent one from Bechtel for air-cooled heat exchangers, brazed aluminum heat exchangers and ethylene storage tanks for Sempra Infrastructure's Port Arthur LNG project in Texas.

The company also listed an order for liquefaction systems from the Chinese shipyard Wison Heavy Industry Co. for small-scale LNG projects.

Chart additionally recently agreed to sell a low-pressure compression and vacuum technologies company for $300 million in cash to the US group Ingersoll Rand.

Chart said the transaction was expected to close in the third quarter 2023 and as part of the deal, Ingersoll Rand would assume ownership of the Roots manufacturing facility in Connersville, Indiana, which is dedicated to Roots products, and would retain the 300 employees at Roots.

"We are excited to have executed a definitive agreement in the second quarter 2023 to sell Roots, which is another key step in accelerating our deleveraging plan while simultaneously allowing us to focus on our core strategic solution offering and integration efforts," Evanko commented on the sale.

CHENIERE Energy, the owner of the Sabine Pass liquefaction and export plant in Louisiana and the Corpus Christi facility in Texas, has signed another long-term LNG sale and purchase agreement with Equinor, the Norwegian LNG and pipeline gas supplier to Europe.

Under the latest SPA, Equinor has agreed to purchase about 1.75 million tonnes per annum of LNG from the Cheniere Marketing unit of the Houston, Texas-based company on a free-on-board (FOB) basis for a purchase price indexed to the Henry Hub price, plus a fixed liquefaction fee.

Delivery of half of the volume associated with the SPA will commence in 2027 and delivery of the remaining half, which is subject to a positive Final Investment Decision with respect to the first Train of the Sabine Pass Liquefaction Expansion Project, will start at the end of the 2020s.

The Sabine Pass deal follows an SPA signed with Equinor in June 2022, also for 1.75 MTPA of volumes, from the Corpus Christi LNG expansion.

Half of the Corpus Christi volumes, or about 900,000 tonnes, were subject to Cheniere making a positive FID to construct additional liquefaction capacity at the Corpus Christi facility beyond the seven-Train Corpus Christi Stage III Project

The terms of the Sabine SPA is 15 years from the commencement of delivery of the full 1.75 MTPA of LNG volumes to Equinor, which also operates its own LNG export plant in northern Norway at Hammerfest, supplying European import terminals.

The Equinor Hammerfest plant in Norway had initially been built and started in 2007 to send LNG cargoes to the US before the shale-gas boom began the liquefaction and export build-out in the Lower 48 states of the US.

The Sabine expansion will comprise three large-scale liquefaction Trains, each with capacity of 6.5 MTPA, a boil-off-gas re-liquefaction unit with output of 750,000 tonnes a year and two 220,000 cubic metres capacity storage tanks.

Cheniere has engaged US engineering company Bechtel Energy to complete a front-end engineering and design study of the Sabine Pass project.

"We are pleased to expand our relationship with Equinor, one of Europe's leading energy companies, building upon the SPA we executed last year," said Jack Fusco, Cheniere's President and Chief Executive.

"This SPA underscores Cheniere's and Equinor's shared vision of an energy future built upon reliable, flexible, and cleaner energy solutions," Fusco stated.

"It will provide further commercial support to the SPL Expansion Project, which we continue to rigorously develop in order to meet the world's growing demand for secure, long-term energy supplies and the economic and environmental benefits of Cheniere's LNG," the CEO added.

Helge Haugane, Equinor's senior vice president for Gas & Power, said he was very pleased to sign the long-term agreement with Cheniere.

"Europe will need natural gas to ensure flexible energy on demand to support the build-out of more intermittent renewables and LNG will play an important role. In other markets, for example in Asia, demand for LNG is expected to grow as a solution to energy security," stated Haugane.

The Cheniere group in May 2023 entered the pre-filing review process with respect to the Sabine expansion with the Federal Energy Regulatory Commission under the National Environmental Policy Act.

Cheniere has also recently signed a long-term SPA with the South Korean utility company, Korea Southern Power (KOSPO) for the Sabine expansion.

KOSPO agreed to purchase 400,000 tonnes per annum of cargoes, which will be delivered ex-ship whereby Cheniere will supply the transportation.

Cheniere said it would begin delivering a smaller amount to the Koreans in 2024, though the full SPA runs from 2027 through to 2046.

The Houston company is additionally

progressing with the expansion at the Corpus Christi plant where three liquefaction Trains currently produce 15 MTPA.

The Stage 3 expansion is adjacent to the existing plant and consists of seven mid-scale Trains with an total production capacity of over 10 MTPA.

It is also proceeding with an additional Corpus Christi expansion known as the Corpus Christi mid-scale Trains 8 and 9 project.

CHINESE liquefied natural gas imports increased last month by 30 percent as energy demand recovered because of lower prices and more regasification capacity has come on line, including in Hong Kong.

LNG deliveries to the Chinese network of 25 regasification terminals rose to 6.41 million tonnes, or about 94 cargoes, compared with 4.93MT, or 73 cargoes, according to data from the General Administration of Customs.

Chinese LNG imports in April 2023 had risen by 10 percent to 4.77MT compared with 4.34MT in April 2022.

Analysts noted that the increases in 2023 were already from a low base as the deliveries took place last year during Covid-19 lockdowns in large cities like Shanghai when economic and industrial activity were curbed along with fuel demand.

For the year to date, cargo deliveries to China advanced by 4.2 percent to 27.54MT versus 26.49MT in the same January to May period of 2022.

The Hong Kong floating liquefied natural gas import project started commercial operations in June using the world's largest floating storage and regasification unit, the "FSRU Bauhinia Spirit".

The owners of the terminal venture are the two local power utilities, Hong Kong Electric Power Co. and Castle Peak Power (CLP) Hong Kong Ltd.

Two subsea gas pipelines are connected from the FLNG terminal to Hong Kong's Black Point Power Station and the Lamma Power Station respectively.

The Hong Kong project increases regasification facilities available to the Chinese to 25 and with half-a-dozen other projects planned on the mainland, not including the expansion of existing terminals, and which will take China's regas network to 30 facilities in 2024.

The latest Chinese energy data showed that pipeline gas imports in May rose by 2 percent to 4.23MT, up from 4.15MT in May last year.

China receives varying volumes of pipeline gas through links from the former Soviet republics of Turkmenistan, Kazakhstan and Uzbekistan, as well as from Russia as part of Gazprom's "Power of Siberia" project.

The "Power of Siberia" pipeline runs for 3,000km (1,865 miles) through Siberia and into northeast China and a "Power of Siberia II" pipeline is being planned to deliver gas to China via Mongolia.

Additional pipelines inside China carry the gas for a further 2,110km through eight Chinese provinces in the north to Shanghai in eastern China.

Gas supply from the "Power of Siberia" pipeline reached just over 5 billion cubic metres in 2020, then 10.4 Bcm in 2021 and rose to 15 Bcm in 2022.

The volumes of Russian pipeline gas deliveries to China in 2023 are expected to reach around 22 Bcm.

CIVITAS RESOURCES Inc., the US oil and natural gas company headquartered in Denver, has made a "transformative" entry into the Permian Basin by acquiring assets of two companies for $4.7 billion with a mixture of debt, stock and cash in the latest round of merger and acquisition activity in the sector.

Civitas, which is the largest Denver-Julesburg Basin pure-play natural gas and oil producer in Colorado, signed the deals with privately held Hibernia Energy III LLC and Tap Rock Resources LLC.

Both are portfolio companies of funds managed by NGP Energy Capital Management LLC.

The West Texas and southeast New Mexico assets include acreage in both the Midland and Delaware sub-basins.

Civitas said that the combined transactions would add around 68,000 net acres in the Midland and Delaware basins and would add combined proved reserves of approximately 335 million barrels of oil equivalent.

The Civitas deals are the latest in US energy merger and acquisition activity for assets close to the US Gulf Coast LNG export hub and the Permian Basin.

Chevron Corp. agreed in May 2023 to acquire Nasdaq-listed PDC Energy in an all-stock transaction valued at $6.3Bln and boosting the US major's holdings in US strategic basins such as the Permian.

The acquisition of PDC provided San Ramon, California-based Chevron with high-quality assets expected to deliver higher returns.

The Chevron acquisition followed Vital Energy and Northern Oil and Gas Inc. jointly buying the assets of Forge Energy II Delaware LLC, an EnCap Investments portfolio company based in the Permian Basin, in a $540M all-cash transaction.

Civitas said that its double transaction would increase the company's existing production by 60 percent, adding around 100,000 barrels of oil equivalent per day (54 percent oil) of current production with the acquired assets expected to average approximately 105 Mboe per day from the close through to year-end 2023.

"These accretive and transformative transactions will immediately create a stronger, more balanced and sustainable Civitas," said Chief Executive Chris Doyle.

"By acquiring attractively priced, scaled assets in the heart of the Permian Basin, we advance our strategic pillars through increased free cash flow and enhanced shareholder returns," Doyle stated.

"We will soon have nearly a decade of price-resilient, high-return drilling inventory. Our strong capital structure allowed us to capture these transformational assets, and, importantly, behind the strength of the pro forma business, we have a clear path to reduce leverage and maintain long-term balance sheet strength," Doyle stated.

An outline of the deal shows that Civitas has agreed to purchase a portion of Tap Rock's Delaware Basin assets for $2.45Bln, which includes $1.5Bln in cash and 13.5 million shares of Civitas common stock valued at $950 million.

Tap Rock will retain its ownership of the Olympus development area.

"The assets include approximately 30,000 net acres, primarily located in Eddy and Lea counties, New Mexico, an area widely considered to be the core of the Delaware Basin," said Civitas.

Civitas has also agreed to purchase Hibernia's Midland Basin assets for $2.25Bln in cash, subject to customary purchase price adjustments.

"The assets include about 38,000 net acres in Upton and Reagan counties in Texas, an active and well delineated area in the Midland Basin," Civitas said.

First-quarter 2023 average production was approximately 41,000 Boe per day of which 56 percent was oil.

"The company will have an inventory of approximately 450 high-quality locations on a contiguous acreage position in the Midland Basin," Civitas stated.

CNPC, the Chinese major China National Petroleum Corp., and QatarEnergy signed agreements covering the long-term supply of LNG to China and a stake in Qatar's North Field East (NFE) expansion project.

The two parties signed an LNG Sales and Purchase Agreement (SPA) for the delivery of 4 million tonnes of LNG per annum from the NFE project to CNPC's receiving terminals in China over 27 years, making it the industry's longest term SPA commitment.

CNPC is also a major investor in Russian Arctic LNG projects operated by Novatek and is the signatory of the "Power of Siberia" pipeline natural gas supply deal for China with Russia's Gazprom.

"The two parties also signed a share sale and purchase agreement pursuant to which QatarEnergy will transfer to CNPC a 5 percent interest in the equivalent of one NFE Train with a capacity of 8 MTPA," QatarEnergy said.

"This transfer will see CNPC become a partner in the NFE project and will not affect the participating interests of any of the other shareholders in the project," the company added.

Qatar is currently developing two LNG expansion project, the North Field South (NFS) joint venture and the NFE venture in partnerships with international energy majors and when completed will take Qatar's output from 77 MTPA to 126 MTPA.

The two Qatari LNG expansions involve feed-gas developments in the prolific North Field in the Arabian Gulf and the construction of eight mega-Trains each with 8 MTPA of output.

The NFS venture will have two mega-Trains while the NFE project will have six of the mega-Trains processing the Gulf gas for export.

The NFE agreements with CNPC, for which no financial details were disclosed, were signed by Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs and President and Chief Executive of QatarEnergy, and Dai Houliang, Chairman of CNPC, during a ceremony held at QatarEnergy's headquarters in Doha.

"We are pleased to embark on this partnership with CNPC and to build on the excellent relations between the

People's Republic of China and the State of Qatar," said Al-Kaabi.

"These agreements demonstrate our unwavering commitment to our customers and partners," he added.

CNPC Chairman Dai said the company's collaboration with the NFE project represented a major achievement.

"It is another milestone in forming a strategic synergy between China's 'Belt and Road' Initiative and Qatar's National Vision 2030," Dai explained in reference to China's policy of investing overseas, though usually in developing nations in Africa and the Asia-Pacific region.

"It lays a solid foundation for the energy cooperation between the two sides in the next three decades. From this brand-new starting point, CNPC will continue to actively discuss with QatarEnergy all-round cooperation across the hydrocarbon industry chain," Dai stated.

CNPC is the second Chinese major to sign a supply and investment deal with Qatar after China Petroleum and Chemical Corp., known as Sinopec, agreed in April 2023 to take a stake in the NFE project.

Sinopec had already signed a cargo supply deal with QatarEnergy in November 2022 to receive 4 MTPA of cargoes from Qatar's Ras Laffan plant from 2026.

Sinopec signed an equity participation agreement with QatarEnergy to take 1.25 percent of the shares in the NFE joint venture.

COLOMBIA is making moves to import more liquefied national gas at the floating LNG terminal at the port of Cartagena to supply the country's main thermal plants to deal with the El Niño weather phenomenon.

The terminal is a joint venture between Colombia's Promigas and Dutch global energy storage company Royal Dutch Vopak and is called SPEC LNG from its formal name, Sociedad Portuaria El Cayao (SPEC).

SPEC LNG has been importing more LNG shipments since May 2023 as power output increases from the gas-fired plants served by the terminal.

The Colombian floating storage and regasification unit (FSRU) was one of the original wave of FSRUs deployed in South America.

Cartagena is in the far northeast of the country on the Caribbean Sea coast and the terminal has been operational since December 2016.

SPEC LNG said it was now aiming to import more cargoes of LNG from international markets to support the 2,000 megawatts of gas-fired power generation which is about 60 percent of Colombia's total gas-fired capacity.

"A total of three shipments of LNG will arrive in June at the regasification terminal of SPEC LNG," said the company.

"Our customers are stocking up on natural gas to support electric power generation during the upcoming dry spell," explained José María Castro, general manager of SPEC LNG.

Castro said that the FSRU received a small-scale delivery in mid-May of about 16,000 cubic metres and a further 43,800 cubic metres arrived just afterwards and another 44,000 cubic metres was then scheduled.

He pointed out that more LNG was needed in Colombia during dry spells when hydro-electric power supplies dropped.

"Our infrastructure has a storage capacity of 170,000 cubic metres of LNG and a regasification capacity available to our clients of 400 million cubic feet of natural gas per day," added Castro.

As a way of supporting the generation of electrical energy defined by the Energy and Gas Regulation Commission (CREG), the SPEC LNG terminal has the role of Infrastructure Agent and provides its services to three thermal generators in the country.

"The terminal is a key piece of the backup scheme that provides reliability to the Colombian electrical system, with strategic and flexible LNG storage, and allows the thermal plants to guarantee supply, not only in scenarios such as El Niño, but also in the face of other eventualities," stated Castro.

The company recalled that the regasification terminal was vital in 2020, when the levels of the dams and reservoirs for hydro-electricity were well down and the terminal regasified close to 13,000 million cubic feet of LNG for more than 200 days for the thermal plants and received 16 LNG carriers during that time.

"In this way, gas-fired thermal generation contributed close to 22 percent of the national energy demand and a possible shortage of electrical energy was avoided," noted SPEC.

DNV, the European maritime classification society, has established a Future Ship Joint Innovation Centre in Shanghai in partnership with China State Shipbuilding Corp. (CSSC), the world's leading shipbuilding group.

DNV and CSSC said the facility would allow both companies to cooperate on ship and offshore field technical innovation and to advance digitalization while providing technical support and general solutions for the maritime industry.

The new Innovation Centre was formally opened by CSSC Vice President Sheng Jigang and DNV Maritime Chief Executive Knut Ørbeck-Nilssen.

The CSSC yards include China's leading LNG carrier builder Hudong-Zhonghua Shipbuilding of Shanghai.

Its current orders include building six LNG carriers for a partnership including Japanese shipping company Mitsui OSK Lines and China's Cosco Shipping to be delivered in 2025.

DNV will operate the Innovation Centre with the Shanghai Merchant Ship Design and Research Institute (SDARI) and the cooperation accord was signed by SDARI's President Lv Zhiyong and DNV's Senior Vice President and Regional Manager Norbert Kray.

The Centre will set up three joint work groups on reducing carbon-dioxide and promoting digital and smart shipping.

"The establishment of this Centre is an important step for a deepened strategic cooperation between CSSC and DNV, China and Europe," stated CSSC VP Sheng.

"Additionally, the mutual trust and advantages gained will pave the way for an in-depth technical exchange between SDARI and DNV China, accelerating research on green and intelligent shipping technology towards a global maritime transformation," Sheng added.

DNV Maritime's CEO Ørbeck-Nilssen said it was a great honour cooperate with CSSC and SDARI to establish the Centre.

"DNV will support the Centre with its full global expertise. Together we will work to ensure it will become a model for the maritime industry's proactive response to decarbonization and digital transformation," Ørbeck-Nilssen declared.

Others who attended the ceremony included CSSC's Assistant President and Director General of Technology Division Xu Miao, SDARI's Vice President Li Lu and DNV's Senior Vice President and Reginal Strategic Business Development Director James Huang.

Also in attendance were DNV's Vice President and Regional Customer Relations Director Hou Juzhen, Vice President and Head of Technical Centre China Øyvind Pettersen and members from the new Centre and its working groups.

ENI, the Italian energy company, has explained the strategy behind its agreed acquisition for $4.9 billion of UK-based Neptune Energy, which is controlled by equity funds and owns key global LNG stakes and gas field assets in Algeria, Indonesia, Norway, the UK, the Netherlands and Australia.

The deal was announced on June 23 and was followed by a presentation and a conference call hosted by Eni Chief Executive Claudio Descalzi who said natural gas demand was continuing to grow and Eni was on track to have gas as 60 percent of its portfolio by 2030.

Under the terms of the takeover, Milan-based Eni will purchase Neptune for $2.6Bln and Eni's Norwegian-listed subsidiary Vår Energi has agreed to pay $2.3Bln to acquire Neptune's operations in Norway.

Eni also explained that most of Neptune's existing natural gas contracts would expire in the next 12 months, giving the company the opportunity to integrate these within its own pipeline gas and LNG portfolio.

Neptune is owned by equity finds with China Investment Corp. holding a 49 percent stake, the US Carlyle group owning 30.6 percent and the Luxembourg-based French asset management firm CVC Partners holding 20.4 percent.

"The geographic and operational overlap is striking, adding scale to Eni's Vår Energi, bringing more gas production and carbon capture and storage opportunities to the remaining North Sea footprint, building on Eni's leading position in Algeria and deepening Eni's presence in offshore Indonesia," CEO Descalzi explained.

Neptune Norway has interests in 12 producing gas fields in the Norwegian Continental Shelf and in the Hammerfest LNG export plant that uses feed gas from the Snøhvit field in the Barents Sea.

Eni is also taking over Neptune's operatorship of the Cygnus field in the UK Southern North Sea where it is the largest single producing gas field.

"The Cygnus field is capable of supplying 6 percent of the UK's gas

demand, enough to fuel 2 million UK homes," Eni said.

The Italian company additionally acquires the UK Seagull oil and gas project in the Central North Sea where Neptune's partners are BP and Japan Petroleum Exploration.

Eni already operates in Indonesia with Neptune, producing feed gas for LNG exports from the Bontang LNG plant under long-term contracts, as well as gas for the domestic market.

Neptune's main stakes are in the Jangkrik and Merakes gas fields and Eni said it was strengthening its operatorship in the region where there is still "significant exploration potential" in the Kutei Basin.

The acquisition also involves an overall 35 percent stake and operatorship of the Touat gas field in Algeria, as well as some assets in Egypt.

The Touat Gaz joint venture in Algeria comprises Neptune, Algerian state oil and gas company Sonatrach and French utility and energy company Engie.

"As part of a joint venture with Sonatrach and Engie, Neptune produces gas from the Touat plant, which is an important source of supply for mainland Europe," Eni explained.

"The Algerian assets enhance gas supply diversification. Eni has been present in Algeria since 1981 and with 2022 production of 95,000 barrels of oil equivalent per day projected to rise to over 120,000 boe per day in 2023. Algeria is a key exporter of natural gas to Europe to offset the shortfall of Russian supply," added Eni.

The Italian company said that the Dutch assets owned by Neptune would increase optionality in the northwest Europe region.

"In the Netherlands, Neptune is the largest offshore player with sizeable gas production from 40-plus fields," said Eni.

"Neptune also operates four main treatment hubs and two main gas pipelines (NOGAT, NGT) and is progressing with the L10 carbon capture, utilisation and storage (CCUS) project with 5-8 million tonnes per annum of storage potential," it said.

The 470-kilomtere NGT network transports natural gas onshore from the Dutch continental shelf to the Uithuizen processing station.

The Dutch gas fields include the FLQ cluster, which is a diverse, extended area in the eastern part of the Dutch North Sea sector including oil production and infill drilling.

The D12-A and D12-B (Sillimanite) assets are situated in D Block and were discovered in June 2015. This unitized gas field stretches across the UK and the Dutch continental shelves.

"The L10 Area is in the Dutch part of the North Sea and the complex manages a large amount of the gas produced on the Dutch continental shelf," Eni added.

"The deal upside here is that it further diversifies Eni's portfolio by adding substantial gas production for Europe and materiality," Eni stated.

In Australia Eni said it was taking over Neptune's interest in the Petrel project in the Bonaparte Basin, offshore northwest Australia.

"Though development options for Petrel are currently being assessed, there could be optionality to leverage existing infrastructure including the Eni (100 percent owned) Blacktip field which produces and processes gas offshore for delivery to shore," Eni said

Eni concluded by saying it expected the transaction to close in the first quarter of 2024.

The Italian company had HSBC as its exclusive financial advisor, White & Case LLP is legal advisor to Eni on the deals and Ernst & Young is tax and financial due diligence advisor to Eni.

FNB Gas, German Association of Transmission System Operators, said the TSOs completed and commissioned a total of 17 projects in 2022, though five other expansion projects were dropped in the course of network modelling for the 2022-2032 Gas Network Development Plan (NDP).

FNB Gas said that the Implementation Report published in June contained an update on modified and delayed projects.

In order to counter the decline in domestic and foreign L-Gas production, the gas TSOs have been gradually converting L-Gas areas to H-gas since 2015.

Given the importance of this market area conversion for the energy industry, the Implementation Report includes an extensive update on these projects.

"Detailed planning together with local distribution system operators has not resulted in any major changes relative to the 2022-2032 NDP," said FNB Gas.

"In 2022, Gastransport Nord GmbH, Open Grid Europe GmbH and Thyssengas GmbH managed to convert a number of larger network areas, including Düsseldorf, Bonn and Mönchengladbach, with almost 500,000 units," it said.

FNB Gas added that all network expansions on the transmission system required for this purpose were completed on time.

Overall, the number of conversions achieved in Germany since 2015 corresponds to an annual consumption of around 112 terawatt hours (TWh) and a capacity of 32 GWh/h.

"The aim is to replace the Dutch L-Gas imports, which are due to expire in 2029 and to continue to guarantee security of supply," explained Inga Posch, Managing Director of FNB Gas.

Part of the German gas market is supplied with low calorific gas (L-Gas).

L-Gas comes exclusively from German and Dutch production. The remaining supplies available in Germany (gas from Denmark, low Norway/North Sea, or from LNG terminals) provide high-calorific natural gas (H-Gas).

The two different groups must be transported in separate systems for technical and legal-for-trade reasons

For L-Gas in the Hub tender, a cost-optimal acceptance of bids is made taking into account terms and conditions for system balancing actions.

The Germany-wide L-Gas output and volume balances are still taking into account local market conditions up to the year 2030.

FNB has also previously outlined the future role of liquefied natural gas facilities at the coastal locations of the North Sea port of Wilhelmshaven, at Brunsbüttel on the Elbe River and at the Baltic Port of Lubmin.

FNB Gas, which comes from the German Fernleitungsnetzbetreiber, groups a dozen companies overseeing 40,000 kilometres of natural gas pipeline flows and other infrastructure.

The TSOs had earlier presented their draft gas network development plan through 2032 and which reflected the far-reaching changes in Germany's energy supply now that Russian pipeline gas deliveries have ended.

FNB Gas, which is based in Berlin and was founded in 2012, believes that that German natural gas consumption was expected to fall by at least 20 percent by 2032.

The Bundesnetzagentur (BNetzA), Germany's Federal Network Agency, and the TSOs jointly developed modelling variants for the partial replacement of Russian gas volumes and published the findings as an interim result in July 2022.

The TSOs decided to propose the LNG-plus C variant for the network expansion.

The gas infrastructure on which this variant is based offers flexibility between a focus on expanding LNG capacities on the German North Sea and Baltic Sea coasts and higher import opportunities from neighbouring Western European countries.

The members of FNA Gas include the following companies: bayernets GmbH, Ferngas Netzgesellschaft GmbH, Fluxys TENP GmbH, Gascade Gastransport GmbH, Gastransport Nord GmbH, Gasunie Deutschland Transport Services GmbH, GRTgaz Deutschland GmbH, Nowega GmbH, ONTRAS Gastransport GmbH, Open Grid Europe GmbH, terranets bw GmbH and Thyssengas GmbH.

GAZPROM of Russia has signed up the Central Asian republic of Uzbekistan as its newest customer after the cut-off in 2022 of European pipeline gas deliveries by the Nord Stream route to Germany after the Ukraine invasion.

Gazprom and the Government of Uzbekistan said that they had signed a detailed supply agreement at the St. Petersburg International Economic Forum, a regional meeting organized each year by the Russians.

"Current and future issues of gas industry cooperation were discussed. The parties signed a contract for Russian gas deliveries to Uzbekistan, as well as a strategy for preparing Uzbekistan's gas transmission system for accepting and transporting Russian pipeline gas," said Gazprom.

"The projected start date for Russian natural gas deliveries to Uzbekistan via Kazakh territory is the fourth quarter of 2023," added Gazprom.

The search for new pipeline gas customers by Gazprom continues after Western sanctions on pipeline gas as well as LNG, though while affecting shareholdings, the sanctions on LNG had no impact on cargo deliveries.

The Gazprom-operated Sakhalin LNG plant in the Russian Far East lost Shell as a shareholder but Japanese shareholders remained on board as they rely on the more than 9 million tonnes per annum of deliveries to Japanese terminals.

The Ministry of Energy of Kazakhstan also stated that Gazprom and Kazakhstan's state natural gas company QazaqGaz had signed an agreement on

the transportation of Russian natural gas to customers in Uzbekistan.

The Minister of Energy of Kazakhstan, Almassadam Satkaliyev, and the Chief Executive of Gazprom, Alexey Miller, have just signed a transportation services agreements for the transit of the Russian natural gas.

Kazakhstan is the largest southern neighbour of Russia in Central Asia and Uzbekistan lies to the south of Kazakhstan.

There is also a Central Asian natural gas pipeline in the region that is connected to China.

The pipeline originates on the Turkmenistan-Uzbekistan border and passes through Kazakhstan on the 3,665 kilometres (2.277 miles) route to Horgos in the Xinjiang region of China.

The Russia Energy Ministry said that pipeline natural gas exports declined by 30.7 percent in 2022 to 170.6 billion cubic metres.

Gas production in the country dropped by 11.7 percent last year to 673.8 Bcm and in the first quarter of 2023 output fell by a further 8-10 percent below the forecast levels.

GRAIN LNG, the largest European import terminal and owned by National Grid plc of the UK, plans to test market demand for 375 gigawatt hours per day (9 MTPA) of capacity and the initial consultation phase for the auction was running from June 14 until July 26.

The terminal, operated by the National Grid Ventures unit, has used "positive feedback received from the recent 'Expression of Interest' exercise and subsequent market engagement" to offer three lots of capacity.

The company said that each lot would be entitled to 42 berthing slots, 200,000 cubic metres of storage and 125 GWh/d (3 MTPA) of regasification capacity from as early as January 2029.

"This is specifically designed for parties who wish to acquire a substantial stake in a major terminal in Northwest Europe, at a reduced cost and with shorter contract lengths when compared to new-build projects," Grain LNG explained.

The company noted that as the terminal's capacity already exists, parties involved would not be subjected to the final investment decision approvals or potential delays that can arise from construction issues commonly associated with newbuild terminals.

"We are really pleased with the high level of interest shown by the market at a time of significant geo-political influence on our energy markets," said Simon Culkin, Importation Terminal Manager at Grain LNG.

"It has allowed us to engage with potential customers and shape our offering to best meet their needs, whilst optimising access to this strategic asset," Culkin stated.

The company added that the consultation period would enable participants to contribute "valuable feedback" on various aspects, including operational requirements, infrastructure enhancements and environmental considerations.

"Grain LNG values the expertise and engagement of industry stakeholders, understanding that their input is essential for optimising the existing capacity product and ensuring alignment with market needs," the company said.

The capacity auction follows a record year for Grain LNG over the 12 months from the end of June 2022 to the end of May 2023.

National Grid said the terminal sent out into the UK energy system the equivalent of 102,589 gigawatt hours (GWh) of gas during the period, the equivalent of almost 14 percent of total UK gas demand.

The Grain LNG terminal also unloaded 111 ships originating from multiple countries.

Cargoes received at the facility during the 12 months came from nations such as the US, Qatar, Angola, Algeria, Nigeria, Norway, Peru and Trinidad and Tobago.

The National Grid Ventures subsidiary operates outside of National Grid's core regulated businesses in the UK and has a diverse portfolio including subsea electricity interconnectors, competitive transmission, wind and solar generation, battery storage as well as the Grain LNG storage and regasification.

The 102,589 GWh send-out to the end of May was into the national and local transmission systems.

Grain LNG is a critical part of the UK's energy infrastructure and the terminal offers market participants direct access to the UK's National Balancing Point, one of the world's leading natural gas trading hubs.

Located on the Isle of Grain about 43 miles (69 kilometres) southeast of London, the terminal is currently able to store and deliver enough gas to meet a large proportion of gas demand in London and the Southeast of England.

There is also an expansion project underway that will see LNG storage at the terminal increase in 2025 to around 1.2 million cubic metres.

GTT, the French LNG storage technology company, received three approvals from European classification society DNV on its latest development projects in alternative fuels.

GTT said two of these three concepts were developed with the support of the Finnish ship designer Deltamarin.

These Approvals in Principle were presented to Philippe Berterottière, Chairman and Chie Executive of GTT and Kristian Knaapi, Sales Manager at Deltamarin, by Remi Eriksen, DNV Group President and CEO, at DNV's headquarters during the Nor-Shipping conference and exhibition in Oslo.

The first AiP covered a concept for an LNG dual-fuel Suezmax tanker developed in collaboration with Deltamarin, fitted with a LNG fuel tank of 5,500 cubic metres equipped with GTT's Mark III system.

The second concept covers an LNG dual-fuel Very Large Crude Carrier (VLCC) also developed with the support of Deltamarin and fitted with an LNG fuel tank of 12,500 cubic metres capacity, also equipped with GTT's Mark III.

GTT said that the third AiP was for a Mark III LNG fuel tank with (ammonia) NH3-Ready notation that includes material compatibility with NH3, risk assessment and boil-off gas management.

"For tankers, the concepts developed by GTT aim at maximising vessel autonomy thanks to large-capacity tank, giving ship-owners and charterers the benefit of longer trade navigation with only one refuelling operation, with no impact on cargo capacity," GTT explained.

"Regarding ammonia, based on an extensive compatibility tests campaign carried out by GTT, the NH3 Ready concept paves the way for potential conversion of the fuel tank to ammonia in the future," the Paris-based company added.

GTT Chairman Berterottière said we was delighted with the AiP awards from DNV.

"These certifications confirm the relevance of the R&D and innovation efforts carried out by GTT engineers and technicians," Berterottière declared.

"We thank DNV for their trust in our solutions for alternative fuels and Deltamarin for their strong cooperation," he added.

Remi Eriksen, Group President and CEO of DNV, said GTT and Deltamarin had presented "innovative new concepts" for shipping.

"Continuing to break new ground with regards to technology, is essential if shipping is to meet its ambitious decarbonization goals," added Eriksen.

"These concepts build on LNG, which is already playing a key role in reducing shipping's carbon emissions, while offering a path towards future fuels," he stated.

Kristian Knaapi of Deltamarin, said his firm was proud to have achieved these approvals alongside GTT.

"We are pleased by the great collaboration we have had with both DNV and GTT," he added.

INDIAN liquefied natural gas imports dropped by 24 percent in May at prices lower than a year ago to reverse April's brief rebound as domestic gas production was also flat while the start of the monsoon season in June has coincided with higher cargo prices.

Deliveries of LNG for the month of May came to 1.65 million tonnes, or 24 cargoes, compared with the same month of the previous year when 2.17MT, or 32 shipments, were unloaded, according to provisional data from India's Ministry of Petroleum and Natural Gas.

Imports for the first two months of the fiscal year decreased by 5.4 percent to 3.51MT versus 3.71MT in April and May last year.

Deliveries to India's regasification network had risen by 6.5 percent to 1.64MT in the previous month of April compared with 1.54MT in April 2022.

Analysts note that LNG prices are starting to increase in June for the Indian sub-continent market.

The regional spot price, the West India Marker (WIM), was last at $12.468 per million British thermal units MMBtu for August deliveries.

The WIM futures prices are for spot LNG cargoes delivered ex-ship (DES) into West Asia and the Arabian Gulf states.

The prices are indicators for shipments to terminals in India, Pakistan, Bangladesh and Kuwait and the prices apply to cargoes in the 135,000-175,000 cubic metres capacity range.

LNG deliveries to Indian terminals come from Qatar, which provides over

one-third of volumes, as well as West Africa, the US, Asia-Pacific nations, the spot market while Russian deliveries have also resumed in 2023.

The May decline in Indian LNG imports coincided with the start-up of the country's seventh LNG import terminal at Dhamra in the East Coast state of Odisha.

That facility is the second import terminal on the East Coast and is a joint venture owned by France's TotalEnergies and India's Adani group.

The Ministry data showed that the nation's LNG bill for the month of May 2023 was lower at $1.4Bln, or 11,485 crore Indian rupees, compared with $1.8Bln, or 14.766 crore rupees, in May last year.

The shipments for April and May combined came to $2.5Bln, or 20,509 crore rupees, down from $3.2Bln, or 26,520 crore rupees, in the same two months of last year.

The Ministry said that domestic natural gas production in May from gas fields such as those in offshore as areas of the Bay of Bengal edged lower by 0.1 percent to 2.909 billion cubic metres from 2.914 Bcm in May 2022.

The combined April-May output declined by 1.5 percent to 5.654 Bcm versus 5.741 Bcm in April-May last year.

The Ministry added that onshore coal-bed methane gas production in May was 54.64 Bcm, up from the previous month of April's 52.96 Bcm.

Ministry data also gave average capacity utilization rates for the LNG terminals one month in arrears for April 2023.

The total capacity of existing terminals has now risen to 47.7 MTPA from seven facilities with the TotalEnergies and Adani group's Dhamra LNG terminal in Odishi now listed by the Ministry but containing no monthly regasification data.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA and had a utilisation rate of 95.5 percent, well up on the previous 77.8 percent.

At the Hazira facility, operated by Shell India, the utilisation rate dropped to 21.2 percent from 36.6 percent previously for 5.2 MTPA of capacity.

The GAIL (India) terminal at Dabhol, south of Mumbai, reported a jump to 75.2 percent in throughput, up from 39.2 percent previously for 5 MTPA.

The West Coast terminal at Mundra saw usage drop to 9.6 percent from 16.0 percent last month for 5 MTPA.

At the Kochi facility in the southwest state of Kerala usage edged higher to 19.9 percent from 18.6 percent for 5 MTPA.

At Kamarajar (Ennore), now one of two terminals on the East Coast, reported higher capacity usage at 15.5 percent, up from 13.0 percent at the facility with 5 MTPA of capacity.

The Adani-TotalEnergies terminal as mentioned above was listed but without capacity data.

The Ministry figures also showed that natural gas consumption for May fell to 5.654 Bcm from 5.784 Bcm in May 2022, though was higher than the previous month of April's 4.884 Bcm.

The major consumers of natural gas in the country are the fertilizer industry with around 34 percent of consumption, city-gas 22 percent, power generation 15 percent, refineries 9 percent, petrochemicals 5 percent and others 15 percent

INPEX Corp., the leading Japanese liquefied natural gas developer and operator in the Asia-Pacific region, is focusing on re-assuring shareholders and the public in Japan on the company's safety and security by organising facility tours of the Naoetsu LNG Terminal in Joetsu City in Niigata Prefecture.

The facility tours have taken place over two days and Inpex issued photographs of groups of people enjoying their visits.

"During the facility tours, participants enjoyed close-up views of the LNG tanks at the Naoetsu Terminal and also visited the Inpex Museum, an interactive exhibit featuring a panoramic video presentation on natural gas and LNG," Inpex explained.

"The participants also visited and inspected the pipeline monitoring center," Inpex added.

"Feedback from participants included the following statements: 'It was impressive to see the (huge) size of the LNG tanks with my own eyes' and, 'I was able to understand Inpex's high level of safety awareness' during the tour," the company revealed.

The Naoetsu terminal is already a landmark in Joetsu City since it was inaugurated in December 2013 as Japan's 31st facility in the national import network, including satellite terminals.

The terminal has two above-ground LNG tanks, each with storage capacity of 180,000 cubic metres, and a berth for 210,000 cubic metres capacity Qatari Q-Flex class LNG carriers.

It received a commissioning cargo at the end of August 2013 and started commercial operations on December 1 that year.

Inpex said the latest tours were a success and it planned to continue to organize them to "deepen shareholder understanding" and to foster the continued support of its shareholders and the public.

The Inpex oil and gas assets in Japan also comprise the domestic Minami-Nagaoka Gas Field, also in Niigata Prefecture, as well as the Naoetsu terminal.

Inpex brought the Naoetsu terminal to prominence in July 2021 when it became the first oil and gas company to deliver a "carbon-neutral" LNG cargo to an import terminal it owns and lifted from a liquefaction plant it owns and operates.

The company's "carbon neutral" shipment was delivered to the Naoetsu terminal after being lifted from the Inpex-operated Ichthys LNG export plant in Australia's Northern Territory.

Inpex own a 66 percent stake the Ichthys plant currently supplies about 10 percent of Japan's LNG imports. The other main shareholder is French major TotalEnergies.

The Ichthys plant in Australia is a key part of the company's regional activities and well as currently developing the Abadi liquefaction project in Indonesia.

The Japanese company finalized the development plan in 2023 for the Abadi export project.

The Inpex-led venture will be located onshore Yamdena Island in the Tanimbar Island chain and will use feed-gas from the Abadi gas field in the Masela Block of Indonesia's Arafura Sea.

The Indonesian liquefaction and export plant could be expected to be operational by around 2030.

JORDAN and Egypt have signed a wide-ranging energy cooperation agreement under which the Egyptians would be able to use the LNG floating storage and regasification unit (FSRU) berthed at the port of Aqaba.

A statement said that the FSRU would be at the disposal of Egypt during the remaining period of the vessel's charter contract.

Jordan would still have flexibility to import occasional LNG cargoes while the FSRU is under contract to Jordan National Electric Power Corp. (NEPCO) until 2025.

the Jordanians started importing LNG in May 2015 when the 160,000 cubic metres capacity "Golar Eskimo" FSRU arrived at Aqaba.

The FSRU, now known as the "Energos Eskimo", is currently operated by Energos, a joint venture owner of a small fleet of vessels and held be New York-based LNG player New Fortress Energy Inc. and the US Apollo infrastructure fund.

The vessel at Sheikh Sabah Al-Ahmad Port in Aqaba can receive 500 million standard cubic feet per day with a peaking capacity of 750 million per day.

The Jordan-Egypt agreement followed a meeting in Amman between energy executives and ministers from both countries and analysts said that it signals the start of more regional Arab cooperation in natural gas infrastructure for economic development.

A Jordanian statement said that those in attendance included Amjad Rawashdeh, the Director General of Jordan's NEPCO and Magdy Galal, the Chairman of the Egyptian Natural Gas Holding Company (EGAS).

Others present included Jordan's Minister of Energy and Mineral Resources Saleh Kharabsheh and the Egyptian Minister of Petroleum and Mineral Resources Tarek El-Mulla.

"The main objective of the agreement is to benefit from the resources of the two countries with higher efficiency at a lower cost, stressing that the use of the floating vessel in Aqaba will run until the end of its charter contract in late 2025, after which a coastal regasification facility would be completed," said the statement.

Kharabsheh said that his Ministry was now in the process of issuing tenders for the new import terminal hub and that a perspective on how far the designs meet the needs of the two countries will be in place in the next two months.

The bilateral agreement is also part of a plan for Jordan to launch a national natural gas programme to supply industry and homes in Amman and the city of Zarqa backed by Egyptian investments

"Egypt has the expertise in domestic gas applications and will help to maximize Jordan's benefit in this field, and the Jordanian-Egyptian cooperation would be extended to implementing a

number of other energy projects," added the statement.

The agreement comes amid huge development plans for the East Mediterranean, including LNG exports by Israel and Cyprus's Aphrodite field supplying feed gas to Egypt for liquefaction at an Egyptian plant.

Jordan is also an important market for Israel's surplus gas and was the anchor for development of the first phase of the Leviathan gas project offshore Israel.

More use is expected to be made in the future of the Arab Gas Pipeline (AGP), a 1,200-kilometre trans-regional gas pipeline originally built to carry natural gas from Egypt to Jordan, Syria and Lebanon.

Another regional natural gas pipeline, the East Mediterranean Gas (EMG) pipeline, supplies Egypt with Israeli gas from its East Med fields, Leviathan and Tamar.

The EMG pipeline runs from Ashkelon in Israel to El Arish in Egypt.

The AGP has four sections and the first section extends from El Arish to Aqaba. Its total length is 265 kilometres (164 miles), including a 15km offshore segment running under the Gulf of Aqaba.

The second section runs 390km from Aqaba to El Rehab, which is situated 30km from the Jordanian-Syrian borders.

The third section is 30km in length extending from Jordan (El Rehab) to Syria (Jabber).

The fourth section constitutes part of the gas network in Syria. It runs from Jabber (Syrian side of Jordanian-Syrian borders) to the Syrian-Turkish borders, ending in Lebanon.

KOREAN Register (KR), the maritime classification society of the Republic of Korea with 80 offices around the world, has awarded an Approval in Principle to HD Hyundai Heavy Industries for a new type of tank shape designed for various liquefied gases and fuels.

The Korean society said that new tank shape developed by HD HHI, the nation's largest shipbuilding company and formerly called Hyundai Heavy Industries Holdings Co., is designed to improve maritime safety and productivity.

"The new tank shape aims to address the challenge of sloshing that impacts the transportation of liquefied gases such as LNG," said KR.

"Sloshing refers to the wave-like movement of liquid inside a tank during sea transport. It is crucial to ensure structural stability by minimizing sloshing flow caused by the ship's motion, as excessive sloshing can exert significant impact forces on the tank walls, jeopardizing its structural integrity," KR explained.

The society, headquartered in the South Korean port of Busan, currently classes an international fleet of 3,080 vessels.

KR said that HD HHI has successfully optimized the shape of the liquefied gas tank, effectively reducing the sloshing effect and enhancing stability.

"This significantly mitigates the risk of accidents and potential disasters during transportation. Furthermore, the innovative tank design incorporates an improved layout, leading to enhanced work efficiency and productivity," added KR.

"The newly developed tank shape exemplifies cutting-edge technology that combines improved safety measures, increased productivity and efficient sloshing reduction techniques," KR said.

HD HHI said it planned to expand the application of the new tanks to various liquefied gas carriers and other ships in the future.

It was expected that HD HHI would continue to strengthen its competitiveness in the liquefied carrier shipbuilding market, including LNG, by "providing safe and reliable solutions" to customers.

KR stated that it was "committed to actively collaborating" with the technology development of new tank types.

"As a leading classification society, KR will provide comprehensive technical support to facilitate the development of next-generation eco-friendly ships, further promoting the advancement of maritime industry," it added.

MAKEEN ENERGY and BB Bioenergi of Denmark have signed an agreement on building a new liquefaction plant to make liquefied biogas from waste as Northeast Europe leads biogas developments that have attracted takeovers by energy majors.

Makeen and BB Bioenergi plan to construct the biogas liquefaction facility in North Denmark.

The facility will be added to BB Bioenergi's existing biogas plant to convert the biogas to liquid form and to sell as fuel.

Denmark-based engineering company Makeen Energy will cooperate with BB Bioenergi to produce liquefied biogas for trucking transportation and industry.

"By integrating Makeen Energy's technology for liquefaction of biogas into their biogas plant in North Denmark, BB Bioenergi will offer an easily transportable and CO2-reducing alternative to diesel and other fossil fuels to its customers," the companies explained.

"BB Bioenergi's ambition is to create the biogas plant of the future in which the liquefaction process is partly powered by energy that the plant itself generates from waste materials from the production of biogas by putting it through a pyrolysis facility on-site," they added.

Aside from the liquefaction of biogas, BB Bioenergi also aims to collect and liquefy the carbon-dioxide from the biogas plant.

They stated that the goal of the collaboration was to create a "visionary biogas plant" that can show the way forward for biogas production in Denmark.

"We wanted a local partner and not just a supplier - someone with expertise within the field who understands our needs and can assist us in both current and future challenges in our sector," said Daniel Overgaard Pedersen, Chief Executive of BB Bioenergi.

"I am happy to have found that in Makeen Energy and I really look forward to working together," the CEO added.

Frej Olsen, Head of the Cryo division at Makeen, said that when he heard BB Bioenergi explaining its vision he felt it was a project that made sense.

"The fact that they chose our technology for their new plant makes us very proud, and it shows how valuable solutions of this kind are in accommodating the energy demands of the future," Olsen added.

Analysts note the energy majors have been targeting European biogas companies producing fuel from agricultural, industrial and household waste with Denmark being one of the main biogas development areas in Northwest Europe.

A Shell subsidiary in February 2023 completed the $2 billion acquisition of Europe's largest renewable natural gas (RNG) company, Nature Energy Biogas of Denmark.

Nature Energy established its first biogas plant in Denmark in 2015 and at the time of the takeover had 14 operating plants with associated infrastructure, feedstock arrangements and production of around 6.5 million MMBtu per annum.

NEXTDECADE Corp., the developer of the Rio Grande LNG export project in Texas, has teamed up with a New York investment fund and TotalEnergies to enable a final investment decision for the first three liquefaction Trains and with the French major buying 5.4 million tonnes per annum of cargoes and taking a large stake in NextDecade.

NextDecade, listed on the Nasdaq global exchange, said framework agreements had been signed with Global Infrastructure Partners (GIP) and TotalEnergies.

"NextDecade, GIP and TotalEnergies have entered into framework agreements whereby GIP would become a majority investor in Phase 1, and TotalEnergies would become a 16.67 percent stakeholder," NextDecade explained.

Houston, Texas-based Next Decade has ultimate plans and permits to produce up to 27 MTPA of LNG from five liquefaction Trains constructed in two phases at the Rio Grande facility on the Brownsville Ship Channel.

"The agreements are also expected to further provide GIP and TotalEnergies options to invest in Rio Grande LNG Train 4 and Train 5 and options to invest in the planned carbon capture and sequestration (CCS) project," the company said.

NextDecade added that TotalEnergies had agreed to purchase 5.4 MTPA of cargoes from Phase One for 20 years on a free-on-board (FOB) basis indexed to Henry Hub and has options to purchase LNG from Train 4 and Train 5.

Under the agreements, TotalEnergies has also agreed to acquire in three tranches a 17.5 percent common stock position in NextDecade for an aggregate purchase price of $219.4 million.

Matt Schatzman, NextDecade Chairman and Chief Executive, said the agreements were "momentous" for the company and the project.

"We are excited to work with GIP and TotalEnergies on Rio Grande LNG and our proposed CCS project," stated Schatzman.

The US company said the first tranche of $40M of NextDecade common stock

had already been issued and sold at $4.9837 per share to TotalEnergies.

It added that the second tranche of $110M will be issued and sold at the same price after FID on Phase One development.

"The third tranche will be issued and sold in an amount such that the combined stock purchases equal 17.5 percent of the outstanding common stock of NextDecade after the closing of the third tranche," said NextDecade.

"The issuance and sale of the common stock in the third tranche will be conditional on the approval of NextDecade shareholders," explained the firm.

"Based on current estimates, NextDecade expects to sell approximately 45.1 million shares of common stock in the aggregate to TotalEnergies at an average price per share of approximately $4.86," added NextDecade.

Patrick Pouyanné, Chairman and CEO of TotalEnergies, said the French company was delighted to join forces with NextDecade and GIP on the development of a new US LNG project, enabling TotalEnergies to leverage its extensive experience in LNG and major industrial project development.

"Our involvement in this project will add 5.4 million tons per year of LNG to our global portfolio, strengthening our ability to ensure Europe's security of gas supply and to provide our Asian customers with an alternative fuel to coal," added Pouyanné

Bayo Ogunlesi, Chairman and CEO of the GIP fund, said the agreement gave the New York firm an opportunity to help shape the future of energy.

"This venture marks a critical step in displacing coal usage and upholds GIP's commitment to promoting decarbonisation, energy security and energy affordability," Ogunlesi declared.

SOUTH KOREA, the third-largest Asian liquefied natural gas importer, has decided to freeze electricity prices even as liquefied natural gas costs for gas-fired power generation have begun to increase and to overtake European LNG cargo values.

The planned freeze came after the government had increased electricity rates by 5.3 percent for the first and second quarters of 2013 due to high global energy costs and the mounting losses at Korea Electric Power Corp. (Kepco), the state-owned power company.

Kepco said it had now decided to fix the adjusted unit fuel cost at 5 South Korean won (US$0.004) per kilowatt hour (kWh) for July until the end of September, meaning it would be unchanged from the previous three months.

Global natural gas and LNG prices steadily fell after the Northern Hemisphere winter to under US$9 per million British thermal units at the end of May.

However, the Japan-Korea Marker price for spot LNG cargoes has rebounded to be quoted at $13.050 per MMBtu on June 21.

South Korea is the largest buyer of spot LNG volumes after China and Japan.

The nation's LNG cargo imports are currently running at around 50-plus shipments per month with 12 deliveries expected this week through June 25 versus 13 cargoes in the previous week.

Analysts noted that the South Korean government had been unable to curb the rising costs of electricity charged to consumers in the first half of 2023 because of high oil and gas import costs, inflation and an economic slowdown.

The electricity rates had even dropped below production costs leading Kepco to report record operating loss of 32.63 trillion won ($23.3 billion) in 2022, more than four-times higher than in the previous year.

Kepco, which is 51 percent owned by the Government, then managed to narrow the first-quarter 2023 net losses from the same three months of 2022 due to the government's agreement to raise prices.

The utility has also announced moves to make 25.7 trillion won worth of savings in 2023, including asset sales and a wages freeze.

South Korea imports 97 percent of its energy products for power and industry.

About 62 percent of power generation in Korea comes from coal-fired and oil-fired plants, a further 20 percent comes from eight gas-fired plants using imported and regasified LNG, 14 percent comes from nuclear with the country having four plants (not all operating). The balance of 4 percent of power generation comes mostly from hydro-electric, though also from some biomass and renewables.

The South Korean power market comprises six power generation companies, some small independent power players and community energy systems that produce electric power.

KEPCO makes purchases from the Korea Power Exchange and transports the power through the transmission and distribution network before selling it to customers.

The Government of Korean President Yoon Suk Yeol has reversed the previous government's nuclear phase-out policy and has been working to expand nuclear power generation to 30 percent of the country's energy mix total by 2030.

At the same time South Korea's LNG imports have risen to an annual 47 million tonnes with the largest LNG suppliers being Qatar and Australia with around 11 MTPA of cargoes each followed by the US and Oman and volumes from the spot market.

Gas-fired power from LNG is much preferred in South Korea to coal which is blamed for heavy air pollution exacerbated by emissions floating crossing the border from North Korea where coal is the primary source of energy.

Korea Gas Corp., the nation's gas utility, controls four out of seven of the South Korean LNG import terminals.

Kogas was previously the sole importer of LNG into Korea, though has now been joined by several other companies, the first being a unit of steel-maker POSCO International.

Several other companies including GS Energy and SK E&S were then given permission in Korea to import LNG.

The terminals at Gwangyang and Boryeong are used by the other companies while Kogas controls the facilities at Incheon, Pyeongtaek, Samcheok and Tong-Yeong. The terminal at Jeju is jointly controlled with KEPCO.

TOTALENGERGIES the French major and a leading global LNG project developer and investor, has awarded engineering, procurement and construction contracts to five companies for the $11 billion Amiral complex project, a world-scale petrochemicals facility expansion at the Satorp refinery in Saudi Arabia as part of a joint venture with Saudi Aramco.

The facility will house the largest mixed-load steam cracker in the Gulf with capacity to produce 1.65 million tons of ethylene and other industrial gases per annum.

Aramco and TotalEnergies have teamed up for this project as the French energy developer also prepares multi-billion dollar investments in LNG joint ventures in the Gulf state of Qatar as well as in Mozambique and the US.

QatarEnergy selected TotalEnergies as a key international partner in both the North Field South (NFS) liquefaction venture and the North Field East (NFE) project that will take Qatar's production to 126 million tonnes per annum of LNG.

In addition, the French major is also the operator of the large-scale onshore LNG project in Mozambique that is also moving forward and was recently chosen to partner NextDecade Corp. of the US for the Rio Grande LNG export venture in Texas.

For the Saudi refinery project, the EPC contracts signing ceremony took place in Dhahran in Saudi Arabia attended by Aramco President and Chief Executive Amin H. Nasser and his TotalEnergies counterpart Patrick Pouyanné.

"The award of EPC contracts for the main process units and associated utilities marks the start of construction work on this joint project, following the final investment decision in December 2022," said TotalEnergies.

Aramco 's Nasser said the company was taking a major step forward in further strengthening the partnership between TotalEnergies and Aramco.

"As part of Aramco's growth strategy, the project is anticipated to contribute to value-addition opportunities in the Kingdom's downstream ecosystem, and we thank the Ministry of Energy and the Ministry of Investment for their tremendous support via the Shareek program to make this multi-billion-dollar project a reality," Nasser stated.

The Kingdom's Shareek program aims to unlock 5 trillion Saudi riyals (US$1.35 trillion) of private-sector investments by 2030, raising private-sector GDP contributions to 65 percent and to increase non-oil exports over time from 16 percent to 50 percent

The Saudi Amiral project will be integrated with the existing Satorp refinery in Jubail and the new petrochemical complex is expected to attract more than $4 billion in additional investment in a variety of industrial sectors and create thousands of jobs.

"This expansion reinforces the exemplary relationship that our two companies have enjoyed for several decades," Pouyanné said.

The EPC contracts list includes South Korea's Hyundai Engineering & Construction Co. to work on a mixed feed cracker and utilities project for related

industrial gases and flaring and interconnecting systems that support the main packages.

The Rome, Italy-based company Maire Tecnimont won the contract for two polyethylene units using Advanced Dual Loop technology and the derivative units.

Sinopec Engineering Group Saudi Co. was put in charge of the tank farm and Satorp integration.

Among regional companies, Gulf Consolidated Contractors Co. will work on the transfer pipelines, Mohammed Ali Al-Suwailem Trading & Contracting will build industrial support facilities and Mofarreh Marzouq Al Harbi & Partners is in charge of site preparations.

VENTURE GLOBAL, the US operator of the Calcasieu Pass export plant in Louisiana and developer of three other export project in the US Gulf Coast state, has signed a 20-year supply deal with the former Gazprom Germania that was taken over by the German Government.

After the Russian invasion of Ukraine in February 2022, Germany after several months of supply disputes and amid Western sanctions decided in April 2022 to nationalized the former German subsidiary of the Russian natural gas company.

Gazprom Germania thus came under German control and had its name changed to Securing Energy for Europe GmbH (SEFE).

The new SEFE company also controls Germany's largest gas storage facility.

At the same time as Gazprom Germania was seized by the Germans Poland took over sections of the natural gas pipeline running from Russia's Yamal Peninsula to Poland and Germany.

The German Government acquired all the shares in SEFE on November 14 2022 and thus became the sole owner of the group of former Gazprom companies in Germany.

Venture Global has now announced a 20-year supply deal with SEFE and for 2.25 million tonnes per annum.

Under the agreement, SEFE's subsidiary, WINGAS GmbH, will take delivery of the cargoes from the Venture Global's third project in line for development and called CP2 LNG.

The existing Calcasieu Pass facility comprises 18 small-scale modular liquefaction Trains each with 0.626 million tonnes per annum of capacity and configured in 9 blocks for total nameplate output of 11.26 MTPA.

However, Venture Global has plans for more future output of about 60 MTPA of LNG export capacity.

The company's three other projects, including the CP2 to be built adjacent to Calcasieu Pass, are each expected to have nameplate capacity of around 20 MTPA. The other two are called Plaquemines LNG and Delta LNG.

"Venture Global is thrilled to begin a strategic partnership with SEFE, making our company the largest long-term LNG supplier to Germany," said Michael Sabel, Chief Executive of Venture Global.

"SEFE is playing a leading role in ensuring security of energy supply for not only Germany but the rest of the European gas market," added Sabel.

"Germany has acted decisively to diversify its energy portfolio and LNG will be a vital part of that mix as it seeks to strengthen its energy security. We are honored to support a key US ally in each of these efforts," Sabel stated.

Egbert Laege, CEO of SEFE, said that by joining forces with Venture Global LNG, SEFE was making another step in the "mission to secure energy for Germany" and other European customers.

"In delivering a substantial amount of the contracted capacity of CP2 LNG to European customers, we will contribute to the further diversification and sustainability of the European energy supply," Laege added.

Other customers of the CP2 project include US majors ExxonMobil and Chevron, Japan's JERA, US firm New Fortress Energy, INPEX of Japan, China Gas and German utility EnBW.

Venture Global said 9.25 MTPA of the 20 MTPA nameplate capacity for CP2 was the subject of sales agreement and there were "active discussions" ongoing for the remaining capacity. ■

LNG import terminals

Country	Location (Project)	Owners	Start up	Storage Tanks	Storage Capacity
Belgium	Zeebrugge	Fluxys	1987	4	380,000
Canada	Canaport Saint John	Irving Oil, Repsol	2009	3	480,000
Chile	Quintero	ENAP, Metrogas, Enagas	2009	3	334,000
	Mejillones	Engie, Ameris Capital AGF	2010	1	175,000
China	Beihai LNG, Guangxi	Sinopec	2015	4	640,000
	Dalian	PetroChina	2011	3	480,000
	Dapeng ND Guangdong	CNOOC	2018	4	640,000
	Dongguan, Guangdong	Jovo Group	2013	2	160 000
	Fujian LNG (Xiuyu)	CNOOC, Fujian I&D Corp.	2008	2	640,000
	Guangdong	CNOOC,BP	2006	3	480,000
	Haikou, Hainan LNG	CNOOC	2014	3	480,000
	Jiangsu Binhai LNG	CNOOC	2022	4	880,000
	Ningbo, Zheijang	CNOOC, Zhejiang Energy	2012	3	480,000
	Pinghu LNG	Z. H. Clean Energy	2022	2	160,000
	Qidong, Jiangsu	Guanghui Energy	2018	1	60,000
	Qingdao, Shandong	Sinopec	2014	3	480,000
	Rudong	PetroChina	2011	3	530,000
	Shanghai	CNOOC, Shenergy Group	2009	3	495,000
	Shanghai, Mengtougou	Shanghai Gas	2008	3	120 000
	Shenzen, Diefu	CNOOC	2016	2	320,000
	Tangshan, Hebei	PetroChina	2013	3	480,000
	Tianjin North	Sinopec	2017	2	320,000
	Yuedong, Guangdong	CNOOC	2016	2	320,000
	Zhoushan Zhejiang	Enn Group	2018	2	320,000
	Zhuhai, Gaolan	CNOOC	2013	3	480,000
Dominican Republic	Punta Caucedo	AES Andres	2003	1	160 000
Finland	Pori	Gasum Skangas	2016	1	30,000
	Tornio	Gasum Skangas	2018	1	30,000
France	Fos Tonkin	Elengy	1972	3	150,000
	Montoir-de-Bretagne	Elengy	1980	3	360,000
	Fos Cavaou	Engie, Total	2010	3	330,000
	Dunkirk LNG	EDF, Fluxys, Total	2016	3	570,000
Gibraltar	Gasnor	Shell	2018	1	5,000
Greece	Revithoussa	DEPA	2000	3	225,000
India	Dabhol	GAIL, NTPC (Ratnagiri Gas & Power)	2009	3	480,000
	Dahej	Petronet LNG	2004	4	592,000
	Hazira	Shell India, Total	2005	2	320,000
	Kochi, Kerala	Petronet LNG	2013	2	320,000
	Mundra	Gujarat State Petroleum, Adani Group	2018	2	320,000
	Kamarajar (Ennore), Tamil Nadu	Indian Oil, DFC, ICICI Bank	2019	2	360,000
Indonesia	Arun	Pertamina	2015	5	507,000
Italy	Panigaglia	Snam	1969	2	100,000
	Porto Levante (offshore GBS)	ExxonMobil, Qatar Petroleum, Edison Gas	2009	2	250,000
Jamaica	Montego Bay	New Fortress	2018	1	7,000
Japan	Negishi	Tokyo Gas	1969	14	1,180,000
	Sodegaura	Tokyo Gas JERA Co. Inc	1973	35	2,660,000
	Ohgishima	Tokyo Gas	1998	4	850,000
	Higashi-Ohgishima	JERA Co. Inc.	1984	9	540,000
	Futtsu	JERA Co. Inc.	1985	10	1,360,000
	Yokkaichi LNG	JERA Co. Inc.	1988	4	320,000
	Kawagoe	JERA Co. Inc.	1997	6	840,000
	Yokkaichi Works	Toho Gas	1991	2	160,000
	Chita LNG Joint	Toho Gas, Chubu Electric	1978	4	300,000
	Chita LNG	Toho Gas, Chubu Electric	1983	7	640,000
	Chita - Midorihama	Toho Gas	2001	3	600,000
	Senboku I	Osaka Gas	1972	4	180,000
	Senboku II	Osaka Gas	1977	18	1,585,000
	Himeji	Osaka Gas	1984	8	740,000
	Himeji LNG	Kansai Electric	1979	7	520,000
	Yanai	Chugoku Electric	1990	6	480,000
	Niigata	Nihonkai LNG, Tohoku Electric	1984	8	720,000
	Oita	Oita Gas, Kyushu Electric	1990	5	460,000
	Tobata	Kitakyushu LNG	1977	8	480,000
	Fukuoka	Saibu Gas	1993	2	70,000
	Sodeshi	Shizuoka Gas	1996	3	337,200
	Hatsukaichi	Hiroshima Gas	1996	2	170,000
	Kagoshima	Nippon Gas	1996	2	136,000
	Shin-Minato	Sendai City Gas	1997	1	80,000
	Nagasaki	Saibu Gas	2003	1	36,000
	Sakai	Kansai Electric, Cosmo OII	2006	3	420,000
	Mizushima	Nippon Oil, Chugoku Electric	2006	2	320,000
	Sakaide	Shikoku Electric, Cosmo Oil	2011	1	180,000
	Ishikari LNG	Hokkaido Gas, Hokkaido Electric	2012	2	380,000
	Okinawa	Okinawa Electric Power	2012	2	280,000
	Naoetsu	Inpex	2013	2	360,000
	Joetsu	JERA Co. Inc.	2011	3	540,000
	Hachinohe LNG	Nippon Oil	2015	2	280,000
	Hitachi LNG	Tokyo Gas	2015	1	230,000
	Soma Fukushima	Japan Petroleum Exploration	2017	1	225,000
Korea	Boryyeong	GS Energy, SK E&S	2017	3	200,000
	Incheon	Kogas	1996	20	2,880,000
	Kwangyang	POSCO SK E&S	2005	4	530,000

Explanatory Notes

- The tables do not include the following types of LNG facilities:
  - Small marine satellite terminals receiving LNG from liquefaction plants in their own country (such as exist in Norway) or which receive LNG transhipped from nearby reception terminals in their own country (such as in Japan)
  - Satellite LNG storage facilities that receive LNG transported only by road or rail
- Expansions of LNG reception terminals are only shown if they involve new storage tanks
- Where there is a blank in the table the information is uncertain or unknown.

Any comments on the tables, and corrections / additional information from terminal shareholders and project developers would be most welcome, and should be sent to editor@lngjournal.com

LNG import terminals (continued)

Country	Location (Project)	Owners	Start up	Storage Tanks	Storage Capacity
Korea (continued)	Pyeong-Taek	Kogas	1986	23	3,360,000
	Samcheok	Kogas	2014	3	600,000
	Tong-Yeong	Kogas	2002	17	2,620,000
	Jeju	Kogas	2019	2	90,000
Kuwait	Al Zour LNG	KIPIC	2021	8	1,800,000
Malaysia	Pengerang Johor	Petronas Gas	2017	2	400,000
Mexico	Altamira	Vopak, Enagas	2006	2	300,000
	Energia Costa Azul	Sempra LNG	2008	2	320,000
	Manzanillo	Samsung, Kogas, Mitsui	2012	2	300,000
Netherlands	Gate LNG	Gasunie, Royal Vopak	2011	3	540,000
Panama	Costa Norte	AES	2018	1	130,000
Phillipines	Pagbilao LNG	Energy World Corp.	2017	1	130,000
Poland	Swinoujscie	Baltic Gaz System	2015	2	320,000
Portugal	Sines	REN Atlantico	2004	3	390,000
Puerto Rico	Penuelas	EcoElectrica	2000	1	160,000
Singapore	Singapore	Singapore Energy Authority	2013	3	540,000
Spain	Barcelona	Enagas	1969	8	840,000
	Huelva	Enagas	1988	5	610,000
	Cartagena	Enagas	1989	5	587,000
	Bilbao	Enagas, EVE	2003	3	450,000
	Sagunto	GNF, Osaka Gas, Oman Oil	2006	4	600,000
	Mugardos, El Ferrol	Reganosa, Sonatrach, Sojitz Corp.	2006	2	300,000
	El Musel, Gijón,	Enagas	2013	2	300,000
Sweden	Lysekil	Gasum	2014	1	30,000
	Nynashamn	AGA Gas	2011	1	20,000
Taiwan	Yung-An	CPC	1990	6	690,000
	Tai-Chung	CPC	2009	5	800,000
Thailand	Map Ta Phut	PTT LNG	2011	2	320,000
Turkey	Marmara Ereglisi	Botas	1994	3	255,000
	Izmir	EgeGaz	2006	2	280,000
USA	Everett	Suez LNG NA	1971	2	155,000
	Lake Charles	Shell, ETE	1982	4	425,000
	Freeport	Freeport LNG Development	2008	2	320,000
	Golden Pass, TX	Qatar Petroleum, ExxonMobil	2010	5	775,000
	Pascagoula, MS	Gulf LNG, Kinder	2012	2	320,000
UK	Isle of Grain	National Grid	2005	8	1,000,000
	South Hook	ExxonMobil, Qatar Petroleum,Total	2009	5	775,000
	Dragon LNG, Milford Haven	Shell, Petronas	2009	2	310,000

LNG import terminals projects

Country	Location/Project	Owners/Project Developers	Start up	Storage Tanks	Storage Capacity
India	Jaigarh	Hiranandani Group	2021	2	320,000
	Kodinar	Hindustan Petroleum Corp.	2022	1	160,000
Japan	Himuka	Diagas Group-Osaka Gas	2022	1	65,000

LNG FSRU import facilities

Country	Location (Project)	Owners	Start up
Argentina	Escobar GasPort	Excelerate/Enarsa	2011
	Bahia Blanca	YPF	2023
Bangladesh	Moheshkhali	Excelerate, PetroBangla	2018
	Cox's Bazar	Summit Power International, Excelerate Energy	2019
Brazil	Pecem, FSRU	Petrobras	2009
	Guanabara Bay FSRU	Petrobras	2009
	Salvador, Bahia FSRU	Petrobras	2013
	Porto Sergipe FSRU	Golar LNG/Stonepeak	2020
	Porto do Acu FSRU	GNA	2020
China	Tianjin FSRU	CNOOC, Hoegh, various	2013
Croatia	Hrvatska LNG	Hrvatska Elektroprivreda Plc, Plinacro Ltd	2021
Colombia	Cartagena FSRU	Promigas, Sociedad Portuaria El Cayao	2016
Egypt	Ain Sokhna, Suez	EGAS, BW Gas	2015
El Salvador	Acajutla	Energía del Pacífico	2022
Finland	Inkoo FSRU	Gasgrid Finland	2022
Germany	Wilhelmshaven FSRU	Uniper	2022
Germany	Lubmin FSRU	Deutsche ReGas	2022
Germany	Brunsbüttel	RWE	2023
Ghana	Tema LNG	Helios/GNPC	2021
Greece	Revithoussa FSU	DESFA	2022
Hong Kong, China	Hong Kong	CLP Power	2023
India	Dhamra	Adani, TotalEnergies	2023

Country	Location (Project)	Owners	Start up
Indonesia	Lampung	Hoegh LNG, PGN LNG	2014
	Nusantara (Jakarta Bay)	Golar LNG, Pertimana	2012
	Benoa LNG	PT Pertagas Niaga	2016
	Amurang	Karadeniz	2020
	Jawa Satu FSRU	Pertamina	2021
Italy	Livorno	OLT Offshore LNG Toscana	2013
Italy	Piombino	Snam	2023
Jamaica	Old Harbour	Golar FSRU, New Fortress	2019
Jordan	Aqaba, Jordan	Golar LNG	2015
Kuwait	Mina Al-Ahmadi	KPC	2009
Lithuania	Klaipeda	Klaipedos Nafta Hoegh LNG	2014
Malaysia	Malacca FSRU	Petronas	2012
Malta	FSU Armada Mediterrana	ElectroGas	2016
Myanmar	Thanlyin	CNTIC Vpower	2020
Netherlands	Eemshaven	Gasunie	2022
Pakistan	Port Qasim	Excelerate, Engro Corp	2015
	Port Qasim	BW-Mitsui, PGP Consortium	2017
Philippines	Batangas	AG&P International	2023
Russia	Kaliningrad FSRU	Gazprom	2020
Senegal	Dakar	KarMOL	2023
Turkey	Iskenderun & Saros FSRUs	BOTAS	2016 & 2023
	Aliaga (ETKI LNG)	Etki Liman	2017
UAE	Ruwais, Abu Dhabi	Gasco (UAE)	2016
	Jebel Ali Port, Dubai	DSA (UAE)	2010

LNG export projects under construction

Country	Project	Project Developers	Planned Start Up	Number of Trains	Capacity In MTPA
Canada	LNG Canada	Shell, Petronas, PetroChina, Mitsubishi	2025	2	14
	Woodfibre LNG	Pacific Energy Corp., Enbridge	2027	2	2.2
Indonesia	Sengkang LNG	Energy World	2023+	4	2
	Tangguh LNG T3	BP, MI Berau B.V., CNOOC, Nippon Oil Expl. et al	2023	1	3.8
Malaysia	ZLNG FLNG	Petronas	2027	1	2
Mauritania	Greater Tortue Ahmeyim FLNG	BP, Kosmos Energy	2023+	–	2.52
Mexico	Costa Azul Export	Sempra Energy, TotalEnergies	2024	1	3.25
Mozambique	Mozambique LNG Ph. I	TotalEnergies, Mitsui, ONGC, ENH, PTTEP, Bharat Petroleum, Oil India	2024+	2	–
Nigeria	Nigeria LNG Expansion	Nigeria LNG	2024	1	8
Qatar	Ras Laffan Expansion I	QatarEnergy	2026	4	33
	Ras Laffan Expansion II	QatarEnergy	2027	2	16
Russia	Ust Luga LNG	RusKhimAlyans	2024+	2	13
	Arctic LNG 2 T1	Novatek et al	2023+	1	6.6
United States	Golden Pass LNG T1-2	Golden Pass LNG	2024	2	12
	Golden Pass LNG T3	Golden Pass LNG	2025	1	6.03
	Corpus Christi LNG Stage 3	Cheniere Energy	2027	7	11.48
	Plaquemines LNG Ph. I	Venture Global	2024	1	10
	Plaquemines LNG Ph. II	Venture Global	2025	1	10

LNG export projects planned

Country	Project	Project Developers	Estimated Start Up	Number of Trains	Capacity In MTPA
Argentina	Vaca Muerta (YPF) LNG	YPF	2024+	–	5.37
Australia	Browse FLNG	Woodside Energy, Japan Australia LNG, Shell, BP, PetroChina	–	2	11.4
	Darwin LNG Life Extension	Santos, SK E&S, JERA, INPEX, Eni SpA, Tokyo Gas	2025	1	3.7
	Pluto LNG T2	Woodside Burrup Train 2A Pty Ltd., Global Infrastructure Partners	2026	1	5
Cameroon	Etinde FLNG	Perenco, Bowleven	2023+	–	1.3
Canada	Bear Head LNG	Bear Head LNG	2027	4	12
	Cedar FLNG	Haisla Nation, Pembina Pipeline Corp.	2027	–	3
	Energie Saguenay LNG	GNL Quebec	2026	2	11
	Ksi Lisims FLNG	Ksi Lisims LNG GP Ltd.	2027	–	12
	Placentia Bay FLNG	Horizon Maritime Services, LNG Newfoundland and Labrador Ltd.	2030	–	4
	Tilbury Island LNG T1	FortisBC	2026	1	0.9
	Tilbury Island LNG T2	FortisBC	2028	1	2.5
Equatorial Guinea	Fortuna FLNG	New Fortress Energy	–	1	–
Gabon	Boudji FLNG	Petronas	–	–	–
Guinea	Guinea LNG	West Africa LNG Group	2026+	1	–
Indonesia	Abadi FLNG	INPEX Masela Ltd.	2030	–	9.5
Israel	NewMed FLNG	NewMed Energy	2026	–	5
Mauritania	New Fortress Banda LNG	New Fortress Energy	2024	–	1.4
Mexico	Mexico Pacific LNG Ph. I	AECOM Capital, DKRW Energy	2025	2	9.4
	Mexico Pacific LNG Ph. II	AECOM Capital, DKRW Energy	2026+	1	4.7
	AMIGO LNG	Epcilon LNG, LNG Alliance	2026	1	4.2
	Vista Pacifico LNG	Sempra Energy	2025+	–	4
	Lakach FLNG	New Fortress Energy	–	1	1.4
	Altamira FLNG	New Fortress Energy	–	2	2.8
Mozambique	Rovuma LNG	Eni, ExxonMobil, CNPC, ENH, Galp, KOGAS	2025+	2	15.2
Nigeria	Brass LNG	Brass LNG Ltd.	–	2	10
	Greenville LNG	Greenville LNG	–	1	1.1
	UTM Offshore FLNG	UTM Offshore	2026	–	1.52
Papua New Guinea	Papua LNG	TotalEnergies, ExxonMobil, Papua New Guinea Gov., Santos	2027	2	5.4
	PNG LNG Expansion	ExxonMobil, Kumul Petroleum, Santos, JX Nippon O&G, MRDC	2025	1	2.6
Republic of the Congo	Congo FLNG	Eni Congo	2025	2	3
Russia	Yakutia LNG	A-Property, Globaltek, Zhejiang Energy	2027	–	18
	Far East LNG I	ExxonMobil, SODECO, ONGC, Rosneft	2027+	1	6.2
	Far East LNG II	ExxonMobil, SODECO, ONGC, Rosneft	2035	1	10
	Vladivostok LNG	Gazprom, INPEX, Itochu Corp., JAPEX, Marubeni Corp.	2025	3	1.5
	Arctic LNG II	Novatek	2027	–	19.8
	Obsky LNG	Novatek	2026	–	6.6
	Chernomorsky LNG	Gazprom	2025	–	1.5
	Arctic LNG III	OOO Arctic LNG 3	2032	–	19.8
	Kara LNG	Rosneft	2030	–	30
Tanzania	Tanzania LNG	Equinor, ExxonMobil, Ophir Energy, Pavilion Energy, Shell, TPDC	2027	2	10
United Arab Emirates	Ruwais (ex Fujairah) LNG	ADNOC	2027+	2	6
United States	Fourchon LNG	Energy World	–	1	2
	Alaska LNG	Alaska Gasline Development Corp.	2030	3	20.1
	Cameron LNG Expansion	Cameron LNG LLC	2026	1	6.75
	Commonwealth LNG	Commonwealth LNG	2026	6	9.3
	Corpus Christi LNG Midscale Expansion	Cheniere Energy	2031	2	3.28
	Delfin FLNG	Delfin LNG LLC	2026+	4	12
	Driftwood LNG T1-5	Tellurian	–	5	27.6
	Freeport LNG Expansion	Freeport LNG Dev.	2026	1	5.1
	Gulf LNG	KinderMorgan	–	2	10.86
	Lake Charles LNG	Energy Transfer	2026+	3	17.79
	Magnolia LNG	Glenfarne Group	–	4	8.8
	Port Arthur LNG Ph. I	PALNG Common Facilities Co., Port Arthur LNG, LLC	–	2	13.5
	Port Arthur LNG Ph. II	PALNG Common Facilities Co., Port Arthur LNG, LLC	–	2	13.5
	Texas LNG	Glenfarne Energy Transition	2027	2	4
	Rio Grande LNG Ph. I	NextDecade	2026	2	10.8
	Rio Grande LNG Ph. II	NextDecade	–	3	16.2
	Pointe LNG	Pointe LNG, Pointe Pipeline Co.	2026	3	6
	Repauno Works LNG	Delaware River Partners LLC	–	–	1.5
	Qilak LNG	Qilak Energyy	2026	–	4
	CP2 LNG Ph. I	Venture Global	2026+	9	10
	CP2 LNG Ph. II	Venture Global	2027+	9	10
	Delta LNG Ph. I	Venture Global	2028+	–	10
	Delta LNG Ph. II	Venture Global	2029+	–	10
	West Delta LNG Deepwater Port	LNG21 Group	2026+	6	6.1
	Grand Isle FLNG	New Fortress Energy	2025+	–	2.8

LNG exporters

Country	Location/Project	Shareholders	Start up	Liquefaction		Storage	
				Trains	capacity (nominal) mtpa	No. of tanks	Total capacity m³
Abu Dhabi (UAE)	Das Island (Adgas)	ADNOC, Mitsui, BP, Total	1977	2	3.2	3	240,000
			1994	1	2.5		
Algeria	Arzew	Sonatrach GL4Z	1964	3	1.1	3	35,000
	Arzew	Sonatrach GL1Z	1978	6	7.8	3	300,000
	Arzew	Sonatrach GL2Z	1980	6	8.0	3	300,000
	Arzew	Sonatrach	2014	1	4.7		
	Skikda	Sonatrach GL1K II	1980	3	3.0	5	308,000
	Skikda	Sonatrach (rebuild)	2013	1	4.5		
Angola	Soyo	Sonangol, Chevron, BP, ENI, Total	2012	1	5.2	2	370,000
Australia	Karratha	NWS Woodside, Shell, BHP	1989	2	5.0	4	260,000
		(BP, Chevron	1992	1	2.5	1	130,000
		(Mistubishi/Mitsui)	2004	1	4.4	1	130,000
		NWS partners	2008	1	4.4	1	130,000
	Darwin	Darwin (Bayu Undan) ConocoPhillips, Santos, Eni, Inpex, TEPCO, Tokyo Gas	2006	1	3.5	1	188,000
	Australia Pacific LNG	ConocoPhillips, Origin Energy, Sinopec	2016	2	7.5	2	320,000
	Gladstone LNG	Santos, Petronas, Total, Kogas	2015	2	7.8	2	280,000
	Gorgon LNG	Chevron, Shell, ExxonMobil	2016	3	15.6	2	360,000
	Pluto LNG	Woodside, Tokyo Gas, Kansei	2012	1	4.8	2	240,000
	QCLNG	Shell, CNOOC	2014	2	8.0	2	280,000
	Wheatstone LNG	Chevron, Woodside, Kuwait (KUFPEC), Jera, Kyushu	2017	2	8.9	2	300,000
	Ichthys LNG	Inpex Corp., Total	2018	2	8.9	2	330,000
	Prelude FLNG	Shell, Inpex, Kogas CPC	2019	1	3.5		
Brunei	Lumut	Brunei/Shell/Mitsubishi/Total	1972-74	5	7.2	3	176,000
Cameroon	Hilli Episeyo FLNG	Kribi Perenco	2018	1	1.2	1	125,000
Egypt	Damietta	Union Fenosa, EGPC, EGAS	2004	1	5.0	2	300,000
	Idku	EGPC, EGAS, Shell, Total, Petronas	2005	2	7.2	2	280,000
Equatorial Guinea	Bioko Island	Marathon, Sonagas, Mitsui, Marubeni	2007	1	3.4	2	272,000
Indonesia	Bontang I	Pertamina, VICO, JILCO, Total	1977	2	5.2	5	635,000
	Bontang II		1983	2	5.2		
	Bontang III		1989	1	2.8		
	Bontang IV		1993	1	2.8		
	Bontang V		1997	1	2.8		
	Bontang VI		1999	1	3.0		
	Sulawesi LNG	Medco Energi, Pertamina, Mitsubishi	2015	1	2.0	1	170,000
	Tangguh	BP, MI Berau, CNOOC, Nippon, LNG Japan	2008	2	7.6	2	340,000
Malaysia	Bintulu (MLNG Satu)	Petronas, Sarawak, Mitsubishi	1983	3	8.1	4	260,000
	Bintulu (MLNG Dua)	Petronas, Shell, Sarawak, Mitsubishi	1995	3	7.8	1	65,000
	Bintulu (MLNG Tiga)	Petronas, Shell, Sarawak, Mitsubishi, Nippon Oil	2003	2	6.8	1	120,000
	Bintulu Train 9	Petronas	2016	1	3.6		
	Kanowit FLNG	Petronas	2016	1	1.2		
	PFLNG 1	Petronas	2016	1	1.2	–	–
	PFLNG 2	Petronas	2020	1	1.2	–	–
Mozambique	Coral Sul FLNG	Eni-led consortium	2022	1	3.4	1	174000+
Nigeria	Bonny Island	NNPC, Shell, Total, Eni	1999	2	6.4	2	168,400
		Nigeria LNG (formed by above)	2002	1	3.2	1	84,200
		Nigeria LNG	2006	2	8.2		
		Nigeria LNG	2008	1	4.1	1	84,200
Norway	Snøhvit/Melkoya	Equinor, Total, Petoro	2007	1	4.2	2	280,000
Oman	Oman LNG	Oman Govt., Shell, Total, Korea LNG	2000	2	7.1	2	240,000
		Mitsubishi, Mitsui, Partex and Itochu					
		Oman Govt.,Oman LNG Union Fenosa, Osaka Gas, & Itochu	2006	1	3.7	2	240,000
Papua New Guinea	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	6.9	2	320,000
Peru	Peru LNG	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.4	2	260,000
Qatar	Qatargas 1-T1&2	QP, ExxonMobil, Total, Marubeni, Mitsui	1997	2	6.4	4	340,000
	Qatargas 1-T3	QP, ExxonMobil, Total, Marubeni, Mitsui	1999	1	3.1		
	Qatargas II-T1	QP, ExxonMobil	2009	1	7.8		
	Qatargas II-T2	QP, ExxonMobil, Total	2009	1	7.8	8	1,160,000
	Qatargas III-T1	QP, ConocoPhillips, Mitsui	2010	1	7.8		
	Qatargas IV-TI	QP, Shell	2010	1	7.8		
	RasGas I- T1&2	QP, ExxonMobil, Kogas, Itochu, LNG Japan	1999	2	6.6		
	RasGas II- T3	QP, ExxonMobil	2004	1	4.7		
	RasGas II- T4	QP, ExxonMobil	2005	1	4.7	6	840,000
	RasGas II- T5	QP, ExxonMobil	2007	1	4.7		
	Rasgas III – T6	QP, ExxonMobil	2009	1	7.8		
	Rasgas III – T7	QP, ExxonMobil	2010	1	7.8		
Russia	Sakhalin Island	(Sakhalin Energy) Gazprom, Shell, Mitsui, Mitsubishi	2009	2	9.6	2	200,000
	Yamal LNG Siberia	Novatek, Total, CNPC, Silk Fund	2017	3	16.5	4	640,000
	Portvaya LNG	Gazprom	2022	1	1.5	–	–
Trinidad & Tobago	Point Fortin Train 1	BP, Shell, CIC, NGC	1999	1	3.0	2	204,000
	Train 2	BP, Shell	2002	1	3.3	1	160,000
	Train 3	BP, Shell	2003	1	3.3	1	160,000
	Train 4	BP, Shell, NGC	2005	1	5.2	1	160,000
USA	Cheniere Sabine Pass	Cheniere Energy	2016	5	22.5	5	800,000
	Cove Point LNG	Dominion Energy	2017	1	5.3	7	695,000
	Cheniere Corpus Christi	Texas Cheniere	2018	3	15.0	3	480,000
	Cameron Hackberry	Sempra, Total, Mitsui, Mitsubishi	2019	2	9.8	3	480,000
	Elba Island Georgia	Kinder Morgan, EIG Energy	2019	10	2.5	5	535,000
	Freeport LNG,Texas	Freeport LNG	2019	2	10.2	3	483,000
	Calcasieu Pass LNG	Venture Global	2022	18	11	2	400,000
Yemen	Bal-Haf	Yemen LNG, Total, Yemen Gas, Hunt Oil, SK Group, Hyundai	2009	2	6.7	2	320,000

World LNG Carrier Fleet

LNG Carrier	Capacity m^3	Registered Owner	Builder	Delivery	Flag	Power Plant	Cargo System	No. of Tanks	Original Project	Hull Number
Aamira	268,000	Nakilat SHI 1753 Inc.	Samsung	16/04/2010	M. Islnds	Diesel	TZ Mk. III	10	Qatargas IV	1753
Abadi	135,000	Tost Two (NBD) Sendirian Berhad	Mitsubishi	29/05/2002	Liberia	Steam	Moss	5	Lumut	2163
Adam LNG	162,000	Oman Shipping Co.	HHI	10/07/2014	M. Islnds	Diesel	TZ Mk. III Flex	4	Oman LNG	2584
Adamastos	170,800	Shin Doun Kisen Co. Ltd.	HHI	23/08/2021	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3109
Adriano Knutsen	180,000	Knutsen OAS Shipping	HHI	13/07/2019	Spain	ME-GI	TZ Mk. III Flex	4	Corpus Christi	2963
Al Aamriya	210,168	J5 Nakilat No.1 Ltd.	Daewoo	04/05/2008	M. Islnds	Diesel	GT NO 96	5	RasGas III	2249
Al Areesh	148,786	Al Areesh LLC	Daewoo	01/01/2007	Bahamas	Steam	GT NO 96	4	RasGas II	2239
Al Bahiya	210,100	Nakilat DSME 2286 Inc.	Daewoo	02/12/2009	M. Islnds	Diesel	GT NO 96	5	Qatargas IV	1726
Al Bidda	137,339	Mitsui O.S.K. Lines	Kawasaki	08/11/1999	M. Islnds	Steam	Moss	5	Qatargas I	1470
Al Daayen	148,853	Seaspirit Leasing	Daewoo	21/03/2007	Bahamas	Steam	GT NO 96	4	RasGas II	2240
Al Dafna	268,000	Nakilat SHI 1726 Inc.	Samsung	03/10/2009	M. Islnds	Diesel	TZ Mk. III	10	RasGas	1726
Al Deebel	145,000	Peninsula LNG Transport No. 3	Samsung	15/11/2005	Bahamas	Steam	TZ Mk. III	4	RasGas II	1442
Al Gattara	216,200	Overseas LNG H1 Corp.	HHI	06/11/2007	M. Islnds	Diesel	TZ Mk. III	4	Qatargas II	1791
Al Ghariya	210,150	Neptora Schiffsbetriebsgesellschaft	Daewoo	13/12/2007	Bahamas	Diesel	GT NO 96	4	Qatargas II	2248
Al Gharrafa	216,200	Overseas LNG H2 Corp.	HHI	11/01/2008	M. Islnds	Diesel	TZ Mk. III	5	Qatargas II	1792
Al Ghashamiya	217,591	Nakilat SHI 1696 Inc.	Samsung	29/04/2009	M. Islnds	Diesel	TZ Mk. III	10	Qatargas III	1696
Al Ghuwairiya	263,300	Nakilat Al Ghuwairiya Inc.	Daewoo	15/12/2008	M. Islnds	Diesel	GT NO 96	5	Qatargas II	2255
Al Hamla	216,200	Overseas LNG S2 Corp.	Samsung	15/02/2008	M. Islnds	Diesel	TZ Mk. III	4	Qatargas II	1606
Al Hamra	137,000	Al Hamra Ltd.	STX	24/11/1996	Liberia	Steam	Moss	4	Das Island	1332
Al Huwaila	217,000	Al Huwaila Inc.	Samsung	06/05/2008	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1643
Al Jasra	137,227	Mitsui O.S.K. Lines	Mitsubishi	05/06/2000	M. Islnds	Steam	Moss	5	Qatargas I	2117
Al Jassasiya	145,700	Venice Maritime Inc.	Daewoo	21/05/2007	Greece	Steam	GT NO 96	4	RasGas II	2243
Al Karaana	210,100	Nakilat DSME 2284 Inc.	Daewoo	06/10/2009	M. Islnds	Diesel	GT NO 96	4	Qatargas III	2284
Al Kharaitiyat	216,300	Nakilat HHI 1909 Inc.	HHI	30/06/2009	M. Islnds	Diesel	TZ Mk. III	4	Qatargas III	1909
Al Kharsaah	217,000	Al Kharsaah Inc.	Samsung	12/06/2008	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1644
Al Khattiya	210,150	Nakilat DSME 2283 Inc.	Daewoo	08/07/2009	M. Islnds	Diesel	GT NO 96	4	Qatargas IV	2283
Al Khaznah	135,496	Al Khaznah Inc.	Mitsui E&S	01/07/1994	Liberia	Steam	Moss	5	Das Island	1390
Al Khor	137,354	Mitsui O.S.K. Lines	Mitsubishi	15/11/1996	M. Islnds	Steam	Moss	5	Qatargas I	2089
Al Khuwair	217,000	Al Khuwair Inc.	Samsung	27/06/2008	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1646
Al Mafyar	266,000	Nakilat SHI 1697 Inc.	Samsung	28/04/2009	M. Islnds	Diesel	TZ Mk. III	5	Qatargas III	1697
Al Marrouna	149,539	Seaspirit Leasing	Daewoo	19/09/2006	Bahamas	Steam	GT NO 96	4	RasGas II	2238
Al Mayeda	266,000	Nakilat SHI 1694 Inc.	Samsung	06/01/2009	M. Islnds	Diesel	TZ Mk. III	5	Qatargas III	1694
Al Nuaman	210,100	Nakilat DSME 2285 Inc.	Daewoo	06/12/2009	M. Islnds	Diesel	GT NO 96	4	Qatargas III	2286
Al Oraiq	210,200	J5 Nakilat No.3 Ltd.	Daewoo	13/06/2008	M. Islnds	Diesel	GT NO 96	18	RasGas III	2250
Al Rayyan	137,420	Mitsui O.S.K. Lines	Kawasaki	14/03/1997	M. Islnds	Steam	Moss	5	Qatargas I	1445
Al Rekayyat	216,293	Nakilat HHI 1910 Inc.	HHI	30/06/2009	M. Islnds	Diesel	TZ Mk. III	4	Qatargas III	1910
Al Ruwais	210,150	Neptana Schiffsbetriebsgesellschaft	Daewoo	09/08/2007	Bahamas	Diesel	GT NO 96	4	Qatargas II	2245
Al Sadd	210,200	Nakilat DSME 2265 Inc.	Daewoo	07/03/2009	M. Islnds	Diesel	GT NO 96	12	Qatargas III	2265
Al Safliya	210,150	Nausola Schiffsbetriebsgesellschaft	Daewoo	12/09/2007	Bahamas	Diesel	GT NO 96	5	Qatargas II	2246
Al Sahla	216,200	J5 Nakilat No.5 Ltd.	HHI	13/06/2008	M. Islnds	Diesel	TZ Mk. III	4	RasGas III	1863
Al Samriya	263,300	Nakilat Al Samriya Inc.	Daewoo	28/02/2009	M. Islnds	Diesel	GT NO 96	5	Qatargas II	2257
Al Shamal	217,000	Al Shamal Inc.	Samsung	28/04/2008	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1645
Al Sheehaniya	210,100	Nakilat DSME 2264 Inc.	Daewoo	17/02/2009	M. Islnds	Diesel	GT NO 96	12	Qatargas III	2264
Al Thakhira	145,000	Peninsula LNG Transport No. 2	Samsung	22/08/2005	Bahamas	Steam	TZ Mk. III	4	RasGas II	1441
Al Thumama	216,200	J5 Nakilat No.2 Ltd.	HHI	27/02/2008	M. Islnds	Diesel	TZ Mk. III	4	RasGas III	1862
Al Utouriya	215,000	J5 Nakilat No.8 Ltd.	HHI	01/09/2008	M. Islnds	Diesel	TZ Mk. III	4	RasGas III	1875
Al Wajbah	137,308	Mitsui O.S.K. Lines	Mitsubishi	22/06/1997	M. Islnds	Steam	Moss	5	Qatargas I	2090
Al Wakrah	137,371	Mitsui O.S.K. Lines	Kawasaki	26/11/1998	M. Islnds	Steam	Moss	5	Qatargas I	1446
Al Zubarah	137,573	Mitsui O.S.K. Lines	Mitsui E&S	30/11/1996	M. Islnds	Steam	Moss	5	Qatargas I	1411
Alexandroupoli	153,000	Gas-Fifteen Ltd.	Hanjin (Busan)	01/06/2010	Greece	TFDE	TZ Mk. III	4	–	193
Alicante Knutsen	174,000	–	Hyundai Samho	01/09/2022	France	X-DF	TZ Mk. III Flex+	4	Portfolio	8093
Alto Acrux	147,798	Bahamas LNG Shipping	Mitsubishi	17/03/2008	Bahamas	Steam	Moss	4	Darwin LNG	2219
Amadi	154,800	Brunei Gas Carriers	HHI	16/07/2015	Brunei	–	TZ Mk. III	4	Lumut	2607
Amali	148,000	BGC SPV NBD	Daewoo	01/08/2011	Brunei	–	GT NO 96	4	Lumut	2277
Amani	154,800	Brunei Gas Carriers	HHI	13/10/2014	Brunei	–	TZ Mk. III	4	Lumut	H2606
Amberjack LNG	174,000	LNGShips	HHI	17/04/2020	Malta	X-DF	TZ Mk. III Flex	–	–	3021
Amur River	149,700	Seacrown Maritime	HHI	01/11/2007	M. Islnds	Steam	TZ Mk. III	4	Sakhalin II	1734
Arctic Aurora	155,000	Fareastern Shipping	HHI	04/07/2014	Malta	Diesel/Gas-Electric	TZ Mk. III	4	Snøhvit LNG	2580
Arctic Discoverer	142,612	Northern LNG Transport II Company S.A.	Mitsui E&S	12/02/2006	Bahamas	–	Moss	4	Hammerfest	1564

Arctic Lady	147,200	Leif Hoegh (UK) Ltd.	Mitsubishi	12/04/2006	Norway	Steam	Moss	4	Hammerfest	2185
Arctic Princess	147,200	R.B. Quadrangle Leasing	Mitsubishi	13/01/2006	Norway	Steam	Moss	4	Hammerfest	2184
Arctic Voyager	142,759	Lloyds TSB Equipment Leasing (No.1)	Kawasaki	14/07/2006	Bahamas	Steam	Moss	4	Hammerfest	1532
Aristarchos	174,000	Dias Gas Carrier Corp.	HHI	15/06/2021	Malta	X-DF	TZ Mk. III Flex	4	–	3107
Aristidis I	174,000	Atrotos Gas Carrier Corp.	HHI	04/01/2021	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3106
Aristos I	174,000	Xiang Ch25 HK International	HHI	13/11/2020	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3105
Arkat	148,000	BGC SPV NBD	Daewoo	18/02/2011	Brunei	–	GT NO 96	4	Lumut	2273
Arrow Spirit	154,982	Luster Maritime S.A. et al	Koyo Dockyard	08/02/2008	Panama	Steam	TZ Mk. III	4	Portfolio	2258
Aseem	155,003	India LNG Transport Company No.3 S.A.	Samsung	16/11/2009	Malta	Diesel	TZ Mk. III	4	RasGas	1686
Asia Endeavour	154,948	Chevron Global Tech Services Co.	Samsung	17/06/2015	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Gorgon	1942
Asia Energy	154,948	Chevron Global Tech Services Co.	Samsung	03/10/2014	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Gorgon	1921
Asia Excellence	154,948	Chevron Global Tech Services Co.	Samsung	20/01/2015	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Gorgon	1941
Asia Integrity	154,948	Chevron Global Tech Services Co.	Samsung	27/02/2017	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Wheatstone	2069
Asia Venture	154,948	Chevron Global Tech Services Co.	Samsung	06/07/2017	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Wheatstone	2070
Asia Vision	154,948	Chevron Global Tech Services Co.	Samsung	11/07/2014	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Gorgon	1920
Asklipios	174,000	Sea 199 Leasing Co Ltd.	HHI	29/09/2021	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3110
Asterix I	174,000	Sea 335 Leasing Co Ltd	HHI	12/02/2023	Greece	X-DF	TZ Mk. III Flex	4	Portfolio	3111
Attalos	170,800	Sea 200 Leasing Co. Ltd.	HHI	13/08/2021	Malta	X-DF	TZ Mk. III Flex	4	–	3108
Barcelona Knutsen	173,400	Norspan LNG V AS	Daewoo	21/01/2010	Spain	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2267
Beidou Star	172,000	Mitsui O.S.K. Lines	Hudong Zhonghua	14/09/2015	H.K., China	Diesel	GT NO 96	4	PNG LNG	H1672A
Berge Arzew	138,088	Sonatrach Berge Arzew Corp.	Daewoo	29/07/2004	Bahamas	Steam	GT NO 96	4	Arzew	2217
Bilbao Knutsen	138,000	Norspan LNG AS	Izar	29/01/2004	Spain	Steam	GT NO 96	4	Portfolio	321
Bishu Maru	164,700	"K" Line - Kawasaki Kisen Kaisha	Kawasaki	12/12/2017	Panama	TFDE	Moss	4	Wheatstone	1713
Bonito LNG	174,000	LNGShips	HHI	19/05/2020	Malta	–	TZ Mk. III Flex	–	–	3022
Boris Davydov	172,410	Arctic LNG 4 Ltd.	Daewoo	23/12/2018	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2428
Boris Vilkitsky	172,410	Arctic LNG 1 Ltd.	Daewoo	04/06/2017	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2421
British Achiever	173,644	BP	Daewoo	06/11/2018	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2442
British Contributor	173,644	BP	Daewoo	16/12/2018	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2443
British Listener	173,644	BP	Daewoo	31/01/2019	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2444
British Mentor	173,644	BP	Daewoo	15/03/2019	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2445
British Partner	173,400	BP	Daewoo	18/06/2018	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2441
British Sponsor	173,644	BP	Daewoo	01/05/2019	U.K.	ME-GI	GT NO 96 GW	4	Freeport	2446
Broog	137,529	Mitsui O.S.K. Lines	Mitsui E&S	27/04/1998	M. Islnds	Steam	Moss	5	Qatargas I	1412
Bu Samra	266,000	Nakilat Bu Samra Inc.	Samsung	06/12/2008	M. Islnds	–	TZ Mk. III	5	Qatargas II	1677
Bushu Maru	180,000	Mitsui O.S.K. Lines	Mitsubishi	08/07/2019	Bahamas	Reheat Steam Turbine	TZ Mk. III Flex	4	Sabine Pass	2327
BW Boston	138,059	Partrederiet BW Gas GDF Suez EMT DA	Daewoo	23/01/2003	Norway	Steam	GT NO 96	4	Atlantic LNG	2207
BW Brussels	162,400	Ines LNG	Daewoo	03/08/2009	Singapore	Diesel/Gas-Electric	GT NO 96	4	Balhaf	2259
BW Cassia	174,000	MP-SGP Pte Ltd	Daewoo	02/10/2022	Singapore	ME-GI	–	4	–	2510
BW Enn Snow Lotus	174,000	BW LNG II Pte Ltd	Daewoo	11/09/2022	Singapore	ME-GI	–	4	–	2509
BW Everett	138,028	BW Gas SLNG	Daewoo	16/06/2003	Singapore	Steam	GT NO 96	4	Atlantic LNG	2212
BW Helios	174,000	Selene Navigation Pte Ltd.	Daewoo	25/05/2021	Singapore	ME-GI	GT NO 96 GW	4	–	2497
BW Lesmes	174,000	BW Gas AS	Daewoo	26/03/2021	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2496
BW Lilac	173,400	BW Maritime	Daewoo	17/03/2018	Malta	ME-GI	GT NO 96 GW	4	–	2436
BW Magna	173,000	BW Group	Daewoo	11/03/2019	Singapore	ME-GI	GT NO 96	4	–	2488
BW Magnolia	173,400	Helen Navigation Pte Ltd.	Daewoo	28/02/2020	Singapore	–	GT NO 96 GW	–	–	2490
BW Pavilion Aranda	173,400	BW Group	Daewoo	10/09/2019	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2489
BW Pavilion Aranthera	173,400	BW Diamond LNG Pte Ltd	Daewoo	04/07/2020	Singapore	–	GT NO 96 GW	–	–	2491
BW Pavilion Leeara	158,629	BW LPG FPSOI	HHI	01/06/2015	Singapore	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2572
BW Pavilion Vanda	155,000	BW LPG FPSOI	HHI	12/02/2015	Singapore	–	TZ Mk. III Flex	4	Portfolio	2571
BW Tatiana	135,269	Shell Tankers Singapore	Mitsubishi	27/12/2002	Panama	Steam	Moss	5	Atlantic LNG	2173
BW Tulip	173,400	BW Maritime	Daewoo	01/12/2017	Singapore	ME-GI	GT NO 96 GW	4	–	2435
Cadiz Knutsen	138,826	Norspan LNG II AS	Navantia	13/04/2004	Spain	Steam	GT NO 96	4	Portfolio	103
Cape Ann	145,130	SRV Joint Gas Two Ltd.	Samsung	25/04/2010	Norway	Diesel/Gas-Electric	TZ Mk. III	4	Jaigarh LNG	1689
Castillo de Caldelas	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	13/06/2018	Malta	ME-GI	TZ Mk. III Flex	–	Portfolio	8188
Castillo De Merida	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	31/03/2018	Malta	ME-GI	TZ Mk. III Flex	4	Portfolio	8177
Castillo de Santisteban	170,000	Naviera Trans Gas AIE	STX	20/06/2010	Malta	Diesel Electric	GT NO 96	4	Portfolio	3008
Castillo de Villalba	138,000	Empresa Naviera Elcano	Navantia Cadiz	29/09/2003	Spain	Steam	GT NO 96	4	Portfolio	87
Celsius Canberra	180,000	Xiang CH27 HK International	Samsung	–	M. Islnds	X-DF	TZ Mk. III Flex	–	US Portfolio	2298
Celsius Carolina	180,000	Oriental Fleet LNG 03 Ltd.	Samsung	13/08/2021	M. Islnds	X-DF	TZ Mk. III Flex	4	US Portfolio	2314
Celsius Charlotte	180,000	Xiang CH28 HK International	Samsung	14/06/2021	M. Islnds	X-DF	TZ Mk. III Flex	4	US Portfolio	2313
Celsius Copenhagen	180,000	Greenheart Gas Shipco I LLC	Samsung	01/11/2020	M. Islnds	X-DF	TZ Mk. III Flex	4	Portfolio	2297
CESI Beihai	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	12/06/2017	H.K., China	–	GT NO 96	4	APLNG	1717A

CESI Gladstone	174,000	China Shipping Co.	Hudong Zhonghua	31/10/2016	H.K., China	–	GT NO 96	4	APLNG	1715A
CESI LianYungAng	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	07/06/2018	H.K., China	Diesel-Electric	GT NO 96	4	APLNG	1720A
CESI Qingdao	174,000	China Shipping Co.	Hudong Zhonghua	04/02/2017	H.K., China	–	GT NO 96	4	APLNG	1716A
CESI Tianjin	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	17/07/2017	H.K., China	TFDE	GT NO 96	4	APLNG	1718A
CESI Wenzhou	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	04/02/2018	H.K., China	Diesel-Electric	GT NO 96	4	APLNG	1719A
Cheikh Bouamama	75,558	Skikda LNG Transport Corp.	Universal SB	19/07/2008	Bahamas	Steam	TZ Mk. III	4	Arzew/Skikda	88
Cheikh el Mokrani	75,759	Mediterranean LNG Transport Corp.	Japan Marine United	10/06/2007	Bahamas	Steam	TZ Mk. III	4	Skikda	55
Christophe De Margerie	170,000	DY Shipping Limited	Daewoo	09/11/2016	Panama	Diesel/Gas-Electric	GT NO 96 GW	–	Yamal	2418
Clean Cajun	180,000	Platia Shipping Ltd.	HHI	01/05/2022	Malta	X-DF	Membrane	4	–	3137
Clean Copano	180,000	Psili Shipping Ltd	HHI	30/07/2022	Malta	X-DF	Membrane	4	–	3138
Clean Energy	149,700	Pegasus Shipholding	HHI	02/03/2007	M. Islnds	Steam	TZ Mk. III	4	Portfolio	1748
Clean Horizon	162,000	Dynagas	HHI	10/04/2015	Malta	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2566
Clean Ocean	162,000	Dynagas	HHI	21/05/2014	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Sabine Pass	2558
Clean Planet	162,000	Dynacom Tankers Management	HHI	29/08/2014	M. Islnds	Diesel Electric	TZ Mk. III Flex	4	Yamal	H2565
Clean Vision	162,000	Olinda	HHI	11/08/2015	Malta	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2567
CNTIC VPower Energy	127,500	Shell Tankers Australia	Mitsubishi	01/01/1992	Liberia	Steam	Moss	4	North West Shelf	2041
Cobia LNG	174,000	Cardiff LNG ETA Owning LLC	HHI	28/02/2021	Malta	X-DF	TZ Mk. III Flex	4	–	3038
Cool Discoverer	174,000	Serendipity Maritime Ltd.	HHI	28/09/2020	Malta	X-DF	TZ Mk. III Flex	–	–	S970
Cool Explorer	160,000	Thenamaris Ships Management Inc.	Samsung	01/01/2015	Malta	–	TZ Mk. III Flex	4	Spot	2049
Cool Racer	174,000	Eloquent Shipping Ltd	HHI	10/02/2021	Malta	X-DF	TZ Mk. III Flex	4	–	3126
Cool Rider	155,000	RBSSAF (19) Ltd.	HHI	02/05/2007	Malta	–	TZ Mk. III	4	Portfolio	1777
Cool Rover	155,000	RBSSAF (19) Ltd.	HHI	20/06/2008	Malta	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1779
Cool Runner	160,000	Thenamaris Ships Management Inc.	Samsung	27/03/2014	Malta	Diesel Electric	TZ Mk. III Flex	4	Wheatstone	H2046
Cool Voyager	160,000	Energy Shipping & Trading	Samsung	31/10/2013	Malta	TFDE	TZ Mk. III Flex	4	Wheatstone	–
Corcovado LNG	160,162	Drytank	Daewoo	03/04/2014	Malta	Diesel Electric	GT NO 96 L03	4	Spot	H2297
Cubal	160,276	Mint LNG IV	Samsung	12/01/2012	Bahamas	–	TZ Mk. III	4	Soyo	1813
Cygnus Passage	145,400	Cygnus LNG Shipping	Mitsubishi	06/01/2009	Bahamas	Steam	Moss	4	Sakhalin II	2235
Dapeng Moon	147,200	Yue Gang LNG Ship Management Co.	Hudong Zhonghua	17/07/2008	H.K., China	Steam	GT NO 96	4	Pluto	1309
Dapeng Princess	79,960	–	Hudong Zhonghua	19/02/2023	Singapore	DFDE	GTT 96	4	–	H1837A
Dapeng Star	147,210	Yue Peng LNG Shipping Co.	Hudong Zhonghua	04/11/2009	H.K., China	Steam	GT NO 96	4	Pluto	1379
Dapeng Sun	147,200	Yue Peng LNG Shipping Co.	Hudong Zhonghua	03/04/2008	H.K., China	Steam	GT NO 96	4	North West Shelf	1308
Diamond Gas Crystal	174,000	Diamond LNG Shipping 5 Pte Ltd.	Hyundai Samho	28/06/2021	Singapore	X-DF	TZ Mk. III Flex	4	–	8030
Diamond Gas Metropolis	174,000	Diamond LNG Shipping 4 Ltd.	HHI	03/11/2020	Bahamas	–	TZ Mk. III Flex	4	–	8029
Diamond Gas Orchid	165,000	NYK Line	Mitsubishi	02/06/2018	Bahamas	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Rose	165,000	NYK Line	Mitsubishi	02/08/2018	Bahamas	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Sakura	165,000	Tokyo Gas	Japan Marine United	17/05/2019	Singapore	STaGE	Sayaringo	4	Cameron	2332
Diamond Gas Victoria	174,000	Diamond LNG Shipping 6 Pte Ltd.	Hyundai Samho	30/06/2021	Singapore	X-DF	TZ Mk. III Flex	4	–	8031
Disha	136,025	India LNG Transport Company No.1 Ltd.	Daewoo	25/12/2003	Malta	Gas Turbine	GT NO 96	4	RasGas	2210
Doha	137,262	Mitsui O.S.K. Lines	Mitsubishi	03/06/1999	M. Islnds	Steam	Moss	5	Qatargas I	2091
Dorado LNG	174,000	Hai Kuo Shipping 2052G Ltd.	Samsung	25/12/2020	Malta	X-DF	TZ Mk. III Flex	–	–	2276
Duhail	210,150	Nauranto Schiffsbetriebsgesellschaft	Daewoo	04/12/2007	Bahamas	Diesel	GT NO 96	4	Qatargas II	2247
Dukhan	137,661	Qatar LNG Transport	Mitsui E&S	29/09/2004	Liberia	Steam	Moss	5	Qatargas II	1561
East Energy	122,255	Bonny Gas Transport	STX	11/08/1982	Bermuda	Steam	Membrane	4	NLNG	26B
Eduard Toll	172,410	Teekay Corp.	Daewoo	22/09/2017	Bahamas	TFDE - Azipod	GT NO 96 GW	4	Yamal	2423
Ejnan	145,000	Peninsula LNG Transport No. 3	Samsung	16/01/2007	Bahamas	Steam	TZ Mk. III	4	RasGas II	1594
Ekaputra 1	136,400	Cometco Shipping Inc.	Mitsubishi	01/01/1989	Indonesia	Steam	Moss	5	Bontang	2011
Elisa Aquila	174,000	Caroline 82 SASU	Hyundai Samho	04/03/2022	France	X-DF	TZ Mk. III Flex	4	Portfolio	S917
Elisa Larus	174,000	Caroline 77 SASU	Hyundai Samho	18/05/2020	France	X-DF	TZ Mk. III Flex	4	Portfolio	S970
Energos Grand	145,700	Golar Grand Corp.	Daewoo	01/01/2006	M. Islnds	Steam	GT NO 96	4	Gorgon	2226
Energy Advance	147,624	Tokyo LNG Tanker Co. & . Toho LNG Shipping Co	Kawasaki	20/03/2005	Japan	Steam	Moss	4	Portfolio	1521
Energy Atlantic	156,000	Alpha Tankers	STX	28/09/2015	Malta	TFDE	GT NO 96 L03	4	Sabine Pass	1670
Energy Confidence	153,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	20/04/2009	Japan	Steam	Moss	4	Darwin LNG	1611
Energy Endeavour	173,400	Rossini Navigation SA	Daewoo	01/01/2021	M. Islnds	ME-GI	GT NO 96 GW	–	–	2484
Energy Fidelity	174,000	–	Hyundai Samho	13/04/2023	M. Islnds	X-DF	–	4	–	8105
Energy Frontier	147,599	Tokyo LNG Tanker Co.	Kawasaki	01/09/2003	Japan	Steam	Moss	4	Sakhalin II	1520
Energy Glory	165,000	NYK Line	Japan Marine United	21/03/2019	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5071
Energy Horizon	177,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	31/08/2011	Japan	Steam	Moss	4	Pluto	1664
Energy Innovator	165,000	Tokyo Gas	Japan Marine United	22/06/2019	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5072
Energy Integrity	173,400	Mozart Navigation SA	Daewoo	14/05/2021	M. Islnds	ME-GI	GT NO 96 GW	4	–	2485
Energy Intelligence	173,400	Strauss Navigation SA	Daewoo	30/06/2021	M. Islnds	ME-GI	GT NO 96 GW	4	–	2500
Energy Liberty	165,000	Mitsui O.S.K. Lines	Japan Marine United	11/10/2018	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5070

Energy Navigator	145,000	Tokyo LNG Tanker Co.	Kawasaki	22/05/2008	Japan	Steam	Moss	4	Sakhalin II	1600
Energy Pacific	173,400	Ravel Navigation SA	Daewoo	24/08/2020	M. Islnds	ME-GI	GT NO 96 GW	–	–	2483
Energy Progress	147,558	Jovial Shipping Navigation	Kawasaki	24/11/2006	Japan	Steam	Moss	4	Darwin LNG	1540
Energy Spirit	74,100	GDF Armateur 2	STX	23/01/2004	Singapore	Diesel/Gas-Electric	CS1	4	Portfolio	32M
Energy Universe	166,571	Tokyo LNG Tanker Co.	Japan Marine United	03/08/2019	Panama	TFDE	TZ Mk. III Flex	4	Cove Point	5073
Enshu Maru	164,700	Mitsui O.S.K. Lines	Kawasaki	12/08/2018	Panama	Reheat Steam Turbine	Moss	4	Wheatstone	1720
Esshu Maru	153,000	Mitsui O.S.K. Lines	Mitsubishi	16/12/2014	Bahamas	–	Sayaendo	4	Portfolio	–
Etyfa Prometheas	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	02/10/2002	Singapore	Steam	Moss	5	Peru LNG	2172
Excalibur	138,034	Exmar Excalibur Shipping Co.	Daewoo	22/05/2002	Belgium	Steam	GT NO 96	4	Portfolio	2206
Extremadura Knutsen	174,000	Caroline 86 SASU	Hyundai Samho	17/02/2023	France	X-DF	Mark III Flex	4	Portfolio	8096
Fedor Litke	172,410	Arctic LNG 2 Ltd.	Daewoo	18/05/2017	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2422
Ferrol Knutsen	174,000	Caroline 85 SASU	Hyundai Samho	01/01/2023	France	X-DF	Mark III Flex	4	Portfolio	8095
Flex Amber	174,000	Bund 10 Holding Ltd	HHI	17/10/2020	M. Islnds	X-DF	TZ Mk. III Flex	–	Wheatstone	8011
Flex Artemis	174,000	Flex LNG Rreliance Ltd.	Daewoo	20/08/2020	M. Islnds	ME-GI	NO-96-GW+FRS	–	Portfolio	2479
Flex Aurora	174,000	Flex LNG Aurora Ltd.	HHI	25/06/2020	M. Islnds	X-DF	TZ Mk. III Flex	–	Portfolio	8010
Flex Constellation	173,400	Frontline	Daewoo	10/06/2019	M. Islnds	ME-GI	NO-96-GW+PRS	4	Portfolio	H2470
Flex Courageous	173,400	Frontline	Daewoo	27/08/2019	M. Islnds	ME-GI	NO-96-GW+PRS	4	–	2471
Flex Endeavour	172,400	Flex LNG	Daewoo	14/01/2018	M. Islnds	ME-GI	NO-96-GW+PRS	4	Corpus Christi LNG	2447
Flex Enterprise	172,400	Flex LNG	Daewoo	01/01/2018	M. Islnds	ME-GI	NO-96-GW+PRS	4	Wheatstone	2448
Flex Freedom	173,400	Flex Freedom Ltd.	Daewoo	01/01/2021	M. Islnds	ME-GI	NO-96-GW+FRS	–	–	2492
Flex Rainbow	174,000	Flex LNG	Samsung	14/06/2018	M. Islnds	ME-GI	TZ Mk. III Flex	4	Portfolio	2108
Flex Ranger	174,101	Flex LNG	Samsung	24/06/2018	M. Islnds	ME-GI	TZ Mk. III Flex	4	–	2107
Flex Resolute	173,400	Flex LNG Resolute Ltd.	HHI	04/09/2020	M. Islnds	ME-GI	NO-96-GW+FRS	4	Portfolio	2480
Flex Vigilant	174,000	Flex Vigilant Ltd.	HHI	31/05/2021	M. Islnds	X-DF	TZ Mk. III Flex	4	Portfolio	8013
Flex Volunteer	174,000	Flex Volunteer Ltd.	HHI	20/01/2021	M. Islnds	X-DF	TZ Mk. III Flex	4	Portfolio	8012
Fraiha	210,100	J5 Nakilat No.6 Ltd.	Daewoo	20/08/2008	M. Islnds	Diesel	GT NO 96	18	RasGas III	2252
Fuji LNG	149,172	Aletheia Owning Co.	Kawasaki	31/03/2004	Malta	Steam	Moss	4	Sabine Pass	1527
Fuwairit	138,200	Camartina Shipping Co.	Samsung	13/01/2004	Bahamas	Steam	TZ Mk. III	4	RasGas II	1406
Gail Bhuwan	180,000	Primavera Montana SA	Daewoo	10/02/2021	Cyprus	X-DF	GT NO 96 GW	4	Portfolio	2499
GasLog Athens	145,000	BG Group	Samsung	28/08/2006	Greece	Steam	TZ Mk. III	4	Idku	1555
GasLog Galveston	174,000	Gas-Thirty Three Ltd.	Samsung	05/01/2021	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2301
GasLog Geneva	174,000	GasLog	Samsung	04/10/2016	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2102
GasLog Genoa	174,000	GasLog	Samsung	31/03/2018	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2130
GasLog Georgetown	174,000	Gas-Thirty Two Ltd.	Samsung	16/11/2020	Bermuda	–	TZ Mk. III Flex+	4	Portfolio	2300
GasLog Gibraltar	174,000	Gas-Fourteen Ltd.	Samsung	04/11/2016	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2103
GasLog Gladstone	174,000	GasLog	Samsung	14/03/2019	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2131
GasLog Glasgow	174,000	GasLog	Samsung	25/07/2016	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2073
GasLog Greece	174,000	GasLog	Samsung	29/03/2016	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2072
GasLog Hong Kong	174,000	GasLog	HHI	25/03/2018	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2801
GasLog Houston	174,000	GasLog	HHI	01/12/2018	Bermuda	X-DF	TZ Mk. III Flex	4	GoM	2800
GasLog Salem	155,000	GasLog	Samsung	06/05/2015	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2044
GasLog Santiago	155,000	Gas-Four Ltd.	Samsung	28/03/2013	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1947
GasLog Saratoga	155,000	GasLog	Samsung	19/12/2014	Bermuda	TFDE	TZ Mk. III	4	Spot	2043
GasLog Savannah	155,000	Gas-One Ltd.	Samsung	31/05/2010	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1641
GasLog Seattle	155,000	Gas-Seven Ltd.	Samsung	28/10/2013	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2041
GasLog Shanghai	155,000	Gas-Three Ltd.	Samsung	05/02/2013	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1946
GasLog Singapore	155,000	Gas-Two Ltd.	Samsung	06/08/2010	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1642
GasLog Skagen	155,000	Gas-Six Ltd.	Samsung	01/08/2013	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2017
GasLog Sydney	155,000	Gas-Five Ltd.	Samsung	06/06/2013	Bermuda	–	TZ Mk. III	4	Portfolio	2016
GasLog Wales	180,000	GasLog	Samsung	11/05/2020	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2274
GasLog Warsaw	180,000	GasLog	Samsung	31/07/2019	Greece	X-DF	TZ Mk. III Flex+	4	Portfolio	2212
GasLog Wellington	176,400	GAS-Thirty Four Ltd.	Samsung	15/06/2021	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2311
GasLog Westminster	180,000	Gas-Thirty Ltd.	Samsung	15/07/2020	Bermuda	X-DF	TZ Mk. III Flex	–	Portfolio	2262
GasLog Winchester	176,400	Gas-Thirty Five Ltd.	Samsung	24/08/2021	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2312
GasLog Windsor	180,000	GasLog	Samsung	02/04/2020	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2213
Georgiy Brusilov	172,410	Arctic LNG 3 Ltd.	Daewoo	11/11/2018	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2427
Georgiy Ushakov	172,652	Teekay Corp.	Daewoo	16/09/2019	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2433
Ghasha	137,000	Ghasha Inc.	Mitsui E&S	01/06/1995	Liberia	Steam	Moss	5	Das Island	1392
Gigira Laitebo	177,419	Cleopatra LNG Shipping Co.	HHI	09/02/2010	Bahamas	–	TZ Mk. III	4	RasGas	1876
Global Energy	173,400	–	Daewoo	22/05/2020	M. Islnds	ME-GI	GT NO 96 GW	–	Portfolio	2478
Global Sea Spirit	169,932	Global Sea Spirit Inc	Daewoo	20/10/2021	M. Islnds	ME-GI	GT NO 96 GW	4	US Portfolio	2502
Global Sealine	174,000	Jackar Shiptrade SA	Daewoo	27/12/2021	M. Islnds	ME-GI	–	–	US Portfolio	2503
Global Star	173,400	Hai Kuo Shipping 2119G Ltd.	Daewoo	06/01/2021	M. Islnds	ME-GI	GT NO 96 GW	4	Portfolio	2487
Golar Arctic	140,648	Golar LNG 2216 Corp.	Daewoo	16/10/2003	M. Islnds	Steam	GT NO 96	4	Jamaica LNG	2216
Golar Bear	160,000	Golar LNG	Samsung	15/09/2014	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2027

Golar Celsius	160,000	Golar Hull M2026 Corp.	Samsung	08/10/2013	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2026
Golar Crystal	159,800	Golar LNG	Samsung	22/09/2014	M. Islnds	–	TZ Mk. III Flex	4	Portfolio	2022
Golar Glacier	162,000	Golar LNG	Hyundai Samho	10/11/2014	M. Islnds	TFDE	TZ Mk. III Flex	4	Spot	–
Golar Kelvin	162,000	Golar LNG	Hyundai Samho	12/01/2015	M. Islnds	–	TZ Mk. III Flex	4	Spot	S659
Golar Maria	145,700	Golar LNG 2234 LLC	Daewoo	16/06/2006	M. Islnds	Steam	GT NO 96	4	Spot	2234
Golden Isaia	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	26/02/2007	Indonesia	Steam	TZ Mk. III	4	Punta Europa	1585
Grace Acacia	149,700	Algawin Shipping Inc.	HHI	13/02/2007	Bahamas	Steam	TZ Mk. III	4	Spot	1728
Grace Barleria	149,700	NYK LNG Shipmanagement	HHI	05/04/2007	Japan	–	TZ Mk. III	4	Portfolio	1729
Grace Cosmos	150,000	Algahunt Shipping Inc.	HHI	13/02/2008	Bahamas	Steam	TZ Mk. III	4	Portfolio	1730
Grace Dahlia	177,000	NYK Line	Kawasaki	16/09/2013	Japan	Steam	Moss	4	Spot	1665
Grace Emilia	174,000	Akizuki Maritima SA	Hyundai Samho	31/10/2021	Bahamas	X-DF	TZ Mk. III	4	Portfolio	8032
Grace Freesia	174,000	Okusankichi Maritima SA	Hyundai Samho	27/03/2022	Bahamas	X-DF	–	4	Portfolio	8033
Grand Aniva	145,000	NYK-SCF LNG Shipping No. 1	Mitsubishi	04/01/2008	Cyprus	Steam	Moss	4	Sakhalin II	2230
Grand Elena	145,580	NYK-SCF LNG Shipping No. 1	Mitsubishi	17/10/2007	Cyprus	Steam	Moss	4	Sakhalin II	2229
Grand Mereya	147,000	Ice Gas LNG Shipping Co.	Mitsui E&S	16/03/2008	Cyprus	Steam	Moss	4	Sakhalin II	1681
Grazyna Gesicka	174,000	Knutsen OAS Shipping c/o SNC Diderot Financement 33	HHI	02/05/2023	France	X-DF	–	4	Portfolio	3244
Gui Ying	170,701	Fortune Power Shipping Ltd.	Hudong Zhonghua	08/10/2021	Singapore	X-DF	GT NO 96 L03+	4	–	H1828A
Hanjin Muscat	138,366	Pluto Lease Corp.	Hanjin (Busan)	30/07/1999	South Korea	Steam	GT NO 96	4	Oman LNG	54
Hanjin Pyeongtaek	130,636	Hanjin Shipping Co.	Hanjin (Busan)	26/09/1995	South Korea	Steam	GT NO 96	4	Bontang	16
Hanjin Ras Laffan	138,214	KSH International	Hanjin (Busan)	20/07/2000	South Korea	Steam	GT NO 96	4	RasGas I	62
Hanjin Sur	138,333	KSG International	Hanjin (Busan)	27/02/2000	South Korea	Steam	GT NO 96	4	Oman LNG	61
Hellas Athina	170,520	Kronos Shipping LLC	Hyundai Samho	01/09/2021	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	8040
Hellas Diana	174,000	Zeus Shipping LLC	Hyundai Samho	31/03/2021	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	8039
Hoegh Gandria	160,000	Golar Hull M2021 Corp.	Samsung	13/09/2013	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2021
HongKong Energy	138,000	Chevron LNG Shipping Co.	Daewoo	20/02/2004	M. Islnds	Steam	GT NO 96	4	North West Shelf	2214
Huelva Knutsen	174,000	Sea 201 Leasing Co Ltd	Hyundai Samho	13/10/2022	Norway	X-DF	TZ Mk. III Flex+	4	Portfolio	8094
Hyundai Aquapia	137,415	H&S Shipping	HHI	04/05/2000	M. Islnds	Steam	Moss	4	Oman LNG	1156
Hyundai Cosmopia	137,415	H&B Shipping	HHI	08/02/2000	M. Islnds	Steam	Moss	4	RasGas I	1074
Hyundai Ecopia	149,745	KLT 1 International	HHI	30/11/2008	Panama	–	TZ Mk. III	4	Balhaf	1903
Hyundai Greenpia	125,000	Hyundai Merchant Marine	HHI	01/05/1996	South Korea	Steam	Moss	4	MLNG	853
Hyundai Oceanpia	135,000	H&T Shipping	HHI	19/06/2000	M. Islnds	Steam	Moss	4	Oman LNG	1157
Hyundai Peacepia	174,000	Hyundai LNG Shipping	Daewoo	08/06/2017	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2452
Hyundai Princepia	174,000	Hyundai LNG Shipping	Daewoo	11/05/2017	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2451
Hyundai Technopia	137,415	H&K Shipping	HHI	31/07/1999	M. Islnds	Steam	Moss	4	RasGas I	1073
Hyundai Utopia	125,182	Hyundai Merchant Marine	HHI	01/06/1994	South Korea	Steam	Moss	4	Donggi Senoro	760
Iberica Knutsen	138,000	Norspan LNG III AS	Daewoo	08/08/2006	Norway	Ultra Steam Turbine	GT NO 96	4	Portfolio	2236
Ibra LNG	147,000	SNC Corentin	Samsung	19/07/2006	Panama	Steam	TZ Mk. III	4	Oman LNG	1573
Ibri LNG	147,569	Dune LNG Carrier	Mitsubishi	01/07/2006	Panama	Steam	Moss	4	Oman LNG	2215
Isabella	169,932	Kasimia Marine Co.	Daewoo	22/07/2021	Greece	ME-GI	GT NO 96 GW	4	–	2495
Ish	137,000	Ish Inc.	Mitsubishi	10/11/1995	Liberia	Steam	Moss	5	Das Island	2067
John A Angelicoussis	174,000	Varta Shipping Ltd	Daewoo	31/03/2022	Greece	ME-GI	–	4	–	2508
K. Acacia	138,017	Horizon Maritime Shipholding	Daewoo	31/12/1999	South Korea	Steam	GT NO 96	4	Oman LNG	2203
K. Freesia	138,015	Meridian Maritime Shipholding	Daewoo	20/08/2000	South Korea	Steam	GT NO 96	4	RasGas I	2204
K. Jasmine	145,878	Kolt JV No. 1	Daewoo	09/05/2008	Panama	Steam	GT NO 96	4	Sakhalin II	2260
K. Mugungwha	151,812	Kolt JV No. 2	Daewoo	20/11/2008	Panama	Steam	GT NO 96	4	Oman LNG	2261
Kinisis	173,400	Chandris Group	Daewoo	01/10/2018	Liberia	ME-GI	GT NO 96 GW	4	Portfolio	2464
Kita LNG	147,895	Cardiff LNG	Daewoo	29/05/2014	Malta	Diesel Electric	GT NO 96 L03	4	Spot	H2298
Kmarin Diamond	155,000	RBSSAF (19) Ltd.	Hyundai Samho	28/07/2008	U.K.	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	S297
Kool Baltic	170,200	Sovcomflot	STX	03/01/2015	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1912
Kool Blizzard	160,000	Golar LNG	Samsung	12/01/2015	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2047
Kool Boreas	170,200	Sovcomflot	STX	23/04/2015	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1913
Kool Firn	174,000	Heliconia Maritime SA	HHI	18/09/2020	Liberia	DFDS	TZ Mk. III Flex	4	Portfolio	8007
Kool Frost	160,000	Golar LNG	Samsung	01/10/2014	M. Islnds	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2055
Kool Ice	160,000	Golar LNG	Samsung	31/01/2015	M. Islnds	Diesel Electric	TZ Mk. III Flex	4	Spot	2048
Kool Orca	174,000	Headliner Maritime SA	HHI	15/01/2021	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8008
KPS LNG Anatolia	154,472	GDF Armateur 2	STX	21/11/2006	Liberia	Diesel/Gas-Electric	CS1	4	Portfolio	32N
Kumul	170,000	Mitsui O.S.K. Lines	Hudong Zhonghua	05/12/2015	H.K., China	Diesel	GT NO 96	4	PNG LNG	1673A
Kun Lun	174,400	–	Hudong Zhonghua	05/04/2023	China	X-DF	–	4	Portfolio	H1833A
La Mancha Knutsen	176,300	Norspan LNG IX	HHI	21/09/2016	Spain	ME-GI	TZ Mk. III Flex	4	Portfolio	2733
La Seine	174,000	Xiang CH16 HK International	HHI	29/02/2020	Malta	X-DF	TZ Mk. III Flex	–	Portfolio	3020
Lagenda Serenity	79,960	Kawasaki Kisen Kaisha	Hudong Zhonghua	10/06/2022	Singapore	LP-DF	–	3	Malaysia LNG	H1789A
Lagenda Suria	79,960	Silk LNG Transport No 1 Pte Ltd	Hudong Zhonghua	27/05/2022	Singapore	LP-DF	–	3	Malaysia LNG	H1788A
Lalla Fatma N'Soumer	145,000	Algerian Nippon Gas Transport Corp.	Kawasaki	18/10/2004	Bahamas	Steam	Moss	4	Arzew	1534

Lech Kaczynski	174,000	SNC Martin	HHI	09/12/2022	France	X-DF	–	4	Portfolio	3243
Lena River	155,000	Solana Holdings	HHI	24/09/2013	M. Islnds	–	TZ Mk. III	4	Portfolio	H2557
Lerici	65,000	LNG Shipping S.p.A.	Sestri Ponente	03/04/1998	Singapore	Steam	GT NO 96	4	Portfolio	5911
Lijmiliya	263,300	Nakilat Lijmiliya Inc.	Daewoo	11/12/2008	M. Islnds	Diesel	GT NO 96	5	Qatargas II	2256
LNG Abalamabie	162,000	Bonny Gas Transport	Samsung	23/07/2016	Bermuda	–	TZ Mk. III Flex	4	NLNG	2079
LNG Abuja II	162,000	Bonny Gas Transport	Samsung	02/03/2016	Bermuda	–	TZ Mk. III Flex	4	NLNG	2078
LNG Adamawa	141,000	Bonny Gas Transport	HHI	25/04/2005	Bermuda	Steam	Moss	4	NLNG	1470
LNG Adventure	174,000	Diderot Financement 28 SNC	Samsung	31/03/2021	France	X-DF	TZ Mk. III Flex	4	–	2302
LNG Akwa Ibom	141,000	Bonny Gas Transport	HHI	11/10/2004	Bermuda	Steam	Moss	4	NLNG	1469
LNG Alliance	154,472	NYK Armateur	STX	30/03/2007	France	Diesel/Gas-Electric	CS1	4	Portfolio	32P
LNG Aquarius	126,300	P.T. Hanochem Shipping	General Dynamics	01/01/1977	Indonesia	Steam	Moss	5	Bontang	41
LNG Barka	155,982	Lloyd's TSB General Leasing (No. 3)	Kawasaki	29/12/2008	Bahamas	Steam	Moss	4	Oman LNG	1591
LNG Bayelsa	137,500	Bonny Gas Transport	HHI	08/03/2003	Bermuda	–	Moss	4	NLNG	1429
LNG Benue	145,952	BW Gas LNG Carriers	Daewoo	05/04/2006	Bermuda	Steam	GT NO 96	4	NLNG	2224
LNG Bonny II	174,000	Nigeria LNG	HHI	02/12/2015	Bermuda	Diesel/Gas-Electric	TZ Mk. III Flex	4	NLNG	2636
LNG Borno	149,600	Okra Shipping No. 1	Samsung	16/08/2007	Bermuda	Steam	TZ Mk. III	4	NLNG	1563
LNG Cross River	141,000	Bonny Gas Transport	HHI	22/08/2005	Bermuda	Steam	Moss	4	NLNG	1471
LNG Dream	145,000	Osaka Gas Consortium	Kawasaki	02/09/2006	Bahamas	Steam	Moss	4	North West Shelf	1545
LNG Dubhe	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	07/11/2019	H.K., China	ME-GI	GT NO 96 L03+	4	Yamal	1810A
LNG Ebisu	147,546	LNG Ebisu Shipping Corp.	Kawasaki	12/07/2008	Bahamas	–	Moss	4	Pluto	1588
LNG Endeavour	170,520	Fortune Great Shipping Ltd.	Samsung	20/10/2021	France	X-DF	TZ Mk. III Flex	4	Portfolio	2355
LNG Endurance	174,000	DuPlessis Bail SNC	Samsung	01/12/2021	France	X-DF	TZ Mk. III Flex	4	Portfolio	2370
LNG Enterprise	170,520	Hanovre Financement 20 SASU	Samsung	03/10/2021	France	–	TZ Mk. III Flex	4	–	2360
LNG Enugu	145,926	BW Gas LNG Carriers	Daewoo	05/10/2005	Bermuda	Steam	GT NO 96	4	NLNG	2222
LNG Finima II	162,000	Bonny Gas Transport	Samsung	02/12/2015	Bermuda	–	TZ Mk. III Flex	4	NLNG	2076
LNG Fukurokuju	164,700	Mitsui O.S.K. Lines	Kawasaki	18/07/2016	Bahamas	–	Moss	4	APLNG	1712
LNG Imo	148,452	Bergesen LNG XI Ltd.	Daewoo	25/06/2008	Bermuda	–	GT NO 96	4	NLNG	2232
LNG Jamal	135,333	Osaka Gas Consortium	Mitsubishi	31/10/2000	Japan	Steam	Moss	5	Oman LNG	2157
LNG Juno	180,000	Mitsui O.S.K. Lines	Mitsubishi	18/10/2018	Bahamas	STaGE	Moss	–	Freeport	2323
LNG Jupiter	153,000	Osaka Gas Consortium	Kawasaki	01/07/2009	Bahamas	Steam	Moss	4	PNG LNG	1592
LNG Jurojin	160,000	LNG Jurojin Shipping Corp.	Mitsubishi	30/11/2015	Bahamas	–	Moss	4	Portfolio	2299
LNG Kano	148,565	Bergesen LNG IX Ltd.	Daewoo	26/01/2007	Bermuda	Steam	GT NO 96	4	NLNG	2230
LNG Kolt	153,595	KLT 5 International	Hanjin (Busan)	24/12/2008	Panama	Steam	TZ Mk. III	4	Portfolio	192
LNG Lagos II	174,000	Nigeria LNG	HHI	22/01/2016	Bermuda	–	TZ Mk. III Flex	4	NLNG	2637
LNG Lokoja	148,471	Bergesen LNG VIII Ltd.	Daewoo	28/11/2006	Bermuda	Steam	GT NO 96	4	NLNG	2229
LNG Maleo	127,544	Mitsui O.S.K. Lines	Mitsui E&S	01/01/1989	Japan	Steam	Moss	4	North West Shelf	1351
LNG Mars	155,693	Osaka Gas Consortium	Mitsubishi	14/10/2016	Japan	Steam	Moss	4	PNG LNG	2296
LNG Megrez	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	01/11/2020	H.K., China	ME-GI	GT NO 96 L03+	4	Yamal	1813A
LNG Merak	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	08/01/2020	H.K., China	ME-GI	GT NO 96 L03+	4	Yamal	1811A
LNG Ogun	149,000	Okra Shipping No. 1	Samsung	07/07/2007	Bermuda	Steam	TZ Mk. III	4	NLNG	1564
LNG Ondo	148,478	Bergesen LNG X Ltd.	Daewoo	21/09/2007	Bermuda	Steam	GT NO 96	4	NLNG	2231
LNG Oyo	145,842	BW Gas LNG Carriers	Daewoo	06/01/2006	Bermuda	Steam	GT NO 96	4	NLNG	2223
LNG Phecda	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	02/09/2020	H.K., China	ME-GI	GT NO 96 L03+	4	Yamal	1812A
LNG Port Harcourt II	162,000	Bonny Gas Transport	Samsung	14/12/2015	Bermuda	–	TZ Mk. III Flex	4	NLNG	2077
LNG Prima Carrier	137,000	Pacific Eurus Shipping	Mitsubishi	14/03/2006	Indonesia	Steam	Moss	4	Das Island	2187
LNG Prosperity	174,000	Hai Kuo Shipping 2001G Ltd (c/o Oceonix Services)	HHI	07/01/2023	Liberia	X-DF	TZ Mk. III Flex+	4	Portfolio	3188
LNG River Niger	141,000	Bonny Gas Transport	HHI	06/07/2006	Bermuda	Steam	Moss	4	NLNG	1472
LNG River Orashi	145,914	BW Gas LNG Carriers	Daewoo	04/11/2004	Bermuda	Steam	GT NO 96	4	NLNG	2221
LNG Rivers	137,200	Bonny Gas Transport	HHI	20/06/2002	Bermuda	–	Moss	4	NLNG	1295
LNG Rosenrot	176,523	Fair Wind Navigation SA	Daewoo	25/01/2021	M. Islnds	X-DF	GT NO 96 GW	4	Portfolio	2498
LNG Sakura	177,000	Mitsui O.S.K. Lines	Kawasaki	26/02/2018	Bahamas	TFDE	Moss	–	Freeport	1731
LNG Saturn	155,300	Mitsui O.S.K. Lines	Mitsubishi	03/02/2016	Bahamas	Ultra Steam Turbine	Moss	4	Gorgon	2311
LNG Schneeweisschen	180,000	Mitsui O.S.K. Lines	Daewoo	01/09/2018	Panama	TFDE	GT NO 96 GW	–	Freeport	2462
LNG Sokoto	137,425	Bonny Gas Transport	HHI	28/09/2002	Bermuda	–	Moss	4	NLNG	1296
LNG Venus	153,000	Mitsui O.S.K. Lines	Mitsubishi	14/11/2014	Japan	–	Sayaendo	4	North West Shelf	2295
LNG Vesta	127,386	Tokyo LNG Tanker Co.	Mitsubishi	30/06/1994	Japan	Steam	Moss	4	–	2061
LNGShips Athena	170,618	Cardiff LNG Iota Owning LLC	HHI	29/03/2021	Malta	X-DF	TZ Mk. III Flex	4	QCLNG	112
LNGShips Empress	174,000	Cardiff LNG Kappa Owning LLC	Samsung	31/03/2021	Malta	X-DF	TZ Mk. III Flex	4	QCLNG	2380
LNGShips Manhattan	174,000	Cardiff LNG Theta Owning LLC	HHI	07/05/2021	Malta	X-DF-HPSCR	NO-96-GW+PRS	4	QCLNG	3039
Lobito	160,276	Mint LNG III	Samsung	08/11/2011	Bahamas	–	TZ Mk. III	4	Soyo	1812
Lusail	145,000	Peninsula LNG Transport No. 1	Samsung	02/05/2005	Bahamas	–	TZ Mk. III	4	RasGas II	1440
Macoma	145,400	Teekay LNG Partners	Daewoo	16/09/2017	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2417
Magdala	173,400	Teekay Corp.	Daewoo	13/02/2018	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2453

Malaga Knutsen	174,000	Millenaire Financement 17 SASU	Hyundai Samho	29/07/2022	France	X-DF	TZ Mk. III Flex+	4	Portfolio	8092
Malanje	160,276	Mint LNG II	Samsung	05/10/2011	Bahamas	–	TZ Mk. III	4	Soyo	1811
Maran Gas Achilles	174,000	Maran Gas Maritime	Hyundai Samho	21/01/2016	Greece	–	TZ Mk. III Flex	4	Portfolio	S689
Maran Gas Agamemnon	174,000	Maran Gas Maritime	Hyundai Samho	11/05/2016	Greece	–	TZ Mk. III Flex	4	Portfolio	S690
Maran Gas Alexandria	161,870	Maran Gas Maritime	Hyundai Samho	02/10/2015	Greece	–	TZ Mk. III Flex	4	QCLNG	S627
Maran Gas Amorgos	169,932	Vero Maritime Inc	Daewoo	19/11/2021	Greece	ME-GI	GT NO 96	4	–	2506
Maran Gas Amphipolis	174,000	Maran Gas Maritime	Daewoo	01/08/2016	Greece	–	GT NO 96 L03	4	Portfolio	2412
Maran Gas Andros	173,400	Maran Gas Maritime	Daewoo	01/11/2019	Greece	ME-GI	GT NO 96 GW	4	Freeport	2467
Maran Gas Apollonia	161,870	Maran Gas Maritime	Hyundai Samho	08/01/2014	Greece	Diesel Electric	TZ Mk. III Flex	4	Punta Europa	S624
Maran Gas Asclepius	145,000	Sea Satin Corp.	Daewoo	29/07/2005	Greece	Steam	GT NO 96	4	RasGas II	H2227
Maran Gas Chios	170,000	Maran Gas Maritime	Daewoo	26/03/2019	Greece	ME-GI	GT NO 96 GW	4	–	2456
Maran Gas Coronis	145,700	Jopica Shipping Company	Daewoo	27/07/2007	Greece	Steam	GT NO 96	4	RasGas II	2244
Maran Gas Delphi	159,800	Maran Gas Maritime	Daewoo	06/02/2014	Greece	Diesel Electric	GT NO 96 L03	4	Portfolio	2296
Maran Gas Efessos	159,800	Maran Gas Maritime	Daewoo	12/06/2014	Greece	–	GT NO 96 L03	4	Portfolio	H-2291
Maran Gas Hector	174,000	Maran Gas Maritime	Hyundai Samho	08/11/2016	Greece	Diesel/Gas-Electric	TZ Mk. III Flex	–	Portfolio	S691
Maran Gas Hydra	173,400	Maran Gas Maritime	Daewoo	14/02/2019	Greece	ME-GI	GT NO 96 GW	4	Sabine Pass	2459
Maran Gas Ithaca	174,000	Arona Maritime Inc.	Daewoo	26/10/2021	Greece	X-DF	GT NO 96 GW	4	–	2507
Maran Gas Kalymnos	169,932	Hai Kuo Shipping 2028G Ltd	Daewoo	15/09/2021	Greece	ME-GI	Membrane	4	–	2504
Maran Gas Leto	174,000	Maran Gas Maritime	Hyundai Samho	29/03/2016	Greece	–	TZ Mk. III	4	Portfolio	S688
Maran Gas Lindos	161,870	Maran Gas Maritime	Daewoo	02/07/2015	Greece	–	GT NO 96 L03	4	Punta Europa	2292
Maran Gas Mystras	155,900	Maran Gas Maritime	Daewoo	03/08/2015	Greece	–	GT NO 96 L03	4	QCLNG	2405
Maran Gas Olympias	174,000	Maran Gas Maritime	Daewoo	04/02/2017	Greece	ME-GI	GT NO 96 L03	–	Portfolio	2415
Maran Gas Pericles	173,400	Maran Gas Maritime	Hyundai Samho	24/08/2016	Greece	–	TZ Mk. III Flex	4	Portfolio	S734
Maran Gas Posidonia	161,870	Maran Gas Maritime	Hyundai Samho	27/05/2014	Greece	–	TZ Mk. III Flex	4	Punta Europa	S625
Maran Gas Psara	173,595	Highseas Shiptrade Co.	Daewoo	07/05/2020	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2469
Maran Gas Roxana	174,000	Maran Gas Maritime	Daewoo	12/01/2017	Greece	ME-GI	GT NO 96 L03	4	Portfolio	2413
Maran Gas Sparta	159,800	Maran Gas Maritime	Hyundai Samho	22/04/2015	Greece	–	TZ Mk. III Flex	4	QCLNG	S626
Maran Gas Spetses	173,400	Maran Gas Maritime	Daewoo	03/07/2018	Greece	ME-GI	GT NO 96 GW	4	GoM	2458
Maran Gas Troy	155,000	Maran Gas Maritime	Daewoo	24/09/2015	Greece	–	GT NO 96 L03	4	–	2406
Maran Gas Ulysses	173,400	Maran Gas Maritime	Hyundai Samho	23/01/2017	Greece	Diesel/Gas-Electric	TZ Mk. III Flex	–	Portfolio	S735
Maran Gas Vergina	174,000	Santa Lucia Enterprises Inc.	Daewoo	07/12/2016	Greece	ME-GI	GT NO 96	–	Portfolio	2414
Maria Energy	174,000	Tsakos Energy Navigation	HHI	01/09/2016	Liberia	Diesel/Gas-Electric	TZ Mk. III Flex	4	–	2612
Marshal Vasilevskiy	170,520	Gazprom	HHI	10/01/2019	Russia	Diesel/Gas-Electric	TZ Mk. III Flex	4	Kaliningrad LNG	2854
Marvel Crane	177,000	NYK Line	Mitsubishi	28/03/2019	Singapore	STaGE	Moss	–	Cameron	2321
Marvel Eagle	155,000	Mitsui O.S.K. Lines	Kawasaki	19/10/2018	Panama	Reheat Steam Turbine	Moss	–	Cameron	1728
Marvel Falcon	174,000	Mitsui O.S.K. Lines	Samsung	20/04/2018	Singapore	TFDE	TZ Mk. III Flex	4	Cameron	2148
Marvel Hawk	177,000	Mitsui O.S.K. Lines	Samsung	01/12/2018	Singapore	TFDE	TZ Mk. III Flex	4	Cameron	2149
Marvel Heron	177,000	Mitsui O.S.K. Lines	Mitsubishi	28/09/2019	Panama	STaGE	Moss	–	Cameron	2322
Marvel Kite	177,000	Mitsui O.S.K. Lines	Samsung	31/01/2019	Singapore	TFDE	TZ Mk. III	4	Cameron	2150
Marvel Pelican	156,265	Mitsui O.S.K. Lines	Kawasaki	13/12/2019	Panama	Reheat Steam Turbine	Moss	4	Cameron	1729
Marvel Swan	174,000	MIF I NO 20 K/S	Samsung	08/04/2021	Denmark	X-DF	TZ Mk. III Flex	4	–	2310
Megara	173,400	Teekay LNG Partners	Daewoo	19/07/2018	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2455
Mekaines	266,000	Nakilat SHI 1695 Inc.	Samsung	03/04/2009	M. Islnds	–	TZ Mk. III	5	Qatargas III	1695
Merchant	138,000	Sea Breeze Leasing	Samsung	23/07/2003	M. Islnds	Steam	TZ Mk. III	4	Portfolio	1381
Mesaimeer	216,312	Nakilat HHI 1908 Inc.	HHI	12/03/2009	M. Islnds	Diesel	TZ Mk. III	4	Qatargas III	1908
Methane Alison Victoria	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	27/04/2007	Bermuda	Steam	TZ Mk. III	4	Punta Europa	1587
Methane Becki Anne	170,000	Methane Services (Shell)	Samsung	14/09/2010	Bermuda	–	TZ Mk. III	4	Singapore	1858
Methane Heather Sally	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	08/01/2007	Bermuda	Steam	TZ Mk. III	4	Punta Europa	1586
Methane Jane Elizabeth	145,000	British Gas Asia Pacific	Samsung	05/06/2006	Bermuda	Steam	TZ Mk. III	4	Idku	1554
Methane Julia Louise	170,000	Methane Services (Shell)	Samsung	19/04/2010	Bermuda	–	TZ Mk. III	9	Singapore	1745
Methane Mickie Harper	170,000	Methane Services (Shell)	Samsung	28/12/2010	Panama	Diesel/Gas-Electric	TZ Mk. III	4	Singapore	1859
Methane Nile Eagle	145,000	Egypt LNG Shipping	Samsung	05/12/2007	Bermuda	Steam	TZ Mk. III	4	Idku	1588
Methane Patricia Camila	170,000	Methane Services (Shell)	Samsung	29/10/2010	Panama	–	TZ Mk. III	4	Singapore	1746
Methane Princess	138,000	Golar LNG	Daewoo	29/08/2003	M. Islnds	Steam	GT NO 96	4	Portfolio	2215
Methane Rita Andrea	145,000	British Gas Asia Pacific	Samsung	07/04/2006	Bermuda	Steam	TZ Mk. III	4	Idku	1553
Milaha Qatar	145,500	Qatar Shipping Co.	Samsung	15/04/2006	Malta	Steam	TZ Mk. III	4	RasGas II	1562
Milaha Ras Laffan	138,270	Milaha Ras Laffan GmbH & Co. KG	Samsung	06/04/2004	Malta	Steam	TZ Mk. III	4	RasGas II	1425
Min Lu	147,100	Minlu LNG Shipping Co.	Hudong Zhonghua	29/08/2009	H.K., China	–	GT NO 96	4	Tangguh	1378
Min Rong	145,000	Min Rong LNG Shipping Co.	Hudong Zhonghua	24/02/2009	H.K., China	–	GT NO 96	4	Tangguh	1320
Minerva Amorgos	170,520	Vitamin Shipping SA	Samsung	21/09/2022	Malta	X-DF	TZ Mk. III Flex+	4	–	2332
Minerva Chios	170,520	Peninsula Shipping SA	Samsung	02/08/2021	Malta	X-DF	TZ Mk. III Flex+	4	–	2305
Minerva Kalymnos	174,000	Koje Shipping SA	Samsung	28/02/2021	Malta	X-DF	TZ Mk. III Flex+	4	–	2304
Minerva Limnos	173,400	Roland Shipping SA	Daewoo	30/06/2021	Malta	ME-GI	TZ Mk. III Flex+	4	–	2482
Minerva Psara	173,400	Wimbledon Shipping SA	Daewoo	04/01/2021	Malta	–	GT NO 96 GW	4	–	2481

MOL Hestia	173,400	LNG Harmonia Shipping Corp	Daewoo	26/07/2021	M. Islnds	X-DF	GT NO 96 GW	4	–	2505
Mozah	266,000	Nakilat Haloul Inc.	Samsung	11/08/2009	M. Islnds	Diesel	TZ Mk. III	5	Qatargas II	1675
Mraweh	137,000	Mraweh Ltd.	STX	30/04/1996	Liberia	Steam	Moss	4	Das Island	1331
Mu Lan	174,400	Fortune Great Shipping Ltd.	Hudong Zhonghua	31/08/2021	Liberia	X-DF	GT NO 96 L03+	4	–	1827A
Mubaraz	137,000	Mubaraz Ltd.	STX	14/12/1995	Liberia	Steam	Moss	4	Das Island	1330
Murex	173,400	Teekay LNG Partners	Daewoo	18/07/2017	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2416
Murwab	210,100	J5 Nakilat No. 4 Ltd.	Daewoo	30/06/2008	M. Islnds	Diesel	GT NO 96	18	RasGas III	251
Myrina	173,400	Teekay Corp.	Daewoo	10/05/2018	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2454
Neo Energy	150,000	Sea Optima	HHI	01/01/2007	Liberia	Steam	TZ Mk. III	4	Portfolio	1754
Neptune	145,130	SRV Joint Gas Ltd.	Samsung	30/11/2009	Norway	–	TZ Mk. III	4	Portfolio	1688
New Apex	174,000	POS Maritime AF SA	Samsung	26/01/2023	Panama	X-DF	–	4	Portfolio	2426
NFE Penguin	160,000	Golar LNG	Samsung	15/09/2014	M. Islnds	–	TZ Mk. III Flex	4	Spot	2023
Nikolay Urvantsev	172,658	China Shipping Development Co.	Daewoo	31/07/2019	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2432
Nikolay Yevgenov	172,410	Teekay Corp.	Daewoo	19/04/2019	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2430
Nikolay Zubov	172,410	Arctic LNG 5 Ltd.	Daewoo	20/11/2018	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2429
Nizwa LNG	147,684	Oryx LNG Carrier	Kawasaki	19/12/2005	Panama	Steam	Moss	4	Oman LNG	1562
Nohshu Maru	180,000	Mitsui O.S.K. Lines	Mitsubishi	27/02/2019	Bahamas	Reheat Steam Turbine	Moss	4	–	2326
Northwest Sanderling	127,525	Shell Tankers Australia	Mitsubishi	01/01/1989	Australia	Steam	Moss	4	North West Shelf	1996
Northwest Sandpiper	125,042	Shell Tankers Australia	Mitsui E&S	01/01/1993	Australia	Steam	Moss	4	North West Shelf	1370
Northwest Snipe	127,500	International Gas Transportation Co., Ltd.	Mitsui E&S	01/01/1990	Australia	Steam	Moss	4	North West Shelf	1352
Northwest Stormpetrel	127,500	Shell Tankers Australia	Mitsubishi	11/12/1994	Australia	Steam	Moss	4	North West Shelf	2074
Ob River	149,700	Lance Shipping	HHI	29/05/2007	M. Islnds	Steam	TZ Mk. III	4	Sakhalin II	1719
Oceanic Breeze	155,300	"K" Line - Kawasaki Kisen Kaisha	Mitsubishi	21/04/2018	M. Islnds	Reheat Steam Turbine	Moss	4	Ichthys	2310
Onaiza	210,150	Nakilat DSME 2266 Inc.	Daewoo	30/04/2009	M. Islnds	Diesel	GT NO 96	12	Qatargas III	2266
Orion Bohemia	174,000	SNC Cantica Lease	HHI	24/11/2022	Malta	X-DF	TZ Mk. III Flex+	4	Portfolio	3187
Orion Jessica	174,000	–	HHI	23/06/2023	Malta	X-DF	–	4	Portfolio	3189
Orion Monet	174,000	Jupiter 3 Ltd	Samsung	01/04/2022	Malta	X-DF	–	4	–	2319
Orion Sea	170,852	Meridian 23 Ltd.	Samsung	04/01/2022	Malta	X-DF	–	4	–	2336
Orion Sun	174,000	Meridian 24 Ltd.	Samsung	01/07/2022	Malta	X-DF	–	4	Portfolio	2337
Ougarta	170,000	Hyproc Shipping Co.	HHI	31/03/2017	Algeria	–	TZ Mk. III Flex	4	Arzew	2814
Pacific Arcadia	145,400	Bahamas LNG Shipping	Mitsubishi	20/10/2014	Bahamas	–	Moss	4	PNG LNG	MHISB 2289
Pacific Breeze	180,000	"K" Line - Kawasaki Kisen Kaisha	Kawasaki	10/03/2018	M. Islnds	TFDE	Moss	4	Ichthys	1718
Pacific Enlighten	145,400	Pacific Hope Shipping	Mitsubishi	16/03/2009	Bahamas	Steam	Moss	4	North West Shelf	2236
Pacific Mimosa	155,300	NYK Line	Mitsubishi	31/03/2018	Japan	Reheat Steam Turbine	Moss	–	Wheatstone	2316
Pacific Notus	137,006	Pacific LNG Shipping	Mitsubishi	08/09/2003	Bahamas	Steam	Moss	5	Darwin LNG	2176
Palu LNG	159,800	Cardiff LNG	Daewoo	06/11/2014	Malta	TFDE	GT NO 96 L03	4	Spot	2400
Pan Africa	174,000	Teekay LNG Partners	Hudong Zhonghua	12/01/2019	H.K., China	TFDE	GT NO 96	4	QCLNG	1666A
Pan Americas	174,000	Teekay LNG Partners	Hudong Zhonghua	15/01/2018	H.K., China	TFDE	GT NO 96	4	QCLNG	H1664A
Pan Asia	174,000	Teekay LNG Partners	Hudong Zhonghua	22/09/2017	H.K., China	TFDE	GT NO 96	4	QCLNG	1663A
Pan Europe	174,000	Teekay LNG Partners	Hudong Zhonghua	12/07/2018	H.K., China	TFDE	GT NO 96	4	QCLNG	H1665A
Papua	170,000	Mitsui O.S.K. Lines	Hudong Zhonghua	27/11/2014	H.K., China	–	GT NO 96	4	PNG LNG	H1670A
Patris	174,000	Chandris Group	Daewoo	01/01/2018	Liberia	ME-GI	GT NO 96 GW	4	Freeport	2460
Pearl LNG	174,000	CardiffF LNG Delta Owning LLC	Samsung	01/08/2020	Malta	X-DF	NO-96-GW+PRS	–	Portfolio	2275
Pioneer Spirit	138,121	M & S Shipping 3 S.A.	Daewoo	29/07/2005	Singapore	Steam	GT NO 96	4	Das Island	2219
Point Fortin	154,200	Los Halillos Shipping Co.	Koyo Dockyard	12/01/2010	Panama	Steam	TZ Mk. III	4	Portfolio	2263
Portovenere	65,000	LNG Shipping S.p.A.	Sestri Ponente	21/04/1997	Singapore	Steam	GT NO 96	4	Portfolio	5910
Portovyy	138,107	Monteriggioni Inc.	Daewoo	20/08/2003	Russia	Steam	GT NO 96	4	Portfolio	2213
Prachi	162,000	India LNG Transport Company No. 4 Ltd.	HHI	30/11/2016	Singapore	Diesel/Gas-Electric	TZ Mk. III Flex	–	Gorgon	2633
Prima Concord	138,267	BG Group	Samsung	24/05/2004	Indonesia	Steam	TZ Mk. III	4	Singapore	1428
Prism Agility	180,000	SK Shipping	HHI	17/05/2019	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2937
Prism Brilliance	180,000	SK Shipping	HHI	31/05/2019	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2938
Prism Courage	176,462	Millenaire Financement 12 SASU	HHI	19/10/2021	Panama	X-DF	TZ Mk. III Flex	4	–	2939
Prism Diversity	180,000	HHIENS4 Shipholding SA	HHI	21/06/2022	Panama	X-DF	–	4	–	3145
Pskov	170,200	Sovcomflot	STX	01/09/2014	Liberia	–	GT NO 96	4	Portfolio	1911
Puteri Delima	130,400	Puteri Delima S.Bhd.	STX	12/01/1995	Malaysia	Steam	GT NO 96	4	MLNG II	30F
Puteri Delima Satu	137,100	MISC	Mitsui E&S	31/10/2002	Malaysia	Steam	GT NO 96	4	MLNG III	1506
Puteri Firus Satu	137,100	Puteri Firus S.Bhd.	Mitsubishi	23/08/2004	Malaysia	Steam	GT NO 96	4	MLNG III	2177
Puteri Intan	137,100	Puteri Intan S.Bhd.	STX	24/08/1994	Malaysia	Steam	GT NO 96	4	MLNG II	30E
Puteri Mutiara Satu	137,100	MISC	Mitsui E&S	06/04/2005	Malaysia	Steam	GT NO 96	4	MLNG III	1562
Puteri Nilam	130,400	Puteri Nilam S.Bhd.	STX	17/07/1995	Malaysia	Steam	GT NO 96	4	MLNG II	30G
Puteri Nilam Satu	137,100	Puteri Nilam S.Bhd.	Mitsubishi	30/07/2003	Malaysia	Steam	GT NO 96	4	MLNG III	2169
Puteri Zamrud	130,400	Puteri Zamrud S.Bhd.	STX	02/06/1996	Malaysia	Steam	GT NO 96	4	MLNG II	30H
Puteri Zamrud Satu	137,100	MISC	Mitsui E&S	04/02/2004	Malaysia	–	GT NO 96	4	MLNG III	1507

Qogir	174,000	LNGShips	Samsung	01/06/2020	Malta	X-DF	TZ Mk. III Flex	–	Portfolio	2271
Raahi	138,076	India LNG Transport Company No.2 Ltd.	Daewoo	18/10/2004	Malta	Steam	GT NO 96	4	RasGas	2211
Rasheeda	266,000	Nakilat SHI 1754 Inc.	Samsung	12/08/2010	M. Islnds	Diesel	TZ Mk. III	10	Qatargas IV	1754
Rias Baixas Knutsen	180,000	Knutsen OAS Shipping	HHI	04/09/2019	Spain	ME-GI	TZ Mk. III Flex	4	Corpus Christi	2964
Ribera del Duero Knutsen	173,400	Norspan LNG VIII AS	Daewoo	02/12/2010	Norway	–	GT NO 96	4	Portfolio	2275
Rioja Knutsen	170,000	Norspan LNG X	HHI	02/12/2016	Spain	ME-GI	TZ Mk. III Flex	4	Portfolio	2734
Rudolf Samoylovich	172,410	Teekay Corp.	Daewoo	22/08/2018	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2425
Salalah LNG	147,000	Tiwi LNG Carrier S.A.	Samsung	14/12/2005	Panama	Steam	TZ Mk. III	4	Oman LNG	1536
Santander Knutsen	174,000	Sea 194 Leasing Co Ltd.	Hyundai Samho	16/06/2022	Norway	X-DF	TZ Mk. III Flex+	4	Portfolio	8091
SCF La Perouse	174,000	Albus Shipping Ltd.	HHI	10/02/2020	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8006
Seapeak Arctic	89,800	Artic Spirit LLC	Ishikawajima	17/12/1993	Saint Kitts & Nevis	Steam	IHI SPB	4	Atlantic LNG	3016
Seapeak Arwa	165,500	Membrane Shipping	Samsung	13/08/2008	M. Islnds	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1625
Seapeak Catalunya	138,000	Teekay Shipping Spain S.L.	Izar	19/06/2003	Spain	Steam	GT NO 96	4	Atlantic LNG	319
Seapeak Creole	173,400	Teekay LNG Partners	Daewoo	18/02/2016	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2407
Seapeak Galicia	140,624	Teekay Gas II	Daewoo	01/07/2004	Spain	Steam	GT NO 96	4	Portfolio	2209
Seapeak Glasgow	174,162	Teekay LNG Partners	Hyundai Samho	10/12/2018	Bahamas	ME-GI	TZ Mk. III Flex	–	Freeport	S856
Seapeak Hispania	145,500	Teekay Gas Naviera SL	Daewoo	21/08/2002	Spain	Steam	GT NO 96	4	Peru LNG	2205
Seapeak Madrid	138,000	Teekay Shipping Spain S.L.	Navantia	30/12/2004	Spain	Steam	GT NO 96	4	Atlantic LNG	105
Seapeak Magellan	165,500	Magellan Spirit ApS	Samsung	10/04/2009	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1626
Seapeak Marib	165,500	Membrane Shipping	Samsung	10/04/2008	M. Islnds	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1608
Seapeak Meridian	165,500	Meridian Spirit Aps	Samsung	15/01/2010	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1633
Seapeak Methane	165,500	Malt Singapore Pvt. Ltd.	Samsung	13/02/2008	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Atlantic LNG	1607
Seapeak Oak	173,400	Teekay LNG Partners	Daewoo	03/03/2016	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2408
Seapeak Polar	89,800	Polar Spirit LLC	Ishikawajima	04/06/1993	Bahamas	Steam	IHI SPB	4	Atlantic LNG	3015
Seapeak Vancouver	173,400	Teekay LNG Partners	Daewoo	02/11/2016	Bahamas	ME-GI	GT NO 96 GW	–	Portfolio	2411
Seapeak Yamal	174,000	Teekay LNG Partners	Hyundai Samho	31/01/2019	Bahamas	ME-GI	TZ Mk. III Flex	–	Freeport	S857
Seishu Maru	138,000	Mitsui O.S.K. Lines	Mitsubishi	09/09/2014	Bahamas	–	Moss	4	PNG LNG	2297
Seri Alam	145,572	MISC	Samsung	22/07/2005	Malaysia	–	TZ Mk. III	4	Bintulu	1502
Seri Amanah	145,709	MISC	Samsung	15/03/2006	Malaysia	Steam	TZ Mk. III	4	Bintulu	1503
Seri Anggun	145,731	MISC	Samsung	30/10/2006	Malaysia	Steam	TZ Mk. III	4	North West Shelf	1589
Seri Angkasa	145,130	MISC	Samsung	23/12/2006	Malaysia	Steam	TZ Mk. III	4	Bintulu	1590
Seri Ayu	145,894	MISC	Samsung	01/10/2007	Malaysia	Steam	TZ Mk. III	4	Bintulu	1591
Seri Bakti	152,944	MISC	Mitsubishi	14/04/2007	Malaysia	Steam	GT NO 96	4	Gladstone	2220
Seri Balhaf	152,000	MISC	Mitsubishi	01/01/2009	Malaysia	Steam	GT NO 96	4	Bontang	2223
Seri Balqis	152,000	MISC	Mitsubishi	02/03/2009	Malaysia	Steam	GT NO 96	4	NLNG	2224
Seri Begawan	152,900	MISC	Mitsubishi	14/11/2007	Malaysia	Steam	GT NO 96	4	Bintulu	2221
Seri Bijaksana	152,300	MISC	Mitsubishi	28/04/2008	Malaysia	Steam	GT NO 96	4	Bintulu	2222
Seri Camar	150,000	MISC	HHI	13/02/2018	Malaysia	Ultra Steam Turbine	Moss	4	Pacific Northwest	2732
Seri Camellia	159,800	MISC	HHI	30/09/2016	Malaysia	–	TZ Mk. III Flex	4	Pacific Northwest	2729
Seri Cemara	150,200	MISC	HHI	09/04/2018	Malaysia	Reheat Steam Turbine	Moss	4	Portfolio	2735
Seri Cempaka	162,000	MISC	HHI	01/08/2017	Malaysia	–	TZ Mk. III Flex	4	Pacific Northwest	2731
Seri Cenderawasih	162,000	MISC	HHI	08/02/2017	Malaysia	–	Moss	4	Pacific Northwest	2730
Seri Damai	174,000	Polaris LNG One Pte Ltd	Samsung	03/02/2023	Singapore	X-DF	Mark III Flex Plus	4	Portfolio	2364
Seri Daya	174,000	Polaris LNG Two Pte Ltd	Samsung	02/04/2023	Singapore	X-DF	Mark III Flex Plus	4	Portfolio	2365
Sestao Knutsen	136,947	Norspan LNG IV AS	Navantia Cadiz	11/10/2007	Spain	Steam	GT NO 96	4	Portfolio	331
Sevilla Knutsen	173,400	Norspan LNG VI AS	Daewoo	31/05/2010	Spain	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2269
Shagra	268,000	Nakilat SHI 1751 Inc.	Samsung	23/11/2009	M. Islnds	Diesel	TZ Mk. III	10	Qatargas IV	1751
Shahamah	135,496	Shahamah Inc.	Kawasaki	01/10/1994	Liberia	Steam	Moss	5	Das Island	1438
Shandong Juniper	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	05/02/2004	Singapore	Steam	Moss	5	Peru LNG	2183
Shaolin	174,400	United Prosperity LNG Shipping Co Ltd	Hudong Zhonghua	31/10/2022	H.K., China	X-DF	–	4	Portfolio	H1831A
Shen Hai	147,200	Shanghai LNG Shipping Co.	Hudong Zhonghua	10/12/2012	H.K., China	Steam	GT NO 96	4	Bintulu	H1621A
Shinshu Maru	180,000	Mitsui O.S.K. Lines	Kawasaki	15/02/2019	Bahamas	DERST (aka STaGE)	Moss	4	Freeport	1734
Simaisma	145,889	Greenwell Corporation	Daewoo	24/07/2006	Greece	Steam	GT NO 96	8	RasGas II	2235
Singapore Energy	138,000	Sea Breeze Leasing	Samsung	21/02/2003	M. Islnds	Steam	TZ Mk. III	4	Portfolio	1416
SK Audace	174,000	Milestone LNG Transport	Samsung	03/08/2017	Panama	–	TZ Mk. III Flex	4	Portfolio	2080
SK Resolute	180,000	Milestone LNG Transport	Samsung	01/11/2017	Panama	X-DF	TZ Mk. III Flex	4	Ichthys	2081
SK Serenity	174,000	SK Shipping	Samsung	14/02/2018	South Korea	TFDE	KC-1	4	Sabine Pass	2153
SK Spica	174,117	SK Shipping	Samsung	12/03/2018	Panama	TFDE	KC-1	–	Sabine Pass	2154
SK Splendor	138,370	Optima Leasing	Samsung	01/05/2000	South Korea	Steam	TZ Mk. III	4	Oman LNG	1258
SK Stellar	138,375	Stellar Shipholding	Samsung	31/12/2000	South Korea	Steam	TZ Mk. III	4	RasGas I	1259
SK Summit	138,003	Omnia Enterprises	Daewoo	04/08/1999	South Korea	Steam	GT NO 96	4	RasGas I	2202
SK Sunrise	138,306	Methane Navigation S.A.	Samsung	27/08/2003	Panama	Steam	TZ Mk. III	4	RasGas II	1405
SK Supreme	138,225	SK Shipping Co Ltd	Samsung	05/02/2000	South Korea	Steam	TZ Mk. III	4	RasGas I	1207

SM Albatross	174,000	SMKLC LNG3 SA	HHI	25/07/2022	Panama	X-DF	TZ Mk. III Flex+	4	Portfolio	3185
SM Bluebird	174,000	SMKLC LNG4 SA	HHI	30/09/2022	Panama	X-DF	TZ Mk. III Flex+	4	Portfolio	3186
SM Eagle	174,000	Korea Line Corp.	Daewoo	04/05/2017	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2449
SM Seahawk	174,000	Korea Line Corp.	Daewoo	05/06/2017	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2450
Sohar LNG	137,248	Energy Spring LNG Carriers	Mitsubishi	29/10/2001	Panama	Steam	Moss	5	Oman LNG	2162
Sohshu Maru	177,000	Mitsui O.S.K. Lines	Kawasaki	24/07/2019	Bahamas	DERST (aka STaGE)	Moss	4	Freeport	1735
Solaris	155,000	GasLog	Samsung	19/07/2014	Bermuda	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	2042
Sonangol Benguela	160,500	Sonangol Benguela Ltd.	Daewoo	08/12/2011	Bahamas	–	GT NO 96	4	Soyo	2282
Sonangol Etosha	160,500	Sonangol Etosha Ltd.	Daewoo	17/09/2011	Bahamas	–	GT NO 96	4	Soyo	2281
Sonangol Sambizanga	160,500	Sonangol Sambizanga Ltd.	Daewoo	10/08/2011	Bahamas	–	GT NO 96	4	Soyo	2280
Southern Cross	172,000	Mitsui O.S.K. Lines	Hudong Zhonghua	07/07/2015	H.K., China	–	GT NO 96	4	PNG LNG	H1671A
Soyo	160,276	Mint LNG I	Samsung	01/08/2011	Bahamas	–	TZ Mk. III	4	Soyo	1810
Spirit of Hela	177,000	Nefertiti LNG Shipping Co.	Hyundai Samho	05/11/2010	Bahamas	Diesel Electric	TZ Mk. III	4	PNG LNG	S324
Stena Blue Sky	145,700	Blue Sky LNG	Daewoo	01/08/2006	U.K.	Steam	GT NO 96	4	Spot	2233
Stena Clear Sky	171,800	Clear Sky LNG Shipping	Daewoo	31/05/2011	U.K.	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2278
Stena Crystal Sky	171,800	Stena Drilling Cyprus	Daewoo	27/05/2011	U.K.	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2268
Symphonic Breeze	145,394	Reborn Maritime	Kawasaki	14/12/2007	Bahamas	Steam	Moss	4	Portfolio	H1587
Taitar No 1	145,000	NiMic No 1 S.A.	Mitsubishi	08/10/2009	Panama	–	Moss	4	RasGas	2241
Taitar No 2	145,000	NiMic No 2 S.A.	Kawasaki	18/12/2009	Panama	–	Moss	4	RasGas	1625
Taitar No 3	145,000	NiMic No 3 S.A.	Mitsubishi	16/12/2009	Panama	–	Moss	4	RasGas	2242
Taitar No 4	147,000	NiMic No 4 S.A.	Kawasaki	04/08/2010	Panama	–	Moss	4	RasGas	1626
Tangguh Batur	145,700	LNG North-South Shipping Co.	Daewoo	15/12/2008	Singapore	Steam	GT NO 96	4	Tangguh	2242
Tangguh Foja	155,000	Ocean 1919 Shipping No. 1	Samsung	25/11/2008	Panama	–	TZ Mk. III	4	Tangguh	1619
Tangguh Hiri	155,000	Tangguh Hiri Finance Ltd.	HHI	05/12/2008	Bahamas	–	TZ Mk. III	4	Tangguh	1780
Tangguh Jaya	155,000	Ocean 1919 Shipping No. 2	Samsung	31/12/2008	Panama	–	TZ Mk. III	4	Tangguh	1620
Tangguh Palung	155,000	Ocean 1919 Shipping No. 3	Samsung	09/03/2009	Panama	–	TZ Mk. III	4	Tangguh	1634
Tangguh Sago	155,000	Teekay Shipping (Canada) Limited	Hyundai Samho	28/12/2008	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Tangguh	S298
Tangguh Towuti	145,700	LNG East-West Shipping Co.	Daewoo	15/10/2008	Singapore	Steam	GT NO 96	4	Tangguh	2241
Tembek	216,200	Overseas LNG S1 Corp.	Samsung	19/11/2007	M. Islnds	Diesel	TZ Mk. III	4	Qatargas II	1605
Tenergy	170,520	Briety Shipping Inc	HHI	21/01/2022	Greece	X-DF	TZ Mk. III	4	–	3157
Tessala	170,000	Hyproc Shipping Co.	HHI	07/02/2017	Algeria	Diesel/Gas-Electric	TZ Mk. III Flex	–	Arzew	2813
Trader II	138,000	K Line LNG Shipping (UK) Ltd	Samsung	07/11/2002	U.K.	Steam	TZ Mk. III	4	Portfolio	1380
Trader III	137,100	MISC	Mitsubishi	09/08/2002	Liberia	Steam	GT NO 96	4	MLNG III	2165
Traiano Knutsen	180,000	Hai Kuo Shipping 1901 G Ltd.	HHI	01/07/2020	Norway	ME-GI	TZ Mk. III Flex	4	–	3086
Trinity Glory	154,000	Cypress Maritime Consortium	Koyo Dockyard	26/11/2008	Panama	Steam	TZ Mk. III	4	Bontang	2260
Tristar Ruby	155,000	RBSSAF (19) Ltd.	HHI	14/04/2008	Liberia	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1778
Umm Al Amad	210,200	J5 Nakilat No. 7 Ltd.	Daewoo	12/09/2008	M. Islnds	Diesel	GT NO 96	18	RasGas III	2253
Umm Al Ashtan	137,000	Umm Al Ashtan Ltd.	STX	29/05/1997	Liberia	Steam	Moss	4	Das Island	1333
Umm Bab	145,000	Sea Trade International Inc.	Daewoo	01/11/2005	Greece	Steam	GT NO 96	4	RasGas II	2228
Umm Slal	266,000	Nakilat Umm Slal Inc.	Samsung	26/11/2008	M. Islnds	–	TZ Mk. III	5	Qatargas II	1676
Valencia Knutsen	173,400	Norspan LNG VII AS	Daewoo	30/09/2010	Spain	–	GT NO 96	4	Portfolio	2274
Velikiy Novgorod	170,200	Sovcomflot	STX	20/12/2013	Liberia	–	GT NO 96	4	Portfolio	1910
Vivit Americas LNG	174,000	Cardiff LNG Zeta Owning LLC	HHI	17/10/2020	Malta	X-DF	TZ Mk. III Flex	–	Portfolio	3037
Vivit Arabia LNG	174,000	Kaiser 2 SA	Hyundai Samho	10/06/2022	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	8026
Vivit City LNG	174,103	Kaiser SA	Hyundai Samho	06/12/2021	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	8025
Vladimir Rusanov	174,000	Mitsui O.S.K. Lines	Daewoo	01/01/2018	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2424
Vladimir Vize	172,000	China Shipping Development Co.	Daewoo	30/09/2018	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2426
Vladimir Voronin	172,652	Teekay Corp.	Daewoo	19/07/2019	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2431
WilForce	155,900	Wilforce LLC	Daewoo	18/09/2013	Malta	–	GT NO 96	4	–	H2289
WilPride	155,900	Wilpride LLC	Daewoo	29/11/2013	Malta	–	GT NO 96	4	–	H2290
Woodside Chaney	174,000	Maran Gas Maritime	Daewoo	02/07/2019	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2457
Woodside Charles Allen	173,400	Hai Kuo Shipping 2027G Ltd.	Daewoo	31/10/2020	Greece	ME-GI	GT NO 96 GW	–	–	2486
Woodside Donaldson	165,500	Malt Singapore Pvt. Ltd.	Samsung	19/10/2009	Singapore	Diesel/Gas-Electric	TZ Mk. III	4	Pluto	1632
Woodside Goode	159,800	Armour Company Ltd.	Daewoo	04/11/2013	Greece	Diesel Electric	GT NO 96 GW	4	RasGas	H2295
Woodside Rees Withers	173,400	Maran Gas Maritime	Daewoo	01/10/2019	Greece	ME-GI	GT NO 96 GW	4	–	2466
Woodside Rogers	159,800	Margie Seaway Corp.	Daewoo	01/07/2013	Greece	Diesel/Gas-Electric	GT NO 96 GW	4	Pluto	H2288
Wudang	174,400	United Glory LNG Shipping Co Ltd	Hudong Zhonghua	07/10/2022	H.K., China	X-DF	–	4	Portfolio	H1832A
Yakov Gakkel	172,658	DSME Hull No.2434 LLC	Daewoo	12/11/2019	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2434
Yari LNG	159,800	Cardiff LNG	Daewoo	03/11/2014	Malta	TFDE	GT NO 96 L03	4	Spot	2401
Yenisei River	155,000	Navajo Marine	HHI	31/07/2013	M. Islnds	–	TZ Mk. III	4	Yamal	2556
Yiannis	169,932	Onerato Marine SA	Daewoo	29/09/2021	Greece	ME-GI	GT NO 96 GW	4	–	2501
YK Sovereign	127,125	SK Shipping	HHI	01/12/1994	South Korea	Steam	Moss	4	MLNG	761
Zarga	268,000	Nakilat SHI 1752 Inc.	Samsung	23/01/2010	M. Islnds	–	TZ Mk. III	5	Qatargas IV	1752
Zekreet	137,482	Mitsui O.S.K. Lines	Mitsui E&S	01/12/1998	M. Islnds	Steam	Moss	5	Qatargas I	1432

Fleet – LNG Bunkering

Name	Built	Capacity	Registered Owner	Builder	Flag	Engine Type	Cargo System	No. of tanks	Project
Seagas	Sep-74	170	Linde Gas AB	Havyard Leirvik	Sweden	Diesel	Cylinder	1	Stockholm Viking Line
Coral Methane	Apr-09	7,551	Coral Methane Shipping BV	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinder	4	Portfolio
Oizmendi	Jul-09	600	Itsas Gas Bunker Supply SL	Astilleros Zamakona	Spain	Diesel	Cylinder	2	Huelva
Green Zeebrugge	Feb-17	5,000	LNG Link Investment AS	Hanjin Heavy Industries	Belgium	Diesel/Gas-Electric	Cylinder	2	Zeebrugge
Cardissa	Jun-17	6,500	Shell Western LNG BV	STX	Netherlands	Diesel/Gas-Electric	Cylinder	1	Portfolio
Coralius	Aug-17	5,800	Sirius Veder Gas AB	Bodewes Shipyards	Sweden	DFDE	Cylinder	4	Portfolio
Kairos	Oct-18	7,500	Uranos Vermogensverwaltung	Hyundai Mipo	Cyprus	Gas-Diesel	Type C	4	Portfolio
Bunker Breeze	Oct-18	6,050	Molucas Naviera AIE	Astilleros Zamakona	Spain	Gas-Diesel	Cylinder	4	Algeciras
LNG London	Apr-19	3,000	LNG Shipping S.A.	Severnav S.A.	Belgium	LNGPac	Cylinder	6	ARA
SM Jeju LNG 1	Sep-19	7,500	Jeju LNG 1 S.A.	Samsung	Panama	Diesel/Gas-Electric	KC-1	1	Portfolio
SM Jeju LNG 2	Jan-20	7,500	Jeju LNG 2 S.A.	Samsung	Panama	Diesel/Gas-Electric	KC-1	1	Portfolio
Gas Agility	Apr-20	18,600	Emerald Green Maritime Ltd.	Hudong Zhonghua	Malta	DFDE	TZ Mk III Flex	2	Rotterdam
Kaguya	Sep-20	3,469	Central LNG Shipping Japan	Kawasaki	Japan	Gas-Diesel	Cylinder	1	JERA TPS
Avenir Advantage	Oct-20	7,500	Avenir L Pte Ltd.	Keppel Nantong	Malta	Gas-Diesel	Type C	2	Portfolio
Avenir Accolade	Nov-20	7,500	Stolt-Nielsen Gas Ltd.	Keppel Nantong	Malta	Gas-Diesel	Type C	2	Portfolio
FueLNG Bellina	Nov-20	7,500	FueLNG Pte Ltd.	Kappel Nantong	Singapore	Diesel/Gas-Electric	Cylinder	2	Portfolio
Dalian No. 1	Dec-20	8,330	Xinao Marine Shipping Co. Ltd.	Dalian Yard	China	Gas-Diesel	Cylinder	2	Portfolio
Marine Vicky	Jan-20	9,900	Sinanju Tankers Pte. Ltd.	Keppel Nantong	Singapore	Gas-Diesel	TBC	TBC	Portfolio
Imperial Gas 92	Oct-17	3,800	Imperial Logistics International BV & Co. KG	Centromost	Germany	Diesel	Cylinder	TBC	Portfolio
Imperial Gas 93	Nov-17	3,800	Imperial Logistics International BV & Co. KG	Centromost	Germany	Diesel	Cylinder	TBC	Portfolio

Fleet – Small-scale/Multipurpose

Name	Built	Capacity	Registered Owner	Builder	Flag	Engine Type	Cargo System	No. of tanks	Project
Akebono Maru	Jun-11	3,500	Chuo Kaiun K.K.	Higaki	Japan	Diesel	Cylinders	2	Japan coastal trade
Aman Sendai	May-97	18,928	Asia LNG Transport	NKK	Malaysia	Steam	TZ Mk. III	3	Malaysia LNG
Coral Acropora	Dec-12	6,573	Coral Acropora Shipping	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinders	4	Portfolio
Coral Actinia	Jan-13	6,573	Coral Actinia Shipping	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinders	4	Portfolio
Coral Alicia	Dec-12	6,573	Coral Alicia Shipping	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinders	4	Portfolio
Coral Anthelia	May-13	6,500	Coral Anthelia Shipping	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinders	4	Portfolio
Coral Energice	Feb-18	18,000	Anthony Veder Chartering	Neptun Werft	Netherlands	Gas-Diesel	TZ MK. III Flex	2	Portfolio
Coral Energy	Dec-12	15,600	Anthony Veder Rederijzaken	Meyer Werft	Netherlands	Gas-Diesel	IMO Type C	3	Portfolio
Coral Favia	Jul-10	10,000	Somargas II Pvt. Ltd.	Wuzhou Shipbuilding	Singapore	Diesel	Cylinders	2	Baltic portfolio
Coral Fraseri	Jan-10	10,000	Innovation Shipping Co.	Wuzhou Shipbuilding	Singapore	Diesel	Cylinders	2	Portfolio
Coral Fungia	Jan-11	10,000	Somargas II Pvt. Ltd.	Wuzhou Shipbuilding	Singapore	Diesel	Cylinders	2	Baltic portfolio
Coral Furcata	Nov-11	10,000	Conception Shipping Company	Wuzhou Shipbuilding	Singapore	Diesel	Cylinders	2	Portfolio
Hai Yang Shi You 301	Apr-15	30,000	COSL	Jiangnan Shipyard	China	Gas-Diesel	Membrane	4	Hainan LNG shuttle
Kakurei Maru	Nov-08	2,536	Tsurumi Sunmarine Co.	Higaki	Japan	Diesel	Cylinders	2	Japan coastal trade
Kakuyu Maru	Nov-13	2,538	Tsurumi Sunmarine Co.	Kawasaki	Japan	Diesel	Cylinders	1	Japan coastal trade
Lucia Ambition	Dec-93	18,927	Asia LNG Transport	NKK	Malaysia	Steam	TZ Mk. III	3	Malaysia-Hainan
North Pioneer	Nov-05	2,500	Japan Liquid & Gas Transport Co. & Japan Railway Agency	Shin Kurushima	Japan	Diesel	Cylinders	2	Japan coastal trade
Pioneer Knutsen	Mar-04	1,100	Knutsen Kyst LNG K/S	Bijlsma Lemmer B.V. Scheepswerf	Norway	LNG-Diesel	Cylinders	2	Norway coastal trade
Ravenna Knutsen	Feb-21	30,000	Norspan LNG 14 AS	Hyundai Mipo	Spain	X-DF	Cylinders	3	Italy coastal trade
Seoul Gas	Jul-98	4,365	Chemgas Schiffahrts GmbH & Co. mt Oste KG	Severnav Shipbuilding	Liberia	Diesel	Cylinders	2	S. Korea-China
Shinju Maru No. 1	Aug-03	2,538	JRTT & NS United Coastal Tankers	Kawasaki	Japan	Diesel	Cylinders	2	Japan coastal trade
Shinju Maru No. 2	Oct-08	2,536	Chuo Kaiun K.K.	Higaki	Japan	Diesel	Cylinders	2	Japan coastal trade
Sun Arrows	Sep-07	19,531	Maple LNG Transport Inc.	Kawasaki	Bahamas	Diesel	Moss	3	Malaysia LNG
Surya Aki	Feb-96	19,538	MCGC International Limited & Hiroshima Gas Co.	Kawasaki	Bahamas	Steam	Moss	3	Thanlyin LNG
Triputra	Dec-00	23,097	Nusantara Shipping	NKK	Indonesia	Steam	TZ Mk. III	3	Pertamina Portfolio
Unikum Spirit	Jun-11	12,000	DHJS Hull No.2007-001 LLC	AVIC Dingheng	Singapore	Diesel	Cylinders	2	Kuantan
Vision Spirit	Sep-11	12,000	I.M. Skaugen Marine Services	AVIC Dingheng	Singapore	Diesel	Cylinders	2	Portfolio

Any observations, additions or suggested revisions to the LNG journal World LNG Carrier Fleet list should be sent to editor@lngjournal.com

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